

FINAL ANNOUNCEMENT

Perugia - Italy • June 4-14/2018

C I M 2018 T E C

14th
International
Ceramics
Congress
June 4-8/2018

8th
Forum
on
New Materials
June 10-14/2018

CIMTEC 2018

<i>Flowsheet</i>		JUNE 4		JUNE 5		JUNE 6		JUNE 7		JUNE 8	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
14th INTERNATIONAL CERAMICS CONGRESS	REGISTRATION										
	SYMPOSIUM CA			N	CA	CA	CA	CA	CA	CA	CA
	SYMPOSIUM CB				CB	CB	CB	CB	CB	CB	CB
	Focused Session CB-8				CB-8	CB-8	CB-8	CB-8			
	Focused Session CB-9					CB-9	CB-9	CB-9	CB-9	CB-9	
	Focused Session CB-10				CB-10	CB-10		CB-10	CB-10		
	SYMPOSIUM CC				CC	CC	CC	CC	CC	CC	
	SYMPOSIUM CD				CD		CD			CD	CD
	SYMPOSIUM CE				CE	CE	CE	CE	CE	CE	
	SYMPOSIUM CF				CF	CF	CF	CF	CF	CF	CF
	SYMPOSIUM CG				CG	CG	CG	CG	CG	CG	CG
	SYMPOSIUM CH				CH	CH	CH	CH	CH	CH	CH
	SYMPOSIUM CI				CI	CI	CI	CI	CI	CI	CI
	SYMPOSIUM CJ				CJ	CJ	CJ	CJ	CJ	CJ	CJ
	SYMPOSIUM CK				CK	CK	CK	CK	CK	CK	
	SYMPOSIUM CL				CL	CL	CL	CL	CL	CL	CL
	SYMPOSIUM CM				CM	CM	CM	CM	CM	CM	
	SYMPOSIUM CN				CN	CN	CN	CN	CN		
	CONFERENCE CO				CO	CO	CO	CO	CO	CO	CO
POSTER MOUNTING				◆	◆						
POSTER DISCUSSION										◆	
SOCIALS					●				●		



WELCOME RECEPTION



GALA CONCERT



CONFERENCE DINNER

Invitation to attend

CIMTEC 2018 will be held in Perugia, Italy, June 4 to 14, 2018. CIMTEC 2018 will consist of the 14th International Ceramics Congress (June 4-8) and of the 8th Forum on New Materials (June 10-14), each of them including a number of Symposia, Special Sessions, and Conferences. As a major longstanding event for the international materials community, CIMTEC will again gather together a large and qualified audience of materials scientists, physicists, chemists and engineers and of experts of a wide range of the most demanding application areas of modern materials, from the molecular and nanoscales to large complex integrated systems.

The National Research Council of Italy (CNR), the Italian National Agency for New Technology, Energy and the Environment (ENEA) will act as major endorsers of CIMTEC 2018 together with the World Academy of Ceramics (WAC), The International Ceramic Federation (ICF) and the International Union of the Materials Research Societies (IUMRS).

The Chair, Co-Chairs and CIMTEC 2018 Committees invite you to foster the progress in the field by contributing with your expertise to what promises to be a very comprehensive and exciting meeting, and to enjoy the immense unique artistic heritage and wonderful landscape of Umbria district.

Pietro Vincenzini
General Chair CIMTEC Conferences
National Research Council, Italy

Co-chairs CIMTEC 2018
Gary Messing
Penn State University, USA
World Academy of Ceramics
Takashi Goto
Tohoku University, Japan
International Ceramic Federation
Robert P.H. Chang
Northwestern University, USA
International Union of Materials Research Societies

Welcome to CIMTEC 2018!

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Chair**Pietro Vincenzini**

World Academy of Ceramics

Co-Chairs**Gary Messing**Pennsylvania State University, USA
World Academy of Ceramics**Takashi Goto**Tohoku University, Japan
International Ceramic Federation**Advisory Boards****SYMPOSIUM CA - Progress in Powder Processing Science and Manufacturing for Advanced Ceramics and Composites**

Conveners: Rajendra K. Bordia, USA (Programme Chair) Masahiro Yoshimura, Japan *Members:* Javier Alarcon, Spain Mari-Ann Einarsrud, Norway Kevin G. Ewsuk, USA Gregory K.L. Goh, Singapore Olivia Graeve, USA Olivier Guillon, Germany Krzysztof Haberkowicz, Poland Juergen G. Heinrich, Germany Yoshihiro Hirata, Japan Junichi Hojo, Japan Yuji Hotta, Japan Suk-Joong L. Kang, South Korea Kazumi Kato, Japan Frank Kern, Germany Sridhar Komarneni, USA Edson Roberto Leite, Brazil Anne Leriche, France Christophe Martin, France Laura Montanaro, Italy Makio Naito, Japan Willi Pabst, Czech Republic Yoshio Sakka, Japan Wolfgang Sigmund, USA Mikolaj Szafran, Poland Satoshi Tanaka, Japan Wei-Hsing Tuan, Taiwan Jef Vleugels, Belgium

SYMPOSIUM CB - Non Conventional and Emerging Routes to Advanced Ceramics

Convener: Ralf Riedel, Germany *Members:* Hiroya Abe, Japan James H. Adair, USA Dinesh Agrawal, USA Umberto Anselmi-Tamburini, Italy Florence Babonneau, France Joachim Bill, Germany Etienne Duguet, France Thomas Graule, Switzerland Peter Greil, Germany Aleksander Gurlo, Germany Masashi Hasegawa, Japan Shmuel Hayun, Israel Nicola Huesing, Austria Emanuel Ionescu, Germany Jeongho Kim, USA Lisa Klein, USA Waltraud M. Kriven, USA Sylvain Marinel, France Philippe Miele, France Guenter Motz, Germany Eugene A. Olefsky, USA Kurosch Rezwan, Germany Clement Sanchez, France Gian Domenico Soraru, Italy Yoshiyuki Sugahara, Japan Omer Van der Biest, Belgium Zhaoju Yu, China Di Zhang, China

Focused Session CB-8 - Bio-inspired and Bio-enabled Processing

Convener: Di Zhang, China *Members:* Hao Bai, China Adriana Bigi, Italy Sylvain Deville, France Yanfeng Gao, China Pio Manuel Gonzalez, Spain Simon Hall, UK David Kisailus, USA Jennifer Lewis, USA Frank Mueller, Germany Kenneth Sandhage, USA Andre R. Studart, Switzerland

Focused Session CB-9 - Additive Manufacturing

Convener: Aldo R. Boccaccini, Germany *Members:* Amit Bandyopadhyay, USA Joseph Beaman, USA Francis Cambier, Belgium Christophe Chaput, France Thierry Chartier, France Jens Guenster, Germany John W. Halloran, USA Soshu Kirihaara, Japan Tassilo Moritz, Germany Roger Narayan, USA Martin Schwentenwein, Austria Nahum Travitzky, Germany

Focused Session CB-10 - SHS Ceramics

Convener: Alexander S. Rogachev, Russia *Members:* Mikhail I. Alymov, Russia Florence Baras, France Inna P. Borovinskaya, Russia Giacomo Cao, Italy Chang-Chun Ge, China Suren L. Kharatyan, Armenia Boris B. Khina, Belarus Evgeny Levashov, Russia Jerzy Lis, Poland Nikolay Z. Lyakhov, Russia Zulkhair Mansurov, Kazakhstan Alexander Mukasyan, USA Osamu Odawara, Japan Jan A. Puszynski, USA Alexander E. Sytschev, Russia Giorgi Tavadze, Georgia Naresh Thadhani, USA Arvind Varma, USA Galina Xanthopoulou, Greece Onuralp Yucel, Turkey

SYMPOSIUM CC - Ceramics and Composites for Enhanced Tribologic and Corrosion Performance in High-demanding Applications

Convener: Klaus G. Nickel, *Germany* *Members:* Marianne Balat-Pichelin, *France* José Daniel Biasoli de Mello, *Brazil* Maria I. De Barros, *France* Martin Dienwiebel, *Germany* Michael Dugger, *USA* Ali Erdemir, *USA* Takashi Goto, *Japan* Laurent Gremillard, *France* Mathias Herrmann, *Germany* Xinmei Hou, *China* Stephen Hsu, *USA* Andreas Kailer, *Germany* Dae-Eun Kim, *South Korea* Satoshi Kitaoka, *Japan* Kang Lee, *USA* Laurence Marks, *USA* Michael J. McNallan, *USA* Michael Moseler, *Germany* Elizabeth J. Opila, *USA* Francesco Panerai, *USA* Luis Augusto Rocha, *Brazil* Margaret Stack, *UK* Tom Troczynski, *Canada* Mustafa Urgen, *Turkey* Lucia Vieira Santos, *Brazil* Rehan Zahid, *Malaysia*

SYMPOSIUM CD - Joining of Inorganic Materials: From Macro- to Nano-length Scales

Convener: Jolanta Janczak-Rusch, *Switzerland* *Members:* Mathieu Brochu, *Canada* Masahiro Fukumoto, *Japan* Andreas Glaeser, *USA* Akio Hirose, *Japan* Fiqiri Hodaj, *France* Vikram Jayaram, *India* Wayne Kaplan, *Israel* Georges Kaptay, *Hungary* Kevin M. Knowles, *UK* Katsuyoshi Kondoh, *Japan* Charles Lewinsohn, *USA* Alberto Passerone, *Italy* Ivar E. Reimanis, *USA* Noritaka Saito, *Japan* Julius C. Schuster, *Austria* Katsuaki Suganuma, *Japan* Jun Wei, *Singapore* Guisheng Zou, *China*

SYMPOSIUM CE - Frontiers in Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy and Sustainability

Convener: Sanjay Mathur, *Germany* *Members:* U. Balachandran, *USA* Ausrine Bartasyte, *France* Silke Christiansen, *Germany* Daniel Chua, *Singapore* Elisabetta Comini, *Italy* Zorica Crnjak Orel, *Slovenia* Mauro Epifani, *Italy* Yoon-Bong Hahn, *South Korea* Yao He, *China* Eva Hemmer, *Canada* Beatriz Julian-Lopez, *Spain* Hidehiro Kamiya, *Japan* Aivaras Kareiva, *Lithuania* Sohini Kar-Narayan, *UK* Anand S. Khanna, *India* Masoud Latifi, *Iran* Yoshitake Masuda, *Japan* Zetian Mi, *USA* Greta R. Patzke, *Switzerland* Theodor Schneller, *Germany* Shaohua Shen, *China* Wilson Smith, *Netherlands* Leander Tapfer, *Italy* Marlies Van Bael, *Belgium*

SYMPOSIUM CF - High and Ultra High Temperature Ceramics and Composites for Extreme Environments

Convener: William G. Fahrendholtz, *USA* *Members:* Erica L. Corral, *USA* Robert Danzer, *Austria* Arturo Dominguez Rodriguez, *Spain* Jan Dusza, *Slovakia* Gilbert Fantozzi, *France* Stuart Hampshire, *Ireland* Richard H.J. Hannink, *Australia* Kiyoshi Hirao, *Japan* Michael J. Hoffmann, *Germany* Shinichi Kikkawa, *Japan* Hagen Klemm, *Germany* Peter Kroll, *USA* Edgar Lara-Curzio, *USA* William Lee, *UK* Wei Pan, *China* Tatiana Prikhna, *Ukraine* Singh Ramesh, *Malaysia* Daniel Riley, *Australia* Pavol Šajgalík, *Slovakia* Junichi Tatami, *Japan* Koji Watari, *Japan* Eric Wuchina, *USA* Katsumi Yoshida, *Japan* Yanchun Zhou, *China* Michael Zins, *Germany*

SYMPOSIUM CG - Progress in Nano-laminated Ternary Carbides, Nitrides and Borides (MAX/MAB) Phases and Derivatives Thereof (MXenes)

Convener: Michel W. Barsoum, *USA* *Members:* Thierry Cabioch, *France* Michael Farle, *Germany* Qing Huang, *China* Konstantza Lambrinou, *Belgium* Shibo Li, *China* Vincent Mauchamp, *France* Michael Naguib, *USA* Thierry Ouisse, *France* Milan Radovic, *USA* Johanna Rosen, *Sweden* Jochen M. Schneider, *Germany* Jinyang Wang, *China*

SYMPOSIUM CH - Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

Convener: Rainer Gadow, *Germany* *Members:* Jun Akedo, *Japan* Samir M. Aouadi, *USA* Christopher C. Berndt, *Australia* Abdou Djouadi, *France* Per Eklund, *Sweden* Bastian Gaedike, *Germany* Wayne L. Gladfelter, *USA* Philippe Goudeau, *France* Ulf Jansson, *Sweden* Yutaka Kagawa, *Japan* Sang Sub Kim, *South Korea* Enrique J. Lavernia, *USA* Hanlin Liao, *France* Luca Lusvarghi, *Italy* Christian Mitterer, *Austria* Christian Moreau, *Canada* Klaus Nassenstein, *Germany* Kazuhiro Ogawa, *Japan* Nitin P. Padture, *USA* Kevin Plucknett, *Canada* Aline Rougier, *France* Uwe Schulz, *Germany* Dmitry V. Shtansky, *Russia* Mario Tului, *Italy* Constantin Vahlas, *France* Armelle Vardelle, *France* Robert Vassen, *Germany* Ping Xiao, *UK* Sam Zhang S., *Singapore* Dongming Zhu, *USA*

SYMPOSIUM CI - Porous Ceramics for Environmental Protection, Energy-related Technologies and Advanced Industrial Cycles

Convener: Paolo Colombo, *Italy* *Members:* Joerg Adler, *Germany* Lennart Bergstrom, *Sweden* Samuel Bernard, *France* Henry J.M. Bouwmeester, *Netherlands* Katherine Faber, *USA* José Maria Ferreira, *Portugal* Manabu Fukushima, *Japan* Yuji Iwamoto, *Japan* Young-Wook Kim, *South Korea* Valentina Medri, *Italy* Scott Mixture, *USA* Rodrigo Moreno, *Spain* Kazuki Nakanishi, *Japan* Antonio P. Novaes de Oliveira, *Brazil* Alberto Ortona, *Switzerland* Michael Scheffler, *Germany* David S. Smith, *France* Matthias Thommes, *USA* Cekdar Vakifahmetoglu, *Turkey* Tim Van Gestel, *Germany* Ulrich Vogt, *Switzerland* Michaela Wilhelm, *Germany* Yuping Zeng, *China* Dongyuan Zhao, *China*

SYMPOSIUM CJ - Advances in Electroceramics: Processing, Structure, Properties, and Applications

Convener: Brahim Dkhil, *France* *Members:* Sheikh Akbar, *USA* Geoff Brenneka, *USA* Fanglin (Frank) Chen, *USA* Xiang Ming Chen, *China* Ying-Hao Chu, *Taiwan* Dragan Damjanovic, *Switzerland* Massimo De Vittorio, *Italy* Catherine Elissalde, *France* Mohammed Es-Souni, *Germany* Carmen Galassi, *Italy* Adrian Goldstein, *Israel* Tor Grande, *Norway* Sossina M. Haile, *USA* Andrei Kholkin, *Portugal* Jens Kreisel, *Luxembourg* Jong-Heun Lee, *South Korea* Raffaella Lo Nigro, *Italy* Ichiro Matsubara, *Japan* Alexander Michaelis, *Germany* Liliana Mitoseriu, *Romania* Reginaldo Muccillo, *Brazil* Minoru Osada, *Japan* Lorena Pardo, *Spain* Jürgen Roedel, *Germany* Federico Rosei, *Canada* Edward M. Sabolsky, *USA* Ahmad Safari, *USA* Mailadil T. Sebastian, *India* Nava Setter, *Switzerland & Israel* Derek C. Sinclair, *UK* Andris Sternberg, *Latvia* Danilo Suvorov, *Slovenia* Ichiro Takeuchi, *USA* Evgeny Y. Tsymbal, *USA* Rick Ubic, *USA* Satoshi Wada, *Japan* Ki Hyun Yoon, *South Korea* Shujun Zhang, *Australia* Weiguang Zhu, *Singapore*

SYMPOSIUM CK - Functional Magnetic Oxides

Convener: Agnes Barthelemy, *France* Christian Binek, *USA* Scott Chambers, *USA* Roberto De Renzi, *Italy* Josè Maria De Teresa, *Spain* Alessio Filippetti, *Italy* Josep Fontcuberta, *Spain* Atsushi Fujimori, *Japan* Hyun M. Jang, *South Korea* Masashi Kawasaki, *Japan* Tsuyoshi Kimura, *Japan* Wolfgang Kleemann, *Germany* Neil D. Mathur, *UK* Alexandr Nosov, *Russia* Tanusri Saha-Dasgupta, *India* Gopalan Srinivasan, *USA* Susanne Stemmer, *USA* Hidekazu Tanaka, *Japan* Jeroen Van Den Brink, *Germany* Antonio Vecchione, *Italy* Dwight Viehland, *USA* Yonggang Zhao, *China*

SYMPOSIUM CL - Inorganic Materials Systems for Advanced Photonics

Convener: Maurizio Ferrari, *Italy* *Members:* Jean-Luc Adam, *France* John Ballato, *USA* Marco G. Bettinelli, *Italy* George Boulon, *France* Louise Bradley, *Ireland* Patrice Camy, *France* Luis Carlos, *Portugal* M. Lucia Curri, *Italy* Pieter Dorenbos, *Netherlands* Mark Dubinskii, *USA* Christophe Dujardin, *France* Marc Eichhorn, *France* Mikio Higuchi, *Japan* Shibin Jiang, *USA* Safa Kasap, *Canada* Oleg L. Khasanov, *Russia* Isabel Kinski, *Germany* Ming-Jun Li, *USA* Antonio Lucianetti, *Czech Rep.* Anna Lukowiak, *Poland* Sergey B. Mirov, *USA* Koji Morita, *Japan* Naoki Ohashi, *Japan* Gary R. Pickrell, *USA* Giancarlo C. Righini, *Italy* Ivan Scheblykin, *Sweden* Wieslaw Strek, *Poland* Stefano Taccheo, *UK* Setsuhisa Tanabe, *Japan* Katsuhisa Tanaka, *Japan* Dingyuan Tang, *Singapore* Anna Vedda, *Italy*

SYMPOSIUM CM - Science and Technology for Silicate Ceramics

Conveners: Michele Dondi, *Italy* Maximina Romero, *Spain* *Members:* Fernanda Andreola, *Italy* Anselmo O. Boschi, *Brazil* Richard Bowman, *Australia* William M. Carty, *USA* Lahcen Daoudi, *Morocco* Katja Dombrowski-Daube, *Germany* Vilma Ducman, *Slovenia* Dolores Eliche Quesada, *Spain* Laszlo A. Gomze, *Hungary* Alvaro Guzman Aponte, *Colombia* Dachamir Hotza, *Brazil* Ali M. Ismail, *Egypt* Fakher Jamoussi, *Tunisie* Aeslina Abdul Kadir, *Malaysia* Alpagut Kara, *Turkey* Alexander Karamanov, *Bulgaria* Hiroaki Katsuki, *South Korea* Ungsoo Kim, *South Korea* Joao A. Labrincha, *Portugal* Cristina Leonelli, *Italy* Kenneth J.D. Mackenzie, *New Zealand* Satyendra N. Misra, *India* Arnaldo Moreno Berto, *Spain* Pedro Munoz Velasco, *Chile* Xiaosheng Ouyang, *China* Angel Palomo Sanchez, *Spain* Janusz Partyka, *Poland* Yiannis Pontikes, *Belgium* Elisa Rambaldi, *Italy* Oscar Jaime Restrepo Baena, *Colombia* Sylvie Rossignol, *France* Juan Jacobo Ruiz Valdes, *Mexico* Kwesi Sagoe-Crentsil, *Australia* Alberto N. Scian, *Argentina* Servet Turan, *Turkey* Milica Vasic, *Serbia* Alberto Viani, *Czech Rep.*

SYMPOSIUM CN - Refractories: Meeting Refractory Industry Needs of Today and It's Future Challenges

Convener: Christos G. Aneziris, *Germany* *Members:* Carmen Baudin, *Spain* James P. Bennett, *USA* Goutam Bhattacharya, *India* Elena Brandaleze, *Argentina* Swapan Kumar Das, *India* Marcel Franken, *Netherlands* Andrie M. Garbers-Craig, *South Africa* Dana Goski, *USA* Shinobu Hashimoto, *Japan* Marc Huger, *France* Yawei Li, *China* Jinichiro Nakano, *USA* Victor Carlos Pandolfelli, *Brazil* Christopher Parr, *France* Jacques Poirier, *France* Michael Rigaud, *Canada* Sido Sinnema, *Netherlands* Kiyoshi Sugita, *Japan* Analia G. Tomba Martinez, *Argentina*

CO - 8th International Conference "Advanced Inorganic Fibre Composites for Structural and Thermal Management Applications"

Conveners: Mrityunjay Singh, *USA (Programme Chair)* Monica Ferraris, *Italy* Zhengyi Fu, *China* Tatsuki Ohji, *Japan* *Members:* Rajiv Asthana, *USA* Laifei Cheng, *China* Bernd Clauss, *Germany* Shaoming Dong, *China* Michael C. Halbig, *USA* Bernhard Heidenreich, *Germany* Toshihiro Ishikawa, *Japan* Hai-Doo Kim, *South Korea* Walter Krenkel, *Germany* Jacques Lamon, *France* Sergei T. Mileiko, *Russia* Claudio Mingazzini, *Italy* Dileep Singh, *USA* Vijay K. Srivastava, *India* Gerard L. Vignoles, *France* Guo-Jun Zhang, *China* Yu Zhou, *China*

OUTLINE CONGRESS

SYMPOSIUM **CA**

Progress in Powder Processing Science and Manufacturing for Advanced Ceramics and Composites

SYMPOSIUM **CB**

Non Conventional and Emerging Routes to Advanced Ceramics

*Focused Session **CB-8***

Bio-inspired and Bio-enabled Processing

*Focused Session **CB-9***

Additive Manufacturing

*Focused Session **CB-10***

SHS Ceramics

SYMPOSIUM **CC**

Ceramics and Composites for Enhanced Tribologic and Corrosion Performance in High-demanding Applications

SYMPOSIUM **CD**

Joining of Inorganic Materials: From Macro- to Nano-length Scales

SYMPOSIUM **CE**

Frontiers in Nanostructured, Nanocomposite and Hybrid Functional Materials for Energy and Sustainability

SYMPOSIUM **CF**

High and Ultra High Temperature Ceramics and Composites for Extreme Environments

SYMPOSIUM **CG**

Progress in Nano-laminated Ternary Carbides, Nitrides and Borides (MAX/MAB) Phases and Derivatives Thereof (MXenes)

SYMPOSIUM **CH**

Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

SYMPOSIUM **CI**

Porous Ceramics for Environmental Protection, Energy-related Technologies and Advanced Industrial Cycles

SYMPOSIUM **CJ**

Advances in Electroceramics: Processing, Structure, Properties, and Applications

SYMPOSIUM **CK**

Functional Magnetic Oxides

SYMPOSIUM **CL**

Inorganic Materials Systems for Advanced Photonics

SYMPOSIUM **CM**

Science and Technology for Silicate Ceramics

SYMPOSIUM **CN**

Refractories: Meeting Refractory Industry Needs of Today and It's Future Challenges

Serial Conference

CO

8th International Conference

Advanced Inorganic Fibre Composites for Structural and Thermal Management Applications

SESSIONS TIMETABLE

14th International Ceramics Congress - June 4-8, 2018

Monday June 4

15.00-19.00
REGISTRATION
Centro Congressi Hotel Quattrotori
Via Corcianese, 260
Perugia, Italy

Tuesday June 5

Morning: 9.30-13.00

Opening Session

Welcome Addresses

Plenary Lectures (C:PL1-PL2)

Afternoon: 14.25-18.30

Symposium CA (CA-1:IL01-IL03)
(CA-1:IL04-L06)

Symposium CB (CB-1:IL01-L05)
(CB-8.1:IL01-L03)
(CB-10.1:IL01-IL02)

Symposium CC (CC-1:IL01-IL03)
(CC-1:IL04-L06)

Symposium CD (CD-1:IL01-IL03)
(CD-1:IL04-L06)

Symposium CE (CE-1:IL01-IL03)
(CE-1:IL04-IL06)

Symposium CF (CF-1:IL01-IL03)
(CF-1:IL04-L06)

Symposium CG (CG:KL+CG-1:IL01-IL03)
(CG-2:IL01-IL02)

Symposium CH (CH:KL+CH-1:IL01-IL03)
(CH-1:IL04-IL05)

Symposium CI (CI-1:IL01-IL03)
(CI-1:IL04-L07)

Symposium CJ (CJ-1:IL01-IL03)
(CJ-2:IL01-IL03)

Symposium CK (CK-1:IL01-IL02)
(CK-2:IL01-IL03)

Symposium CL (CL-1:IL01-IL03)
(CL-1:IL04-IL05)

Symposium CM (CM-1:IL01-IL03)
(CM-2:IL01-IL03)

Symposium CN (CN-1:IL01-L04)
(CN-3:IL01-IL02)

Conference CO (CO-1:IL01-IL03)
(CO-1:IL04-L07)

8.30-13.00
14.30-18.30
POSTER MOUNTING

20.30-22.00
Welcome Party

Wednesday June 6**Morning: 9.00-13.00**

Symposium CA	(CA-2:IL01-L03) (CA-3:IL01-L05)
Symposium CB	(CB-2:IL01-L04) (CB-2:IL05-L09) (CB-8.1:IL04-L08) (CB-8.2:IL01-L03) (CB-9.1:IL01-L05) (CB-9.2:IL01-L03) (CB-10.1:IL03-IL04) (CB-10.2:IL01-L04)
Symposium CC	(CC-1:IL07-L11) (CC-1:IL12-L14)
Symposium CE	(CE-1:IL07-L09) (CE-1:IL10-IL12)
Symposium CF	(CF-1:IL07-L12) (CF-2:IL01-IL02)
Symposium CG	(CG-2:IL03-L06) (CG-3:IL01-IL04)
Symposium CH	(CH-2:IL01-L04) (CH-3:IL01-L05)
Symposium CI	(CI-1:IL08-L12) (CI-1:IL13-L16)
Symposium CJ	(CJ-2:IL04-L08) (CJ-2:IL09-L12)
Symposium CK	(CK-1:IL03-IL04) (CK-1:IL05-L07)
Symposium CL	(CL-2:IL01-IL03) (CL-2:IL04-L06)
Symposium CM	(CM-1:IL04-L07) (CM-2:IL04-L06)
Symposium CN	(CN-2:IL01-L05) (CN-4:IL01-L03)
Conference CO	(CO-1:IL08-L13) (CO-2:IL01-IL02)

Afternoon: 14.25-18.45

Symposium CA	(CA-2:IL04-L07) (CA-1:L07-L09)
Symposium CB	(CB-3:IL01-L03) (CB-3:IL04-L06) (CB-8.2:IL04-IL06) (CB-8.3:IL01-L03) (CB-9.3:IL01-L04) (CB-9.4:IL01-IL02)
Symposium CC	(CC-1:IL15-L17) (CC-1:IL18-L20)
Symposium CD	(CD-1:IL07-L09) (CD-2:IL01-L04)
Symposium CE	(CE-2:IL01-IL03) (CE-2:IL04-L06)
Symposium CF	(CF-2:IL03-IL05) (CF-2:IL06-L08)
Symposium CG	(CG-3:IL05-IL07) (CG-4:IL01-L03)
Symposium CH	(CH-4:IL01-L04) (CH-1:IL06-L10)
Symposium CI	(CI-2:IL01-L05) (CI-1:IL17-L19)
Symposium CJ	(CJ-1:L04-L07) (CJ-2:L13-L17)
Symposium CK	(CK-3:IL01-IL04) (CK-4:IL01-L02)
Symposium CL	(CL-3:IL01-L04) (CL-4:IL01-L03)
Symposium CM	(CM-3:IL01-L05) (CM-2:IL07-L09)
Symposium CN	(CN-5:IL01-L03) (CN-4:IL04-IL05)
Conference CO	(CO-2:IL03-L06) (CO-3:IL01-L03)

Thursday June 7

Morning: 9.00-13.00

- Symposium CA (CA-3:L06-L10)
(CA-4:IL01-IL03)
- Symposium CB (CB-4:IL01-L04)
(CB-4:IL05-L07)
(CB-8.4:IL01-L04)
(CB-8.5:IL01-IL02)
(CB-9.4:IL03-L06)
(CB-9.4:IL07-L09)
(CB-10.2:IL05-L07)
(CB-10.3:IL01-L04)
- Symposium CC (CC-2:IL01-L04)
(CC-2:IL05-L07)
- Symposium CE (CE-2:IL07-L10)
(CE-3:IL01-IL02)
- Symposium CF (CF-3:IL01-L03)
(CF-2:IL09-L14)
- Symposium CG (CG-5:IL01-IL04)
(CG-5:IL05-L08)
- Symposium CH (CH-4:IL05-L08)
(CH-5:IL01-L05)
- Symposium CI (CI-3:IL01-IL03)
(CI-4:IL01-L05)
- Symposium CJ (CJ-3:IL01-IL04)
(CJ-3:IL05-L08)
- Symposium CK (CK-5:IL01-L06)
(CK-7:IL01)
- Symposium CL (CL-4:IL04-L08)
(CL-5:IL01-IL02)
- Symposium CM (CM-4:IL01-IL04)
(CM-5:IL01-L04)
- Symposium CN (CN-5:IL04-L06)
(CN-6:IL01-L03)
- Conference CO (CO-3:IL04-IL06)
(CO-7:IL01-IL04)

Afternoon: 14.30-18.30

- Symposium CA (CA-4:IL04-L06)
(CA-4:IL07-L09)
- Symposium CB (CB-4:IL08-L09)
(CB-5:IL01-L03)
(CB-9.5:IL01-L03)
(CB-10.4:IL01-L04)
- Symposium CC (CC-2:IL08-L10)
- Symposium CE (CE-3:IL03-L05)
- Symposium CF (CF-3:IL04-L07)
(CF-3:L08-L12)
- Symposium CG (CG-6:IL01-L06)
(CG-7:L01-L02)
- Symposium CH (CH-5:IL06-IL07)
(CH-5:IL08-L10)
- Symposium CI (CI-5:IL01-IL03)
(CI-3:IL04-L07)
- Symposium CJ (CJ-4:IL01-IL03)
(CJ-4:IL04-L07)
- Symposium CK (CK-6:IL01-IL03)
- Symposium CL (CL-5:IL03-IL04)
- Symposium CM (CM-4:IL05-L09)
(CM-5:L05-L08)
- Symposium CN (CN-6:IL04-L06)
(CN-7:IL01-IL03)
- Conference CO (CO-3:IL07-IL08)
(CO-3:IL09-L12)

21.30-23.30
Opera Concert

Friday June 8**Morning: 9.00-13.00**

Symposium CA (CA-4:IL10-L13)
(CA-5:IL01-IL03)

Symposium CB (CB-6:IL01-L04)
(CB-6:IL05-L08)
(CB-9.6:IL01-L04)
(CB-9.6:IL05-L07)

Symposium CC (CC-2:IL11-L13)
(CC-2:IL14-IL15)

Symposium CD (CD-3:IL01-L03)
(CD-3:IL04-L06)

Symposium CE (CE-3:IL06-L08)
(CE-3:IL09-L12)

Symposium CF (CF-3:IL13-L18)
(CF-4:IL01-L03)

Symposium CG (CG-8:IL01-IL03)
(CG-9:IL01-L04)

Symposium CH (CH-6:IL01-L04)
(CH-7:IL01-IL02)

Symposium CI (CI-6:IL01-L04)
(CI-6:IL05-L08)

Symposium CJ (CJ-5:IL01-L04)
(CJ-2:L18-IL22)

Symposium CK (CK-8:IL01-L03)
(CK-9:IL01-IL03)

Symposium CL (CL-6:IL01-IL03)
(CL-7:IL01-L04)

Symposium CM (CM-5:IL09-L14)
(CM-5:IL15-IL17)

Conference CO (CO-4:IL01-L05)
(CO-5:IL01-L03)

Afternoon: 14.30-18.30

Symposium CA (CA-5:IL04-L06)

Symposium CB (CB-6:IL09-IL10)

Symposium CD (CD-4:IL01-IL03)

Symposium CF (CF-4:IL04-L07)

Symposium CG (CG-3:L08-L12)
(CG-8:L04-L06)
(CG-9:IL05-L07)

Symposium CH (CH-7:IL03-IL04)

Symposium CI (CI-6:IL09-L12)

Symposium CJ (CJ-5:L05-L07)
(CJ-5:IL08-IL10)

Symposium CL (CL-8:IL01-L04)

Conference CO (CO-6:IL01-L03)

16.30-18.30

POSTER DISCUSSION

20.30-23.00

Conference Dinner

Code Number of contributions by Presenting Author (in alphabetical order)

The Code Number XY-W:Z00 includes: XY Symposium; W Session; Z Type of presentation (PL, KL, IL, L, P)*; 00 Paper number

* PL Plenary KL Keynote Lecture IL Invited Lecture L Contributed Lecture P Poster presentation

NOTE: Due to the restructuring of some symposia, the session number included in the Code may differ from the one selected by the Presenting Author in the Abstract Submission Form

Abe Hiroya	CB-9.5:IL01	Bespalko Yulia	CA-1:L08	Chevalier Jerome	CA-4:IL10
Abu Al-Rub Rashid K.	CI-5:IL03	Biasoli De Mello J. Daniel	CC-1:IL12	Chinelatto Adilson Luiz	CJ:P12
Acuatla Monica	CJ-2:L13	Bicer Hulya	CB-4:L07	Chinelatto Adriana	CA:P16
Adabifiroozjaei Esmaeil	CD-1:L09	Binner Jon	CF-1:IL02	Cho Wooseok	CA-1:L06
Adler Joerg	CI-6:L07	Birkel Christina	CG-2:L06	Choe Chayang	CD-2:L04
Agar Josh	CJ-2:IL05	Blond Eric	CN-4:IL02	Choi Doo Hyun	CA:P13
Agarwal Arvind	CD-1:IL07	Boanini Elisa	CB-8.4:IL01	Choi Goeun	CB-8.4:L04
Aguirre-Medel Susana	CI-4:L04	Boccaccini Aldo R.	CB-9.3:IL03	Chollon Georges	CI-1:L11
Al-Nasiri Nasrin	CF-2:IL07	Boehmler Judith	CA-4:L08	Choy Jin-Ho	CB-8.4:IL02
Alves Radi Polyana	CC-2:L13	Bogachev Evgeny A.	CO-3:IL01	Christiansen Silke	CE-3:IL07
Amoros Jose Luis	CM-3:IL01	Bolelli Giovanni	CH-6:IL01	Chu Ming-Wen	CK-8:IL02
Anasori Babak	CG-6:IL01	Bonneville Dawson	CL:P03	Chua Daniel	CE-1:IL07
Aneziris Christos G.	CN-6:IL05	Bor Buesra	CB-8.2:L03	Ciomaga Cristina-Elena	CJ-3:L08
Angelici Avincola Valentina	CF-2:L13	Borges Christiane	CB:P20	Clarke David	CF-1:IL01
Apte Prasad	CB-3:L03	Borrell Amparo	CB:P02	Clauss Bernd	CO-1:IL01
Arroyave Raymundo	CG-5:IL03	Botti Renata	CI-6:L03	Clemens Frank J.	CA-3:IL03
Asakura Yusuke	CB-1:L03	Bouillon Eric	CO-7:IL02	Colas Johann	CH-2:L02
Asiq Rahman O.S.	CH:P11	Boulon Georges	CL-4:L07	Collini Elisabetta	CL-7:IL02
Asle Zaeem Mohsen	CF-4:IL06	Bouzit Said	CI:P08	Cologna Marco	CB-4:L04
Asthana Rajiv	CO-2:IL01	Bovtun Viktor	CJ-2:L15	Colombo Paolo	CI-1:IL04
Atanasova-Vladimirova Stela	CM:P04	Bowen Paul	CI-1:L14	Concari Stefano	CF-2:L08
Atwater Harry A.	C:PL1	Boy Philippe	CJ-2:L06	Concina Isabella	CE-2:IL07
Aydiyany Sofiya	CB-10.2:L06	Bradley Jonathan	CL-6:IL02	Conte Sonia	CM-4:L08
Aziz Ayoub	CM-5:L14	Brandaleze Elena	CN:P04	Conze Susan	CJ-5:L05
Baghban Mohammad Amin	CL-1:IL05	Brandvik Trond	CN-5:L06	Coral Fonseca Fabio	CJ-5:L07
Bagnato Osmar Roberto	CD:P06	Braun James	CO-2:IL03	Corradetti Stefano	CF-1:L09
Bahel Shalini	CJ:P17	Brenner Donald	CF-4:IL04	Corredor Mendez K. Lorena	CM-2:L09
Bahtli Tuba	CN:P02	Brik Mikhail	CL-2:IL05	Costa Nogueira Içamira	CB:P13
Baik Kyeong-Ho	CH-3:IL02	Brinkmann Kyle S.	CJ-5:IL08	Cozzoli Davide	CE-1:IL03
Balat-Pichelin Marianne	CC-2:IL08	Browar Allison	CF-1:L11	Craciun Floriana	CJ-3:IL05
Ballato John	CL-4:IL04	Bruno Giovanni	CI-4:IL01	Ctibor Pavel	CF:P03
Banys Juras	CJ-1:IL02	Buhr Andreas	CN-1:IL02	Cvijovic-Alagic Ivana	CF-2:IL05
Baranger Emmanuel	CO-5:IL01	Bussman-Holder Annette	CK-5:L02	Dahlqvist Martin	CG-2:IL01
Baras Florence	CB-10.1:IL01	Cabioc'h Thierry	CG-6:IL02	Damjanovic Dragan	CJ-2:IL01
Barbieri Luisa	CM-2:IL07	Cailliet Sophie	CB-9.4:L05	Dash Apurv	CG-6:L05
Barsoum Michel W.	CG-3:IL01	Calvez Laurent	CL-3:IL02	De Bilbao Emmanuel	CN-2:IL02
Bartasyste Ausrine	CE-2:IL09	Cannio Maria	CB-9.6:L07	Debiemme-Chouvy C.	CO-1:L07
Bartels Julia	CI-3:L06	Cano-Crespo Rafael	CF-3:L15	Defay Emmanuel	CK-9:IL01
Barth Sven	CE-1:IL05	Capek Jiri	CH-5:L04	Delimova Liubov	CJ-2:L08
Barvitskiy Pavlo P.	CF-3:L08	Carenco Sophie	CE-1:IL12	Della Santina Mohallem N.	CI-4:L03
Baseri Jafar	CB:P21	Carvalho Sabrina	CB:P18	Demeyer Floriane	CH-1:L10
Bausa Luisa E.	CL-1:IL02	Caspi Elad	CG-5:IL02	Depla Diederik	CH-6:IL03
Belleville Philippe	CB-9.2:IL02	Cassaignon Sophie	CB-1:IL02	Deschuyteneer Dorian	CB-9.1:IL04
Belmonte Manuel	CC-1:IL04	Cavaleiro Albano	CH-4:IL02	Dey Koushik	CK:P02
Beltani Auricchio M. Maria	CD:P05	Cavalli Lorenzo	CO-3:L10	Dezellus Olivier	CD-4:IL01
Benavidez Edgardo	CN:P03	Celerier Stephane	CG:P05	Diantonio Christopher	CA-5:IL01
Benckiser Eva	CK-1:IL04	Cerbelaud Manuella	CA-2:L03	Dieguez Osvaldo	CJ-2:IL02
Bennett James P.	CN-5:IL04	Chahrouh Khaled	CI-1:L19	Diwald Oliver	CA-4:L11
Berger Thomas	CE-1:L09	Chaput Christophe	CB-9.4:IL07	Domenech Garcia Berta	CB-8.1:L08
Bernard Samuel	CI-6:IL05	Charpentier Ludovic	CC-2:L12	Dominguez Rodriguez A.	CF-3:L17
Bernardin Adriano M.	CM-1:IL04	Chatain Dominique	CD-1:IL04	Dong Shaoming	CO-2:IL04
Bernardo Enrico	CI-1:IL02	Chen Kevin	CL-8:IL03	Dos Santos Pereira P. F.	CB:P14
Besnard Clemence	CB-6:L08	Cheng Laifei	CO-3:IL06	Drechsel Christina	CB-2:L08

Dubinskii Mark	CL-8:IL02	Gluchowski Pawel	CL-2:IL03	Hwang Kuk-Jin	CE:P03
Dubois Sylvain	CG-3:L12	Gogotsi Yury	CG-9:L03	Hyodo Takeo	CJ-4:IL03
Dubourdieu Catherine	CJ-2:IL10	Goldstein Adrian	CL-8:IL01	Ikuhara Yuichi	CD-1:IL08
Ducman Vilma	CM-5:IL09	Goller Ralf	CC-1:L14	Illikainen Mirja	CM-5:IL15
Dugger Michael	CC-1:IL07	Gomez-Garcia Diego	CF-3:IL13	Indra Ankita	CK:P01
Dupuy Colin	CM-5:L13	Gomez-Zamorano Lauren	CM-5:L08	Ingason Arni S.	CG-1:IL02
Durand-Panteix Olivier	CB-9.6:L02	Gondolini Angela	CB-1:L04	Inoue Ryo	CH:P01
Durupthy Olivier	CB-3:IL04	Gonzalez Pio	CB-8.4:L03	Ionescu Emanuel	CB-2:IL02
Dusza Jan	CF-4:IL01	Gonzalez Granados Zoilo	CI-1:L18	Ioppolo Tindaro	CL-6:IL01
Dutra Ricardo	CM:P02	Gonzalez-Julian Jesus	CG-3:L11	Ishikawa Toshihiro	CO-1:IL02
Dutta Alo	CJ:P14	Gonzenbach Urs	CI-6:IL09	Istomin Pavel	CB-10.3:L04
Einarsrud Mari-Ann	CA-1:IL02	Gorjan Lovro	CB-9.3:L04	Istomina Elena	CO:P01
Ejiri Kohei	CO-1:L10	Gou Yanzi	CO:P02	Ito Takahiro	CG-5:IL04
Eklund Per	CH-5:IL08	Grader Gideon	CB-6:IL06	Ivanova Olga	CH:P07
Elsayed Hamada	CB-2:L07	Graf Dennis	CE:P09	Iwamoto Yuji	CI-3:IL04
Epifani Mauro	CE-2:IL04	Grande Tor	CJ-2:L12	Jacques Vincent	CK-8:IL01
Esposito Vincenzo	CJ-5:IL09	Grass Vladislav	CG:P03	Janczak-Rusch Jolanta	CD-2:IL03
Estournes Claude	CB-4:IL06	Green Micah	CG-6:IL03	Jang Byung-Koog	CH-3:L05
Fadley Charles	CL-7:IL01	Gromov Dmitry	CD:P02	Jantunen Heli	CJ-1:IL01
Failla Simone	CO-4:L04	Guenster Jens	CB-9.1:IL02	Jayaseelan Doni Daniel	CF-2:IL01
Fallah Vostakola Mohsen	CH:P13	Guillon Olivier	CA-4:IL01	Jeon Seongju	CE:P11
Fan Hsin-Wen	CA:P02	Guo Qiang	CB-8.2:IL01	Jeong Dae-yong	CJ-3:IL03
Farges Remi	CM-5:L10	Gupta Surojit	CG-4:IL01	Jeong Jung Hyun	CL:P02
Farle Michael	CG-2:IL03	Guzik Malgorzata	CL-3:IL03	Jeurgens Lars P.H.	CD-1:IL02
Faustini Marco	CB-6:IL05	Guzman Aponte Alvaro	CM-2:L05	Ji Wei	CO-4:L05
Ferone Claudio	CM-5:IL17	Gyngazov Sergei	CA:P08	Jiang Yong	CA:P11
Ferrari Begona	CA-2:IL02	Hadji Mohamed	CG-9:IL02	Jodoin Bertrand	CH-1:IL02
Ferrari Chiara	CM-3:IL02	Hahn Yoon-Bong	CE-2:IL03	Josse Michael	CJ-3:IL04
Ferraris Monica	CO-4:IL01	Halbig Michael C.	CO-3:IL08	Joulain Anne	CG-3:IL04
Ferreira Angela	CK-8:L03	Han Yanting	CH-5:L10	Jung In-Ho	CN-4:IL05
Fey Tobias	CI-4:IL02	Hara Yosuke	CI:P04	Juste Enrique	CB-9.1:IL01
Fiorentini Vincenzo	CK-5:IL01	Harmuth Harald	CN-4:IL01	Kageyama Hiroshi	CK-3:IL04
Fironov Yakov S.	CF:P01	Hasegawa Masashi	CB-2:L04	Kamochi Nobuaki	CM-4:IL06
Flauder Stefan	CC-1:L06	Hashimoto Shinobu	CN-1:IL01	Kanamori Kazuyoshi	CE-3:IL02
Fontes Vieira C. Mauricio	CM-2:IL04	Heidenreich Bernhard	CO-6:IL02	Kang Chong-Yun	CJ-4:IL04
Foresti Daniele	CB-9.6:L04	Held Alexander	CO-1:L11	Kankate Laxman	CJ-1:L05
Franchini Cesare	CK-3:IL03	Hemra Khanthima	CM-5:L06	Kara Ferhat	CM-1:IL02
Fricheteau Myriam	CM-5:L03	Herrmann Mathias	CC-1:IL08	Karamanov Alexander	CM-2:IL03
Friedrich Holger	CN-2:L04	Heuer Henning	CF-4:IL05	Karazhanov Smagul	CH-5:IL06
Fu Engang	CD:P01	Heux Adrien	CA-4:L12	Kareiva Aivaras	CE-3:IL10
Fu Zhengyi	CO-3:IL02	Hinatsu Yukio	CJ:P09	Karimbayev Telman	CO-5:L02
Fuierer Paul	CH-1:L07	Hinoki Tatsuya	CC-2:IL02	Karpinsky Dmitry	CK-5:L06
Fukumoto Masahiro	CD-3:L06	Hinzer Karin	CE-3:IL01	Katanaev Vladimir L.	CB-8.2:IL02
Furtat Plinio	CB-2:L06	Hirai Yuji	CB-8.3:L02	Katsuki Hiroaki	CM-1:L07
Gabbasov Ramil	CB:P12	Hirose Akio	CD-2:IL02	Kern Frank	CA-4:IL05
Gadow Rainer	CH:KL	Hlavacek Petr	CB-9.1:L05	Keshri Anup Kumar	CH:P12
Gaedike Bastian	CH-1:IL06	Hodaj Fiqiri	CD-1:L05	Khan Ijaz Ahmad	CH-1:L09
Gajda Iwona	CI-6:L02	Hojo Junichi	CA-4:IL04	Khasanov Oleg L.	CL-2:IL04
Gan Ke	CA-3:L10	Holanda Jose	CM:P01	Khasanov Rustem	CK-6:IL03
Garbers-Craig Andrie M.	CN-5:IL01	Homa Johannes	CB-9.4:IL08	Khatib Khalid	CM-5:L07
Garcia Vincent	CJ-3:IL06	Hoog Antink Marieke M.	CI-6:L08	Khazaei Mohamed	CG-5:IL06
Gauthier-Brunet Veronique	CG-3:L08	Hossain SK Saddam	CN:P05	Khina Boris B.	CB-10.1:IL02
Geffroy Pierre-Marie	CA-3:IL07	Hotza Dachamir	CM-4:IL01	Khlifi Imad	CN-2:L05
Gehre Patrick	CN-6:IL04	Hou Xinmei	CC-2:IL05	Kida Tetsuya	CJ-4:IL01
Gerdes Holger	CH-7:IL04	Hu Shujun	CG:P04	Killinger Andreas	CH-1:IL05
Gharzouni Ameni	CM-5:L05	Huang Chi-Yuen	CA:P15	Kim Byung-Nam	CA-4:L06
Ghassemi Kakroudi Mahdi	CF:P05	Huang Qing	CG-2:IL04	Kim Dae-Eun	CC-1:IL02
Gil Vanesa	CI-6:IL06	Huang Wen-Chiao	CA:P05	Kim Do Kyung	CJ-5:IL10
Gingter Philipp	CB-9.6:IL06	Hug Gilles	CG-3:L10	Kim Hanbit	CE:P07
Giuntini Diletta	CB-8.1:L03	Huger Marc	CN-5:IL05	Kim Ji-Hwan	CB-5:L03
Gladfelter Wayne L.	CH-1:IL03	Hussainova Irina	CO-3:L03	Kim Jin Soo	CJ:P02

Kim Seung	CK-4:L02	Lin Kuan-Hong	CA:P12	Miletto Granozio Fabio	CK-1:IL01
Kim Young-Wook	CI-2:IL04	Lin Yi-Hsin	CA:P04	Minasyan Tatevik	CB-10.2:L07
Kimura Teiichi	CB-9.1:IL03	Lind Hans	CG-5:L08	Mingazzini Claudio	CO-1:L12
Kinski Isabel	CL-2:IL01	Liu I-Ting	CA:P06	Mirdrikvand Mojtaba	CI-4:L05
Kirihara Soshu	CB-9.4:IL03	Liu Jia	CH-2:L04	Mirov Sergey B.	CL-4:IL05
Kisailus David	CB-8.2:IL05	Liu Rongjun	CO:P04	Misrar Wafa	CI-1:L16
Kitaoka Satoshi	CC-2:IL15	Liu Yushuang	CG-9:L07	Mitic Vojislav	CJ-1:L07
Klein Lisa C.	CB-6:L04	Loeffler Frank	CI:P01	Mitoseriu Liliana	CJ:P08
Klemm Hagen	CF-2:IL02	Lofaj Frantisek	CH-4:L03	Miyazaki Toshihisa	CH:P03
Kok Wai Hoong	CB-9.5:L03	Lopez-Pacheco German	CJ:P13	Mochizuki Naoto	CI:P03
Konegger Thomas	CI-1:L06	Lorenz Michael	CK-5:L05	Mofa Nina	CB:P10
Koster Gertjan	CK-1:IL02	Lovergine Nico	CE-1:IL08	Momose Ai	CB:P04
Kosub Tobias	CK-9:IL03	Lu Chengjie	CG:P02	Monnier Julien	CB-10.4:L04
Kota Sankalp	CG-3:IL03	Lu Li	CE-3:IL03	Montanaro Laura	CA-3:IL01
Kovalcikova Alexandra	CC-1:L11	Lu Xuanming	CI:P06	Montorsi Monia	CM-3:IL04
Kovalev Dmitry	CB:P11	Luan Xingang	CB-6:IL02	Moon Kyoung Il	CH-4:L08
Kozak Karolina	CG-4:L02	Luchini Bruno	CF-3:L06	Moras Gianpietro	CC-1:IL15
Krenkel Walter	CO-3:IL05	Luechtenborg Joerg	CB-9.6:L03	Moreno Rodrigo	CI-1:IL01
Kroedel Matthias	CO-7:IL01	Lukianova Olga	CJ-1:L04	Morita Koji	CB-4:L09
Kroeger Nils	CB-8.1:IL02	Lukowiak Anna	CL-8:L04	Moritz Tassilo	CB-9.3:IL02
Kroll Peter	CB-2:L03	Luneng Raymond	CN-5:L02	Mortier Michel	CL-4:IL02
Kuebler Jakob	CD-4:IL03	Lusvarghi Luca	CH-4:IL05	Mos Ramona Bianca	CH-5:L05
Kulik Alexey	CO-6:IL01	Lysenko Elena	CJ:P07	Moseler Michael	CH-6:L04
Kumar Kundan	CA:P17	Ma Qingsong	CO:P05	Moshtaghoun Bibi Malma	CF-3:L10
Kunz Willy	CC-2:IL06	Maccarini Schabbach L.	CM:P03	Motz Guenter	CO-1:IL03
Kurbatkina Victoria	CB-10.2:L02	Maitre Alexandre	CB-4:IL01	Moussy Jean-Baptiste	CK-1:L07
Kwamen Christelle	CJ-2:L18	Makarovic Maja	CJ-2:L19	Muccillo Eliana	CJ-5:L06
La Lumia Florian	CA-3:L04	Makimoto Shota	CI:P05	Muccillo Reginaldo	CJ-5:L04
Labed Abdellatif	CC:P02	Mallinson Phillip	CD-1:IL03	Mukasyan Alexander	CB-10.3:IL02
Labrincha Joao A.	CM-2:IL01	Manara Dario	CF-2:IL10	Mukherjee Biswajyoti	CC:P04
Lagny Maxime	CA-3:L06	Manfroi Lucas A.	CC:P05	Munhoz Jr. Antonio H.	CO:P03
Lago Ojaimi Christiane	CB:P19	Mangolini Filippo	CC-1:IL13	Muto Daimu	CN-1:L04
Lambrinou Konstantina	CG-9:IL06	Mansurov Zulkhair	CB-10.4:IL02	Myung Jae-Ha	CE:P02
Lamon Jacques	CO-2:IL02	Marimuthu Karuppasamy P.	CF-3:L12	Nagatomo Yoshiyuki	CD-1:IL01
Lancellotti Isabella	CI-6:IL10	Marinel Sylvain	CB-3:IL02	Naguib Michael	CG-8:IL02
Laoui Tahar	CB-4:L03	Markiewicz Ewa	CA-5:L06	Nait-Ali Benoit	CI-2:IL02
Lauria Alessandro	CL-1:IL01	Marques Fernando M.B.	CJ-5:IL03	Naito Makio	CA-3:IL02
Lavrencic Stangar Urska	CM-1:IL06	Martin Christophe	CA-4:IL02	Nakano Jinichiro	CN-4:IL04
Le Petitcorps Yann	CO-3:IL07	Martin Jimenez F. de Paula	CE:P04	Nanda Karuna Kar	CE-2:IL05
Lebdoua Khaoula	CA-1:L05	Masetto Antunes S. Regina	CB:P15	Narayan Roger	CB-9.6:IL05
Lebedev Egor	CD:P03	Mathur Sanjay	CE-2:IL01	Narisawa Masaki	CO-1:L13
Lechermann Frank	CK-3:IL01	Matovic Branko	CF-1:IL03	Nasui Mircea	CH-1:L08
Lee Kang N.	CC-2:L07	Matsunaga Katsuyuki	CD-1:L06	Navarro Lopez Lucia	CH:P05
Lee Kwangmin	CC-1:L20	Matsuno Jobu	CK-2:IL02	Navrotsky Alexandra	CN-2:IL01
Lee Manhee	CC-1:L10	Mattos Felype	CI-6:L12	Nawaz Kashif	CF-3:L16
Lee Meng Ying	CA:P07	Mauchamp Vincent	CG-5:IL01	Nebatti Abdelkader	CH:P09
Leinen Dietmar	CH:P02	Mayrhofer Paul	CC-1:IL01	Nguyen Truong Thi	CN-4:L03
Leite Edson R.	CA-1:IL03	Mazzanti Francesca	CA-4:L09	Ni De-Wei	CO-4:IL03
Leonelli Cristina	CM-4:IL03	Mckittrick Joanna	CA-1:IL01	Niedermaier Matthias	CE-2:L06
Leriche Anne	CB-9.4:IL01	Mechnich Peter	CH-2:IL01	Nikonam Mofrad Rahele	CF-4:L07
Levashov Evgeny	CB-10.2:IL05	Medesi Anna Julia	CB:P05	Nishi Masayuki	CE-1:IL06
Levin Igor	CJ-2:L07	Medri Valentina	CI-2:L05	Niwa Ken	CB-4:IL02
Li Bin	CC-2:L04	Medvedovski Eugene	CH-5:IL02	Noda Chiaki	CB-1:L05
Li Fei	CF-1:L12	Meille Sylvain	CI-3:IL01	Noeth Andreas	CO-1:IL08
Li Jing-Feng	CJ-2:IL03	Meneghetti Peres Renato	CB:P16	Nojima Tsutomu	CK-6:IL01
Li Longbiao	CF-3:IL01	Menkara Hisham	CE-1:L11	Novais Rui	CM-5:L02
Li Shibo	CG-3:IL05	Mera Gabriela	CB-2:L09	Novak Nikola	CJ-4:IL02
Li Yawei	CN-6:IL02	Michaelis Alexander	C:PL2	Novoselova Iuliia	CG-7:L01
Li Zhiqiang	CB-8.2:IL06	Miele Philippe	CB-2:IL05	Odawara Osamu	CB-10.4:IL03
Liao Hanlin	CH-7:IL01	Mihailescu Ion N.	CB-8.3:IL01	Oh Mi Young	CE-2:L10
Lichtensteiger Celine	CJ-2:IL04	Mileiko Sergei T.	CO-3:IL09	Oh Young-Jei	CE-1:IL01

Ohara Satoshi	CB-6:L07	Rakhila Youness	CM-4:L09	Sekulic Dusan P.	CD-3:IL05
Ohji Tatsuki	CO-3:IL04	Rambaldi Elisa	CM-2:IL02	Sene Ana Claudia	CH:P08
Okada Go	CL-2:IL02	Ramos Rafael	CK-2:IL03	Sever Skapin Andrijana	CM-1:IL03
Olevano Daniela	CN-6:L06	Ramunno Lora	CL-7:IL03	Sglavo Vincenzo M.	CB-4:IL05
Olevsky Eugene A.	CA-4:IL07	Ranogajec Jonjaua	CM-4:IL04	Shen Shaohua	CE-3:IL06
Opila Elizabeth J.	CC-2:IL14	Rashid Joseph Y.R.	CF-3:L03	Shevchenko Vladimir	CB-9.4:IL04
Orru Roberto	CB-10.2:IL01	Rauchenwald Elisabeth	CH-4:L04	Shilova Olga A.	CJ-4:IL06
Ortmann Lars	CI-1:L15	Rebillat Francis	CF-2:IL04	Shimanoee Kengo	CJ-4:IL05
Ortona Alberto	CI-5:IL02	Reece Michael J.	CF-1:IL07	Shimoda Kazuya	CO-5:L03
Otonicar Mojca	CJ-2:IL22	Reimanis Ivar E.	CD-3:IL02	Shirai Takashi	CI:P02
Ouisse Thierry	CG-1:IL01	Restrepo Baena O. Jaime	CB-6:IL10	Shtansky Dmitry	CC-1:L05
Ozog Paulina	CB-9.2:L03	Retamal Cesar	CF-3:L18	Shulpekov Alexander	CB:P08
Pabst Willi	CA-4:IL03	Reveron Helen	CA-5:IL03	Shvartsman Vladimir	CJ-3:L07
Padurariu Leontin	CJ-2:L16	Riedl Helmut	CH-5:L03	Sigalas Iakovos	CF-2:L14
Pagliosa Neto Carlos	CN-3:IL01	Rigaud Michael	CN-7:IL02	Signe Goumwe Stella	CG:P01
Palacios Marta	CM-5:IL01	Rincon Acacio	CI-1:L12	Sigov Alexander	CJ-2:L20
Pan Rui	CD-3:L03	Rocha Luis Augusto	CC-1:IL18	Silibin Maxim V.	CJ:P10
Pan Wei	CF-3:IL05	Rodriguez Villalobos F.D.	CH-5:L09	Silvain Jean-Francois	CO-6:L03
Pandolfelli Victor Carlos	CN-7:IL01	Rogachev Alexander S.	CB-10.1:IL04	Silvestroni Laura	CF-3:IL14
Panfilov Yury	CD:P04	Rojac Tadej	CJ-3:IL01	Smith David S.	CI-5:IL01
Papa Elettra	CI-1:IL13	Ronkainen Helena	CH-6:IL02	Sobrados Isabel	CM-5:IL16
Pardo Lorena	CJ-2:L11	Rosa Ieda L.V.	CL-2:L06	Sodano Henry A.	CE-3:L12
Park Hyun Jun	CC-1:L19	Rosen Johanna	CG:KL	Soldati Roberto	CM-2:L08
Park Jae-Hyuk	CH-7:IL02	Rossignol Fabrice	CI-6:IL01	Soler-Illia Galo	CL-1:IL03
Park Jong-Ho	CJ:P04	Roumiguier Lena	CF-3:L07	Song In-Hyuck	CI-3:IL02
Parsi Amir	CA:P18	Rundans Maris	CI-3:L07	Song Se Yeon	CB-9.4:L06
Partyka Janusz	CM-3:L05	Rybakov Kirill	CB-3:IL05	Soraru Gian Domenico	CB-10.3:IL03
Pasupuleti Kirti Teja	CH:P10	Ryu Jiseung	CE:P06	Soria Silvia	CL-6:IL03
Paul Sumana	CL:P05	Sabolsky Edward	CE-3:L05	Souza Flavio L.	CA-2:IL05
Paul David Samuel	CL-4:L08	Sabolsky Kathy	CN:P01	Stemmer Susanne	CK-1:IL05
Payret Arrua Maria Elena	CI:P09	Saito Noriko	CE-2:IL02	Stiller Jonas	CO-3:L12
Pazniak Anna	CG-6:L04	Saito Noritaka	CD-3:IL04	Stocky Robin	CA-3:L09
Pei Jun	CE:P10	Sakka Yoshio	CA-5:IL02	Storti Enrico	CN-6:L03
Perez Francisco J.	CC-2:IL11	Salamatov Vitaly	CB:P09	Striccoli Marinella	CL-1:IL04
Perez Jesus	CM-2:L06	Salernitano Elena	CH:P04	Sugahara Yoshiyuki	CB-2:IL01
Persson Per	CG-5:IL05	Salhi Abdelaziz	CJ-2:L17	Sukenaga Sohei	CD-3:IL01
Peterlik Herwig	CO-1:IL04	Saliikhov Ruslan	CG-7:L02	Sun Luchao	CF-3:L11
Petit Fabrice	CA-5:IL05	Sampath Sanjay	CH-3:IL03	Sun Yanping	CF-1:L06
Peyghambarian Nasser	CL-5:IL03	Sanchez Clement	CB-8.1:IL01	Sun Young	CK-9:IL02
Piechowiak Malgorzata A.	CB-9.5:L02	Sandhage Kenneth	CB-8.1:IL04	Sun ZhengMing	CG-8:IL03
Pietralunga Silvia Maria	CL-7:L04	Sanghera Jas	CL-4:IL01	Supothina Sitthisuntorn	CA:P03
Pille Annika	CL-3:L04	Santamaria Jacobo	CK-6:IL02	Suzuki Tohru	CA-5:IL04
Piriou Cassandre	CF-2:L12	Santos Sergio Francesco	CC-1:L16	Suzuki Yoshikazu	CI-1:IL08
Plucknett Kevin	CH-4:L07	Sauder Cedric	CO-7:IL04	Szafraan Mikolaj	CA-2:IL06
Poerschke David	CC-2:IL01	Sazio Pier	CL-5:IL04	Taira Hatsuo	CN-3:IL02
Poirier Jacques	CN-6:IL01	Schachner Stefan	CN-2:L03	Takao Yasumasa	CB:P01
Politano Olivier	CB-10.1:IL03	Scheffler Michael	CI-1:IL09	Takeo Takashi	CJ:P01
Ponomarev Vasily	CB:P07	Scheithauer Uwe	CB-9.3:IL01	Takizawa Hirotsugu	CB-3:IL01
Portehault David	CB-6:IL01	Scherdel Christian	CI-3:L05	Talantikite-Touati Djahida	CL:P04
Potashnikov Daniel	CG-4:L03	Schneider Jochen M.	CG-3:IL07	Tallon Carolina	CF-1:IL08
Pourfarahani Hojatollah	CE:P13	Schneider Joerg J.	CB-1:IL01	Tamayo Aitana	CE-3:L08
Prasanphan Sitthisak	CM-5:L12	Schneider Michael	CC-2:IL03	Tanaka Satoshi	CA-3:IL08
Prestes Salem R. Euclides	CB:P17	Schoenfeld Katrin	CO-3:L11	Tandon Pushkar	CL-5:IL01
Prikhna Tatiana	CF-2:IL09	Schreiber Paul	CC-1:L09	Tanemura Masaki	CE-1:IL10
Prokofev Vadim	CB:P06	Schwab Thomas	CA-3:L05	Tang Dingyuan	CL-4:L06
Qarra Hassan	CG-9:L04	Schwingenschlogl Udo	CG-1:IL03	Taniguchi Takashi	CB-4:IL08
Quirnbach Peter	CN-7:IL03	Sciti Diletta	CF-1:IL04	Tarabeux Justine	CB-9.4:L09
Rabelo Monich Patricia	CI-1:L10	Seal Sudipta	CB-8.1:IL05	Taurino Rosa	CM-1:IL05
Radovanovic Pavle V.	CK-7:IL01	Sebastian Tutu	CJ:P05	Tejido-Rastrilla Rocio	CB-8.3:L03
Radovic Miladin	CG-3:IL06	Seddou Angela	CL-5:IL02	Ten Elshof André	CE-1:IL02
Raether Friedrich	CI-3:IL03	Sedlak Richard	CC:P01	Tendero Claire	CH-5:IL07

Terzic Anja	CM-3:IL03	Villa Alberto	CG-9:IL01	Xing Yan	CE:P05
Teshima Katsuya	CE-3:IL11	Vistoli Lorenzo	CK-1:L06	Xiong Dingbang	CB-8.2:IL04
Thompson Greg	CF-3:IL02	Vitrolles Ines	CF-4:L02	Xiong Hui (Claire)	CJ-5:IL01
Thuault Anthony	CB-3:L06	Vleugels Jef	CG-2:IL02	Xu Baosheng	CF-1:L10
Timakul Patthamaporn	CM-5:L04	Voevodin Andrey	CH-4:IL01	Xu Yinfang	CF:P04
Tobaldi David	CM-1:IL01	Vogt Joachim	CB-9.4:IL02	Yan Shu	CI-1:L05
Toksoy M. Fatih	CA-2:L07	Vogt Ulrich	CI-6:L11	Yang Hung-Duen	CK-5:L04
Tokudome Yasuaki	CI-2:IL03	Voirin Thibaut	CF-3:L09	Yang Li	CG-8:L06
Tomala Robert	CL:P01	Volkov Alexey	CB-6:L03	Yang Ming	CA:P01
Tomoshige Ryuichi	CB-10.3:IL01	Volkova Halyna	CJ-2:L14	Yao Zhenhua	CA:P09
Toniolo Nicoletta	CI-1:L07	Vomiero Alberto	CE-3:IL09	Yerokhin Aleksey	CH-1:IL01
Toudert Johann	CE-2:IL08	Vorotilo Stepan	CB-10.2:L04	Yin Shu	CB-6:IL09
Travitzky Nahum	CB-9.2:IL01	Vorotilov Konstantin	CJ:P03	Yin Xiaowei	CB-5:IL02
Trier Felix	CK-2:IL01	Vuoristo Petri	CH-7:IL03	Yoon Hae Won	CF:P02
Tripathi Himansu	CN-1:IL03	Wada Satoshi	CJ-2:IL09	Yoon Jonghun	CH:P06
Tsymbal Evgeny Y.	CJ-3:IL02	Walter Xavier Alexis	CI:P07	Yoshimura Masahiro	CA-2:IL01
Tului Mario	CF-2:L11	Wang Hong	CJ-1:IL03	Zakaryan Marieta	CB-10.2:L03
Tunca Bensus	CG-2:L05	Wang Jiasheng	CI-6:L04	Zanelli Chiara	CM-4:L07
Tushtev Kamen	CO-1:L05	Wang Jiemin	CG-5:L07	Zannini Paolo	CM-4:IL05
Ubaidullah Mohd	CJ:P15	Wang Jingyang	CO-2:L06	Zapata Solvas Eugenio	CF-2:IL03
Uchida Masaki	CK-1:IL03	Wang Jun, Singapore	CL-4:L03	Zeman Petri	CH-2:L03
Uehara Masato	CJ-2:L21	Wang Jun, China	CO-1:IL09	Zeng Yuping	CI-1:IL03
Uemura Shun	CB:P03	Wang Min	CH-3:L04	Zereffa Enyew	CJ:P16
Ueoka Ryota	CE:P08	Wang Weimin	CF-1:L05	Zhang Bo-Ping	CE:P12
Umerova Saide	CJ-1:L06	Wang Xiaohui	CG-8:IL01	Zhang Di	CB-8.5:IL01
Uyan Pinar	CA:P10	Wang Yingde	CE:P01	Zhang Fan	CO-1:L06
Vahlas Constantin	CH-5:IL01	Watanabe Ken	CJ-5:IL02	Zhang Fei	CA-2:IL04
Vakifahmetoglu Cekdar	CI-2:IL01	Watanabe Yoshimi	CB-5:IL01	Zhang Haijun	CC-2:IL09
Van Benthem Klaus	CD-2:IL01	Wei Hui	CA:P14	Zhang Haitao	CL-3:IL01
Van Der Merwe Marnu	CN-5:L03	Wei Ronghua	CH-1:IL04	Zhang Heng	CG-8:L05
Van Der Zwaag Sybrand	CG-3:IL02	Weiss Roland	CO-7:IL03	Zhang Jie	CG-9:IL05
Van Loo Koba	CG-3:L09	Wenzelburger Martin	CH-4:IL06	Zhang Wang	CB-8.5:IL02
Vandepierre Luc	CF-3:IL04	Werbach Katharina	CF-4:L03	Zhang S. Sam	CC-1:IL03
Varignon Julien	CK-3:IL02	Westin Gunnar	CE-1:IL04	Zheng Wei	CG-8:L04
Vasic Milica	CM-4:IL02	Wiik Kjell	CA-1:IL04	Zhou Aiguo	CG-6:L06
Vassen Robert	CH-3:IL01	Willems Evita	CA-1:L07	Zhou Feifei	CA-1:L09
Velasco Estrada Leonardo	CJ-4:L07	Wilson Stephen D.	CK-4:IL01	Zhu Tianbin	CA-4:L13
Venegas Constanza	CJ:P11	Wolf Stephan E.	CB-8.1:L06	Zielonka Paul	CC-1:L17
Viehland Dwight	CK-5:L03	Wong-Ng Winnie	CE-3:IL04	Zocca Andrea	CB-9.6:IL01
Vieira Angela	CC:P03	Xanthopoulou Galina	CB-10.4:IL01	Zoli Luca	CO-4:IL02
Vieira Lucia	CC-2:L10	Xie Hao	CB-8.1:L07	Zou Ji	CF-2:IL06
Vignoles Gerard L.	CO-2:IL05	Xin Yunzi	CI-1:IL17		

SCIENTIFIC PROGRAMME

14th INTERNATIONAL CERAMICS CONGRESS

OPENING SESSION

WELCOME ADDRESSES

Plenary Lectures

C:PL1 Fueling Human Progress with Sunlight

H. ATWATER, Joint Center for Artificial Photosynthesis, California Institute of Technology, Pasadena, CA, USA

C:PL2 Advanced Ceramics for Energy Systems and Environmental Technology

A. MICHAELIS, Fraunhofer Institute of Ceramic Technologies and Systems, IKTS, Dresden, Germany

SYMPOSIUM CA

PROGRESS IN POWDER PROCESSING SCIENCE AND MANUFACTURING FOR ADVANCED CERAMICS AND COMPOSITES

Session CA-1

Advances in powder synthesis and characterisation

CA-1:IL01 Magnetic Field Assisted Freeze Casting of Ceramic Powders

J. McKITTRICK, University of California San Diego, La Jolla, CA, USA; **M.M. PORTER**, Clemson University, Clemson, SC, USA; **M.B. FRANK**, nanoComposix, Inc., San Diego, CA, USA

CA-1:IL02 Synthesis and Characterization of Nanoparticles

M.-A. EINARSRUD, M. SLETNES, T.O.L. SUNDE, P.M. RORVIK, A. DALOD, T. GRANDE, Department of Materials Science and Engineering, NTNU Norwegian University of Science and Technology, Trondheim, Norway

CA-1:IL03 Synthesis of Oxide Particles: From Polymeric Precursors to Colloidal Synthesis Process

E.R. LEITE, Brazilian Nanotechnology National Laboratory - LNNano, Campinas, SP, Brazil

CA-1:IL04 Spray Pyrolysis of Fine Oxide Powder

K. WIIK, NTNU, Trondheim, Norway; **S. LABONNOTE-WEBER**, G. SYVERTSEN-WIIG, CerPoTech AS, Heimdal, Norway

CA-1:IL05 Synthesis of Submicronic Silica Janus Particles by a Pickering Emulsion Method: Towards the Characterization of their Assemblies

K. LEBDIOUA, A. AIMABLE, M. CERBELAUD, A. VIDECOQ, SPCTS, Limoges, France

CA-1:IL06 Synthesis of Indium Hydroxide Powders by a Precipitation Method

WOO-SEOK CHO¹, EUN-KYOUNG CHOI^{1,2}, WON-JUN LEE^{1,3}, KYU-SUNG HAN¹, UNG-SOO KIM¹, JIN-HO KIM¹, KWANG-TEAK HWANG¹, JONG-YOUNG KIM¹, HAE-JIN HWANG³, KWANG-BO SHIM², ¹Korea Institute of Ceramic Engineering and Technology, Icheon, South Korea; ²Dept. of Materials Science and Engineering, Hanyang University, Seoul, South Korea; ³School of Material Science and Engineering, Inha University, Incheon, South Korea

CA-1:IL07 Effect of Iron Oxide Coloring on the Microstructure, Mechanical Properties and Aging Stability of 3Y-TZP

E. WILLEMS^{1,2}, F. ZHANG^{1,2}, B. VAN MEERBEEK², J. VLEUGELS¹, ¹Dept. of Metallurgy and Materials Engineering, KU Leuven, Kasteelpark Leuven, Belgium; ²KU Leuven BIOMAT, Dept. of Oral Health Sciences, KU Leuven & Dentistry, University Hospitals Leuven, Leuven, Belgium

CA-1:IL08 Structural and Transport Properties of Neodymium Tungstates Prepared via Mechanochemical Activation

Y.N. BESPALKO, V.A. SADYKOV, P.I. SKRYABIN, T.A. KRIEGER, Boreskov Institute of Catalysis, Novosibirsk, Russia; **N.F. UVAROV**, A.S. ULIHIN, Institute of Solid State Chemistry and Mechanochemistry, Novosibirsk, Russia

CA-1:IL09 High-performance Nanostructured T'-YSZ Feedstocks Synthesized by Nanopowder Granulation

FEIFEI ZHOU^{1,2}, YOU WANG¹, MIN LIU², YAMING WANG¹, LIANG WANG³, ¹Dept of Materials Science, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, China; ²National Engineering Lab. for Modern Materials Surface Engineering Technology & The Key Lab of Guangdong for Modern Surface Engineering Technology, Guangdong Institute of New Materials, Guangzhou, China; ³Key Laboratory of Inorganic Coating Materials CAS, Shanghai Institute of Ceramics, CAS, Shanghai, China

Session CA-2

Colloidal Processing

CA-2:IL01 Powder-Less Processing for Nano-structured Functional Ceramics: Realization of direct Fabrication from Solutions and/or Melts
MASAHIRO YOSHIMURA, Materials Sci. & Eng. National Cheng Kung University, Tainan, Taiwan & Tokyo Institute of Technology, Tokyo, Japan

CA-2:IL02 Layer by Layer Modification of Nanoparticles Surfaces in Suspension: From Order to Chaos during the Nanostructured Growth of a Ceramic Film

B. FERRARI, Z. GONZALEZ, J. YUS, A.J. SANCHEZ-HERENCIA, Institute of Ceramics and Glass, CSIC, Tailoring through Colloidal Processing Group, Madrid, Spain

CA-2:IL03 Role of Electrostatic Interactions in the Adsorption of Colloids in Pickering Emulsions

M. CERBELAUD, A. VIDECOQ, A. AIMABLE; Univ. Limoges, CNRS, SPCTS, UMR 7315, Limoges, France; **L. ALISON**, H. TERVOORT, A. STUDART, Complex Materials, Department of Materials, ETH Zurich, Zurich, Switzerland

CA-2:IL04 Processing of Stable and Reliable Zirconia Ceramics for Dental Applications

FEI ZHANG^{1,2,3}, J. VLEUGELS¹, H. REVERON³, T. FÜDERER⁴, S. SCHOMER⁴, N. COURTOIS⁵, A. LIENS³, B. VAN MEERBEEK², J. CHEVALIER³, ¹University of Leuven, Dept of Materials Engineering, Heverlee, Belgium; ²University of Leuven & Dentistry, BIOMAT, Dept of Oral Health Sciences, University Hospitals Leuven, Leuven, Belgium; ³University of Lyon, UMR CNRS 5510 (MATEIS), INSA de Lyon, France; ⁴Ceramic Materials, Swerea IVF AB, Mölndal, Sweden; ⁵ANTHOGRYR, Sallanches, France

CA-2:IL05 Colloidal Process of Hematite Photoanode for Solar Water Splitting

F.L. SOUZA, Universidade Federal do ABC, Santo Andre, Sao Paulo, Brazil

CA-2:IL06 New Water-based Organic Additives in Colloidal Processing of Ceramics and Composites

M. SZAFRAN, Warsaw University of Technology, Faculty of Chemistry, Warsaw, Poland

CA-2:IL07 Homogeneity Enhancement of Additives on Boron Carbide by Precipitation Method

M.F. TOKSOY, C. ELCI, Izmir Institute of Technology, Department of Mechanical Engineering, Turkey

Session CA-3

Shape Forming and green body processing and characterization

CA-3:IL01 Aqueous Gelcasting: A Versatile and "Green" Technique to Shape Ceramics

L. MONTANARO, P. PALMERO, M. LOMBARDI, C. PETIT, J.-M. TULLIANI, Dept. Applied Science and Technology DISAT, Politecnico di Torino, Torino, Italy

CA-3:IL02 Nano/Microstructure Control of Advanced Materials and their Applications by Smart Powder Processing

MAKIO NAITO, TAKAHIRO KOZAWA, AKIRA KONDO, Joining and Welding Research Institute (JWRI), Osaka University, Ibaraki, Japan

CA-3:IL03 Environmentally Benign Debinding Procedures for Thermoplastic Based Ceramic Processing Route

L. GORJAN, T. LUSIOLA, D. SCHARF, **F. CLEMENS**, Empa, Materials Science and Technology, Lab. for High Performance Ceramics, Dübendorf, Switzerland

CA-3:IL04 Preparation of TiO₂-Y₂O₃ and UO₂-Y₂O₃ Pellets by Freeze Granulation or Slip Casting

F. LA LUMIA, L. RAMOND, G. BERNARD-GRANGER, CEA Marcoule, Bagnols-sur-Cèze, France; C. PAGNOUX, SPCTS, Limoges, France

CA-3:IL05 Tribochemically Induced Optical Property Changes in MgO-Nanoparticle Powders

T. SCHWAB, D. THOMELE, University of Salzburg, Salzburg, Austria; K. MCKENNA, University of York, York, UK; O. DIWALD, University of Salzburg, Salzburg, Austria

CA-3:IL06 Comparison of Different Methods for Polycrystalline Er:YAG Ceramics

M. LAGNY, J. BOEHMLER, E. BARRAUD, S. LEMONNIER, S. BIGOTTA, M. EICHHORN, Institut franco-allemand de recherches de Saint Louis, Saint Louis, France; Y. LORGUILLOUX, A. LERICHE, Laboratoire des Matériaux Céramiques et procédés Associés, LMCPA, Pôle universitaire de Maubeuge, Maubeuge, France

CA-3:IL07 Multilayer Ceramic Systems by Tape Casting Process

P.-M. GEFFROY, R. BOULESTEIX, E. BÉCHADE, T. CHARTIER, SPCTS, Université de Limoges, Limoges, France

CA-3:IL08 Advanced Techniques for Green Body Characterization and Control of Sintered Texture

SATOSHI TANAKA, Nagaoka University of Technology, Nagaoka Niigata, Japan

CA-3:IL09 Development of Transparent Ceramics: Understanding and Control of Microstructure

R. STOCKY, J. BOEHMLER, S. LEMONNIER, French-German Research Institute of Saint-Louis, France; Y. LORGUILLOUX, A. LERICHE, University of Valenciennes and Hainaut-Cambrésis, France

CA-3:IL10 In-situ Coagulation Casting of Ceramic Suspension via Dispersant Removal

KE GAN, YANJIAO GAI, SHU YAN, YUJU LU, JINLONG YANG, State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing, China

Session CA-4

Sintering

CA-4:IL01 On the Role of the Electric Field on the Sintering of Oxide Ceramics

O. GUILLON, Forschungszentrum Juelich, Juelich, Germany

CA-4:IL02 Discrete Element Simulation of Sintering

D. JAUFFRES, **C.L. MARTIN**, Univ. de Grenoble Alpes, CNRS, Grenoble-INP, SIMaP, Grenoble, France; A. LICHTNER, Dept. of Mat. Sci. and Eng., University of Washington, Seattle, Washington, USA; R.K. BORDIA, Dept. of Mat. Sci. and Eng., Clemson University, Clemson, South Carolina, USA; J. VILLANOVA, ESRF, The European Synchrotron CS 40220, Grenoble Cedex, France

CA-4:IL03 Microstructural Control and Characterization of Dense and Porous Ceramics

W. PABST, T. UHLIROVA, V. NECINA, E. GREGOROVA, Department of Glass and Ceramics, University of Chemistry and Technology, Prague, Czech Republic

CA-4:IL04 Fabrication of Silicon Carbide Ceramics and Aluminum Nitride Composites by Liquid Phase Sintering in SPS Process

JUNICHI HOJO, Kyushu University, Faculty of Engineering, Fukuoka, Japan

CA-4:IL05 Comparison of Hot Pressing and Pulsed Electric Current Sintering of ED Machinable Ceramics

F. KERN, U. SCHMITT-RADLOFF, A. GOMMERINGER, R. GADOW, Universität Stuttgart - IFKB, Stuttgart, Germany

CA-4:IL06 Analysis of Densification Kinetics Depending on Grain Growth for Zirconia

BYUNG-NAM KIM, KOJI MORITA, HIDEHIRO YOSHIDA, JI-GUANG LI, National Institute for Materials Science, Japan; HIDEAKI MATSUBARA, Tohoku University, Japan

CA-4:IL07 Sintering of Tailored Pore-Grain Structures: Multi-Scale Analysis

E.A. OLEVSKY, San Diego State University, San Diego, CA, USA

CA-4:IL08 Presentation of Two Different Approaches to Elaborate Transparent Ceramics for LASER and Ballistic Protection Applications

C. GAJDOWSKI^{1,2}, M. LAGNY^{1,2}, R. STOCKY^{1,2}, A. KATZ^{1,2}, **J. BÖHMLER**¹, Y. LORGUILLOUX², S. LEMONNIER¹, E. BARRAUD¹, S. BIGOTTA, A. LERICHE², M. EICHHORN¹, ¹Institut franco-allemand de recherches de Saint-Louis, Saint-Louis, France; ²Laboratoire des Matériaux Céramiques et Procédés Associés, Boulevard Charles de Gaulle, Maubeuge, France

CA-4:IL09 Two-Step Sintering Effects on the Properties of Pressureless-Sintered Ceramics

F. MAZZANTI, F. BEZZI, P. FABBRI, S. GRILLI, G. MAGNANI, E. SALERNITANO, M. SCAFÈ, ENEA SSPT-PROMAS-TEMAF, Laboratory of Materials Technologies Faenza, Faenza (RA), Italy

CA-4:IL10 Processing of Dental Zirconia: How to Play on the Trade-off between Aesthetics, Mechanical Properties and Long-term Stability?

J. CHEVALIER, FEI ZHANG, H. REVERON, E. CAMPOSILVAN, L. GREMILLARD, University of Lyon, UMR CNRS 5510 (MATEIS), INSA de Lyon, France

CA-4:IL11 Thin Water Films on Nanocrystalline Oxides: Influence on Particle Coarsening, Coalescence and Grain Morphology Evolution

O. DIWALD, D. THOMELE, Department of Chemistry and Physics of Materials, University of Salzburg, Salzburg, Austria; A. GHEISI, Department of Chemical and Bioengineering, Friedrich-Alexander-University Erlangen-Nürnberg, Erlangen, Germany; J. BERNARDI, University Service Center for Transmission Electron Microscopy, Vienna University of Technology, Vienna, Austria; H. GRÖNBECK, Department of Physics and Competence Centre for Catalysis, Chalmers University of Technology, Gothenburg, Sweden

CA-4:IL12 Sintering and Viscous Behavior of a Low Temperature Co-fired Ceramic (LTCC) - From Experimental Characterization to Numerical Simulation of Co-sintering

A. HEUX¹, G. ANTOU¹, N. DELHOTE², N. PRADEILLES¹, A. MAITRE¹, ¹Univ. Limoges, CNRS, SPCTS, UMR 7315, France; ²Univ. Limoges, CNRS, XLIM, UMR 7252, France

CA-4:IL13 Ultrastrong Zirconia Ceramics Fabricated by an Oscillatory Pressure Sintering Process

TIANBIN ZHU^{1,2,3}, ZHIPENG XIE³, YAWEI LI^{1,2}, ¹The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology, Wuhan, China; ²National-provincial Joint Engineering Research Center of High Temperature Materials and Lining Technology, Wuhan University of Science and Technology, Wuhan, China; ³State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing, China

Session CA-5

Innovation in Manufacturing Technology

CA-5:IL01 Ceramic-Thermoplastic 3D Direct Write Printing for Additive Manufacturing

C.B. DIANTONIO, A. COOK, T. CHAVEZ, L. EVANS, W. REINHOLTZ, K. MEYER, Sandia National Laboratories, Albuquerque, New Mexico, USA

CA-5:IL02 High Performance of Ceramics and Manufacturing Process Innovation

YOSHIO SAKKA, National Institute for Materials Science, Japan Science and Technology Agency, Tsukuba, Japan

CA-5:IL03 Challenges in Scaling up Zirconia-based Bioceramics: From the Development of a Material at the Laboratory Scale to an Effective Industrial Production

H. REVERON¹, FEI ZHANG¹, M. FORNABAIO², P. PALMERO², L. MONTANARO², T. FÜRDERER³, N. COURTOIS⁴, J. CHEVALIER¹, ¹Université de Lyon-INSA de Lyon, MATEIS CNRS UMR 5510, Villeurbanne Cedex, France; ²Department of Applied Science and Technology, INSTM R.U. POLITO, LINCE Lab., Politecnico di Torino, Torino, Italy; ³DOCERAM, MOESCHTER GROUP Holding GmbH & Co. KG, Dortmund, Germany; ⁴Anthogyr SAS, Sallanches, France

CA-5:IL04 Advanced Ceramic Processing with External Magnetic Field

TOHRU S. SUZUKI, Ceramics Processing Group, Research Center for Functional Materials, National Institute for Materials Science, Tsukuba, Japan

CA-5:IL05 Machining Techniques to Prepare Complicated Shape Parts with Extremely Fine Details

F. PETIT, Belgian Ceramic Research Centre, Mons, Belgium

CA-5:IL06 Polymer - spinel Nanocomposites for Applications in Modern Sensors and Actuators

E. MARKIEWICZ, K. CHYBCZYNSKA, Institute of Molecular Physics PAS, Poznan, Poland; A. GRZABKA-ZASADZINSKA, S. BORYSIK, Poznan University of Technology, Poznan, Poland

SYMPOSIUM CB

NON CONVENTIONAL AND EMERGING
ROUTES TO ADVANCED CERAMICS

Session CB-1

Solution-based Processing

CB-1:IL01 From Inorganic Molecules to Functional Oxide Materials: A Liasson towards Electronic Device Applications

S. SANCTIS, J. KRAUSMANN, R.C. HOFFMANN, J.J. SCHNEIDER, Eduard-Zintl-Institut für Anorganische und Physikalische Chemie, Technische Universität Darmstadt, Darmstadt, Germany

CB-1:IL02 Solution Based Processing of Nanotitania Allotropes and their Applications in Energy and Environment

S. CASSAIGNON, Sorbonne University (UPMC), Chimie de la Matière Condensée de Paris, CNRS UMR7574, Paris, France

CB-1:IL03 Gallium-based Oxynitride Nanoparticles and their Photocatalytic Activity

YUSUKE ASAKURA, SHU YIN, Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Sendai, Japan

CB-1:IL04 Synthesis of Nanometric Cerium Oxide-based Powders for Catalytic and Energetic Applications

A. GONDOLINI¹, E. MERCADELLI¹, S. ALBONETTI², A. SANSONI¹, ¹ISTEC-CNR, Faenza, Italy; ²Department of Industrial Chemistry "Toso Montanari", University of Bologna, Bologna, Italy

CB-1:IL05 Photocatalytic Activities of Carbon-doped TiO₂ Based Composites

CHIAKI NODA, YUSUKE ASAKURA, SHU YIN, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

Session CB-2

Polymer Derived Ceramics

CB-2:IL01 Polymer-derived High-pressure Phases via Intermediate Amorphous Materials

YOSHIYUKI SUGAHARA, Department of Applied Chemistry, School of Advanced Science and Engineering, Waseda University, Tokyo, Japan; Kagami Memorial Research Institute for Materials Science and Technology, Waseda University, Tokyo, Japan

CB-2:IL02 Polymer-derived Ceramic Nanocomposites for Applications at High Temperatures and in Harsh Environments

E. IONESCU, Darmstadt University of Technology, Institute for Materials Science, Darmstadt, Germany

CB-2:IL03 Multiple Stages of Structure Formation in Silicon Oxycarbide Ceramics

P. KROLL, The University of Texas at Arlington, Arlington, TX, USA

CB-2:IL04 Molecular Route Syntheses of Inorganic C-N Compounds in Ultra-high Pressure and Temperature

MASASHI HASEGAWA, KEN NIWA, TOSHIFUMI FUKAI, YUKI JIN, Department of Materials Physics, Nagoya University, Nagoya, Japan

CB-2:IL05 Boron Nitride Based Nanostructured Materials for Energy, Environmental and Health Applications

P. MIELE, Institut Européen des Membranes (IEM-UMR 5635 ENSCM, UM, CNRS), Ecole Nationale Supérieure de Chimie de Montpellier & Institut Universitaire de France, Montpellier, France

CB-2:IL06 Synthesis of Fluorinated Polysilazanes and their Application as Protective Hydrophobic Coatings

P. FURTAT, G. MOTZ, Department of Ceramic Materials Engineering, Bayreuth University, Bayreuth, Germany; R. MACHADO, Department of Chemical Engineering, Federal University of Santa Catarina, Florianopolis, Brazil

CB-2:IL07 Novel Glass-ceramics from Glass Powders and Reactive Pre-ceramic Polymer Binders

H. ELSAYED^{1,2}, E. BERNARDO¹, ¹Department of Industrial Engineering, University of Padova, Italy; ²Ceramics Department, National Research Centre, El-Bohous Street, Cairo, Egypt

CB-2:IL08 Generation and Control of Microporosity in Polymer-derived SiCN Ceramics

C. DRECHSEL, T. KONEGGER, Institute of Chemical Technologies and Analytics, TU Wien, Vienna, Austria

CB-2:IL09 Molecular Design of Novel 0D, 1D and 2D Nanocarbon-based Ceramic Composites

G. MERA, R. RIEDEL, TU Darmstadt, Institute for Materials Science, Darmstadt, Germany

Session CB-3

Microwave Processing

CB-3:IL01 Materials Processing under Microwave Non-equilibrium Reaction Field

HIROTSUGU TAKIZAWA, Tohoku University, Sendai, Japan

CB-3:IL02 Microwave Versus Conventional Sintering of Pure and TiO₂ doped MgAl₂O₄ Ceramics: Sintering Trajectory and Mechanisms

S. MARINEL¹, R. MACAIGNE¹, D. GOEURIOT², S. SAUNIER², ¹CRISMAT Laboratory, University of Caen Normandy, France; ²Ecole des Mines de Saint-Etienne, Dép. Science des Matériaux et des Structures, Saint-Etienne, France

CB-3:IL03 Microwave Technology for Commercial Scale Processing of Ceramic Materials

P. APTE, Harper International, Buffalo, NY, USA; G. BUNCE, Ferrite Microwave Technologies, Nashua, NH, USA

CB-3:IL04 In Situ and Ex Situ Characterization of Microwave-assisted Synthesis of Functional Oxide Nanoparticles

L. TINAT, E. CAZYUS-CLAVERIE, D. PORTEHAULT, C. CHANEAC, O. DURUPHTY, Laboratoire de Chimie de la Matière Condensée de Paris, UPMC Sorbonne Universités, Paris, France

CB-3:IL05 Electromagnetic Field Effects in High-temperature Microwave Processing of Materials

K.I. RYBAKOV, Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia, and Advanced School of General and Applied Physics, Lobachevsky State University of Nizhny Novgorod, Russia

CB-3:IL06 Fast Manufacturing of Ceramics by Coupling Stereolithography and Microwave Sinterings

A. THUAULT, H. CURTO, F. JEAN, J.-C. HORNEZ, A. LERICHE, LMCPA Laboratory of Ceramic Materials and Associated Processes, University of Valenciennes and Hainaut Cambrésis, Maubeuge, France

Session CB-4

Electrical Field and Pressure Assisted Synthesis and Sintering

CB-4:IL01 Spark Plasma Sintering Mechanisms of Zirconium Oxycarbides and Alumina

A. MAITRE, G. ANTOU, N. PRADEILLES, Lab. SPCTS, CEC, Limoges, France

CB-4:IL02 Ultra-high Pressure Synthesis of New Nitrides

KEN NIWA, MASASHI HASEGAWA, Nagoya University, Nagoya, Japan

CB-4:IL03 Low Temperature Development of Calcium Sialons along the Alpha/(alpha+beta) Phase Boundary using Nano-size Oxi-nitride Precursors and Spark Plasma Sintering Technique

B.A. AHMED, A.S. HAKEEM, T. LAOUI, King Fahd University of Petroleum and Minerals (KFUPM) Dhahran, Saudi Arabia

CB-4:IL04 Spark Plasma Sintering and Flash Sintering of Non-Stoichiometric Oxides

M. COLOGNA, D. MANARA, M. HOLZHAUSER, C. BOSHOVEN, European Commission, Joint Research Centre (JRC), Karlsruhe, Germany; V. TYRPEKL, Charles University in Prague, Faculty of Science, Praha 2, Czech Republic

CB-4:IL05 Flash Sintering of Alumina and other Oxide Ceramics

V.M. SGLAVO, M. BIESUZ, Department of Industrial Engineering, University of Trento & INSTM, Florence, Italy

CB-4:IL06 Spark Plasma Sintering of ceramics: From Controlling the Microstructures to the Development of Complex Shapes

C. MANIERE¹, G. CHEVALLIER¹, L. DURAND², F. AHMAD¹, G. CHEVALLIER¹, A. WEIBEL¹, F. MAUVY³, R. EPHERRE¹, C. ELISSALDE³, M. MAGLIONE³, C. ESTOURNES¹, ¹CIRIMAT, Université de Toulouse, CNRS, UT3, INPT, Toulouse Cedex, France; ²CEMES, Univ. Toulouse, CNRS, Toulouse Cedex, France; ³ICMCB, CNRS UPR 9048, Université Bordeaux, Pessac, France

CB-4:IL07 Sintering Behavior of Zinc Oxide under DC field by EDXRD

H. BICER, Dumlupinar University, Kütahya, Turkey; B. BEYOGLU, T. OZDEMIR, T. TSAKALAKOS, Rutgers University, NJ, USA; J. OKASINSKI, Argonne National Laboratory, Lemont, IL, USA

CB-4:IL08 High Pressure Synthesis and Crystal Growth of BN and Related Materials

TAKASHI TANIGUCHI, National Inst. for Materials Science, Tsukuba, Japan

CB-4:IL09 Effect of DC Current on Creep behavior of 8Y-ZrO₂

KOJI MORITA, BYUNG-NAM KIM, HIDEHIRO YOSHIDA, KEIJIRO HIRAGA, YOSHIO SAKKA, National Institute for Materials Science, Tsukuba, Japan

Session CB-5

Functionally Graded Materials

CB-5:IL01 Metal-ceramics Functionally Graded Materials

YOSHIMI WATANABE, Nagoya Institute of Technology, Nagoya, Japan

CB-5:IL02 MAX Phase Reinforced SiC/SiC Composites

XIAOWEI YIN, LAIFEI CHENG, LITONG ZHANG, Northwestern Polytechnical University, Xi'an, China

CB-5:LO3 Analysis of FGM Beam Model for Thermal Stability Behavior with Heat Conduction Effect

YOUNG-HOON LEE, TAE-KYUNG LIM, **JI-HWAN KIM**, Department Mechanical and Aerospace Engineering, College of Engineering, Seoul National University, Seoul, South Korea

Session CB-6

Other Non Traditional or Novel Routes

CB-6:IL01 Novel Colloidal Syntheses in Molten Salts Toward Complex Nanoparticles

D. PORTEHAULT, Sorbonne Universités, UPMC Univ Paris 06, CNRS, Collège de France, Laboratoire de Chimie de la Matière Condensée de Paris, Paris, France

CB-6:IL02 High Temperature Adhesives Derived from SiBCN Precursors

SUN CHANG, JIANQIANG WANG, **XINGANG LUAN**, LAIFEI CHENG, Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University, Xi'an, China

CB-6:LO3 Hybrid Simulations of Formation of Nanocomposite Materials with a Scaffold of Carbon Nanotubes and Boron Carbide Matrix by Means of Chemical Vapor Infiltration Technique

A.N. VOLKOV, Department of Mechanical Engineering, University of Alabama, Tuscaloosa, AL, USA

CB-6:LO4 Effect of Gold Nanoparticles on Corrosion Behavior of Melting Gel Coatings on Stainless Steel

L.C. KLEIN¹, **S. KALLONTZI¹**, **L. FABRIS¹**, **A. ARPINO¹**, **A. JITIANU^{2,3}**, **J. MOSA⁴**, **M. APARICIO⁴**, ¹Rutgers University, Department of Materials Science and Engineering, Piscataway, NJ, USA; ²Department of Chemistry, Davis Hall, Lehman College-CUNY, Bronx, NY, USA; ³Chemistry Program, The Graduate Center, The City University of New York, New York, NY, USA; ⁴Instituto de Cerámica y Vidrio-CSIC, Campus de Cantoblanco, Madrid, Spain

CB-6:IL05 Combining Top-down and Bottom-up Approaches Towards Bio-inspired, Multi-functional Materials for Photonics and Nanofluidics

M. FAUSTINI, Université Pierre et Marie Curie/CNRS/College de France, Paris, France

CB-6:IL06 Electrospinning of Mesoporous Ceramic Nanofibers

O. ELISHAV¹, **V. BEILIN²**, **G.E. SHTER²**, **G.S. GRADER²**, ¹The Nancy and Stephen Grand Technion Energy Program, Technion I.I.T, Haifa, Israel, ²The Wolfson Department of Chemical Engineering, Technion I.I.T, Haifa, Israel

CB-6:LO7 Synthesis of Nano-carbons and Nano-Ilmenites using Super-High-Energy Ball Milling

SATOSHI OHARA, Joining and Welding Research Institute, Osaka University, Ibaraki, Japan

CB-6:LO8 The Film Boiling Chemical Vapor Infiltration for the Elaboration of Oxide/Oxide Composites

C. BESNARD, L. MAILLE, Université de Bordeaux, LCTS, Lab. des Composites ThermoStructuraux, CNRS, CEA, SAFRAN, Pessac, France; **P. DAVID**, CEA Le Ripault, Commissariat à l'Energie Atomique, Monts, France; **A. ALLEMAND**, CEA Le Ripault, Commissariat à l'Energie Atomique, Monts, France and Université de Bordeaux, LCTS, Lab. des Composites ThermoStructuraux, CNRS, CEA, SAFRAN, Pessac, France

CB-6:IL09 Environmental Friendly Process for Inorganic Functional Ceramics

SHU YIN, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

CB-6:IL10 Alternative Methods of Synthesis of Calcium Silicates

N. BETANCUR, **J.C. RESTREPO**, **O.J. RESTREPO**, Cement and Building Materials Group of Research. School of Mines, Universidad Nacional de Colombia, Medellín, Colombia

Focused Session CB-8

BIO-INSPIRED AND BIO-ENABLED PROCESSING

Session CB-8.1

Self-assembly, mineralization and hierarchical organization; hybrid structures

CB-8.1:IL01 Designed Construction of Nanostructured Inorganic and Hybrid Materials: Similarities between Natural & Synthetic Approaches
C. SANCHEZ, Collège de France, Lab. de Chimie de la Matière Condensée de Paris, CNRS, Université Pierre et Marie Curie, Paris, France

CB-8.1:IL02 Protein-based Functionalization of Diatom Biosilica
N. KROEGER, E. KUMARI, N. DUBEY, G. BEGUM, B. CUBE Center for Molecular Bioengineering, Dresden University of Technology, Dresden, Germany

CB-8.1:LO3 Processing of Bulk Supercrystalline Nacre-mimetics with Enhanced Mechanical Properties
D. GIUNTINI, B. DOMENECH, B. BOR, D. BENKE, G.A. SCHNEIDER, Institute of Advanced Ceramics, Hamburg University of Technology, Hamburg, Germany

CB-8.1:LO4 Chemical Transformation of Sustainable 3-D Microscale Biogenic Structures into High-Fidelity Replicas Comprised of Multicomponent Functional Synthetic Materials
K.H. SANDHAGE, School of Materials Engineering, Purdue University, West Lafayette, IN, USA

CB-8.1:IL05 Designing Hierarchical Rare Earth Nanoceramics for Biomedical Applications
S. SEAL, Materials Science & Eng, Advanced Materials Processing Analysis Center, Nanoscience Technology Center, College of Medicine, University of Central Florida, Orlando, FL, USA

CB-8.1:LO6 Nonclassical Crystallization in Vivo: A Fundamental Process-structure-property Relationship in Biominerals and New Synthesis Pathway to Bioinspired Nanoceramics and Gradient Materials
S.E. WOLF, Institute for Glass and Ceramics, Friedrich-Alexander-University Erlangen-Nürnberg, Erlangen, Germany

CB-8.1:LO7 Bioprocess Inspired Synthesis of Functional Materials
HAO XIE^{1,2}, Zheng-Yi Fu¹, ¹State Key Lab of Advanced Technology for Materials Synthesis and Processing; ²School of Chemistry, Chemical Engineering, and Life Science, Wuhan University of Technology, Wuhan, China

CB-8.1:LO8 Hierarchical Nanocomposites: From Self-assembly of Nanoparticles to Mechanical Properties
B. DOMENECH, D. GIUNTINI, B. BOR, D. BENKE, G.A. SCHNEIDER, Institute of Advanced Ceramics, Hamburg University of Technology, Hamburg, Germany

Session CB-8.2

Structure and Mechanics of Bioinspired Materials

CB-8.2:IL01 Strain-rate Dependent Deformation Mechanism of Bioinspired Graphene-Al Nanolaminated Composites
QIANG GUO, LEI ZHAO, ZAN LI, ZHIQIANG LI, GENLIAN FAN, DING-BANG XIONG, YISHI SU, DI ZHANG, State Key Lab of Metal Matrix Composites, Shanghai Jiao Tong University, Shanghai, China

CB-8.2:IL02 High-throughput Bioengineering of Novel Nanostructures by Genetic Manufacturing on Insect Corneal Surfaces: Looking for Applications
V. KATANAEV, University of Lausanne, Lausanne, Switzerland

CB-8.2:LO3 Mechanical Properties and Constitutive Behavior of 3-D Supercrystalline Nanocomposites
B. BOR, D. GIUNTINI, B. DOMENECH, D. BENKE, G.A. SCHNEIDER, Institute of Advanced Ceramics, Hamburg University of Technology, Hamburg, Germany

CB-8.2:LO4 Architecture and Interface Design for Multifunctional Graphene/Copper Matrix Composites
DING-BANG XIONG, MU CAO, ZHIQIANG LI, DI ZHANG, State Key Laboratory of Metal Matrix Composites, Shanghai Jiao Tong University, Shanghai, China

CB-8.2:IL05 Impact Tolerant Biocomposites

D. KISAILUS, Materials Science and Engineering, and Department of Chemical and Environmental Engineering, University of California Riverside, CA, USA

CB-8.2:IL06 Flake Powder Metallurgy: a Bioinspired Pathway to Aluminum Nanocomposites with Nacre-like Structure

ZHIQIANG LI, GENLIAN FAN, ZHANQIU TAN, DINGBANG XIONG, QIANG GUO, YISHI SU, DI ZHANG, Shanghai Jiao Tong University, Shanghai, China

Session CB-8.3**Bioinspired Functional Surfaces****CB-8.3:IL01 Bioactive and Antimicrobial Biofilm Ceramic Surfaces Synthesized by Advanced Pulsed Laser Technologies**

I.N. MIHAILESCU¹, C. RISTOSCU¹, A. BIGI², ¹National Institute for Lasers, Plasma and Radiation Physics, Magurele, Ilfov, Romania; ²Department of Chemistry "G. Ciamician", University of Bologna, Bologna, Italy

CB-8.3:IL02 Flexible and Superhydrophobic Vulcanized Rubber Microstructures

YUJI HIRAI¹, RIKU TAMURA¹, MASATSUGU SHIMOMURA¹, YASUTAKA MATSUO², TAKAHIRO OKAMATSU³, TOSHIIKO ARITA⁴, ¹Chitose Institute of Science and Technology, Chitose, Hokkaido, Japan; ²RIES, Hokkaido university, Sapporo, Hokkaido, Japan; ³THE YOKOHAMA RUBBER CO., LTD, Hiratsuka, Kanagawa, Japan; ⁴IMRAM, Tohoku university, Sendai, Miyagi, Japan

CB-8.3:IL03 Development and Characterization of Bioinspired Functional Coating on Different Substrates

R. TEJIDO-RASTRILLA, G. BALDI, Colorobbia Consulting s.r.l., Sovigliana, Vinci, Florence, Italy; **R. DETSCH**, A.R. BOCCACCINI, Institute of Biomaterials, University of Erlangen-Nuremberg, Erlangen, Germany

Session CB-8.4**Bioinspired Materials for Biomedical Applications****CB-8.4:IL01 Multifunctionalized Calcium Phosphates with Anti-resorptive, Anti-inflammatory and Anti-bacterial Properties**

E. BOANINI, Department of Chemistry "Ciamician", University of Bologna, Italy

CB-8.4:IL02 Major Advances in 2D Ceramic Hybrid Materials in Nanomedicine: Challenges and Future Directions

JIN-HO CHOY, Center for Intelligent Nano-Bio Materials (CINBM), Department of Chemistry and Nano Science, Ewha Womans University, Seoul, South Korea

CB-8.4:IL03 Hydroxyapatite Scaffolds Derived from deer Antler

L. GONZALEZ-RODRIGUEZ, S. ASTRAY, B.M. HIDALGO-ROBATO, E. SOLLA, M. LOPEZ-ALVAREZ, J. SERRA, **P. GONZALEZ**, New Materials Group, Applied Physics Dpt., IISGS, University of Vigo, Spain

CB-8.4:IL04 Boron Neutron Capture Therapy Assisted by Drug Delivery System

GOEUN CHOI, JIN-HO CHOY, Center for Intelligent Nano-Bio Materials (CINBM), Department of Chemistry and Nano Science, Ewha Womans University, Seoul, South Korea

Session CB-8.5**Application and Performance of Bioinspired Materials****CB-8.5:IL01 A Highly Sensitive, Reproducible and Uniform SERS Substrate with 3-dimensional Distributed Hotspots of High Density: Gyroid-structured Au Periodic Metallic Materials**

DI ZHANG, WANG ZHANG, Department of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai, China

CB-8.5:IL02 Engineering 3D Distributed Plasmonic Nanogaps in Gyroid-structured Periodic Metallic Materials

WANG ZHANG, LIPING WU, PENG SUN, DI ZHANG, Department of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai, China

Focused Session CB-9**ADDITIVE MANUFACTURING****Session CB-9.1****Selective Laser Sintering****CB-9.1:IL01 How to Process Ceramics by Laser Beam Melting?**

E. JUSTE, BCRC, Mons, Belgium

CB-9.1:IL02 Powder-based Additive Manufacturing at Micro-gravity

J. GUENSTER, A. ZOCCA, P. LIMA, J. LÜCHTENBORG, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany; T. MÜHLER, Clausthal University of Technology (TUC), Clausthal-Zellerfeld, Germany; M. SPARENBERG, J. MELCHER, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Braunschweig, Germany

CB-9.1:IL03 Laser Sintering of Ceramics

TEIICHI KIMURA, Japan Fine Ceramics Center, Nagoya, Japan

CB-9.1:IL04 Alumina Refractory Ceramic Molds Processed by SLM

D. DESCHUYTENEER, Belgian Ceramic Research Centre, Mons, BELGIUM

CB-9.1:IL05 Additive Manufacturing of Geopolymers by Local Laser Curing

P. HLAVACEK¹, T. MUEHLER², J. LUECHTENBORG¹, P. STURM¹, G.J.G. GLUTH¹, H.-C. KUEHNE¹, J. GUENSTER^{1,2}, ¹Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin, Germany; ²TU Clausthal, Clausthal-Zellerfeld, Germany

Session CB-9.2**Laminated Object Manufacturing****CB-9.2:IL01 Laminated Object Manufacturing of Ceramic-based Composites**

N. TRAVITZKY, University of Erlangen-Nuremberg, Dept. of Materials Science, Glass and Ceramics, Erlangen, Germany

CB-9.2:IL02 3D-printing of Organic-inorganic Hybrid Microstructures

P. BELLEVILLE, CEA Le Ripault, Monts, France

CB-9.2:IL03 Additive Manufacturing of AlN Based UV-curable Dispersions

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Session CB-9.3**Fused Deposition Modelling****CB-9.3:IL01 Thermoplastic- and Suspension-based Additive Manufacturing of Multi-material Components**

U. SCHEITHAUER, E. SCHWARZER, S. WEINGARTEN, J. ABEL, H.-J. RICHTER, T. MORITZ, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany

CB-9.3:IL02 Materials and Processing Hybridization by Advanced Thermoplastic Additive Manufacturing

T. MORITZ, U. SCHEITHAUER, J. ABEL, A. MUELLER-KOEHN, A. GUENTHER, S. WEINGARTEN, A. MICHAELIS, Fraunhofer IKTS, Dresden, Germany

CB-9.3:IL03 Additive Manufacturing meets Tissue Engineering: Biofabrication with Hydrogels and Bioactive Glasses

A. BOCCACCINI, University of Erlangen-Nuremberg, Erlangen, Germany

CB-9.3:IL04 Ethylene Vinyl Acetate as a Binder for Fused Deposition Modelling of Ceramic

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Session CB-9.4 Stereolithography

CB-9.4:IL01 Microstereolithography Applied to Biomedical Devices

A. LERICHE, M. DEHURTEVENT, S. CHAMARY, H. CURTO, A. THUAULT, J.C. HORNEZ, Laboratoire des Matériaux Céramiques et Procédés Associés, Université de Valenciennes, Maubeuge, France; F. PETIT, F. CAMBIER, Belgian Ceramic Research Centre, Mons, Belgium; M.H. FERNANDEZ, Laboratory for Bone Metabolism and Regeneration, Universidade do Porto, Portugal; F. MONTEIRO, INEB, Universidade do Porto, Portugal

CB-9.4:IL02 Printing and Characterization of Dense Oxide Ceramics using Lithographic AM

J. VOGT, T. MARTINI, M. STEPANYAN, Fraunhofer Center for High-Temperature Materials and Design (HTL), Bayreuth, Germany

CB-9.4:IL03 Stereolithographic Additive Manufacturing of Ceramic Groove Chambers for Stream Lines Modulations of Energy and Material Flows

SOSHU KIRIHARA, Osaka University, Joining and Welding Research Institute, Osaka, Japan

CB-9.4:IL04 Future Advanced Ceramic Materials with Triple Periodic Minimal Surface Topology

V.Ya. SHEVCHENKO, M.M. SYCHOV, S.P. BOGDANOV, L.A. LEBEDEV, Institute of Silicate Chemistry, Russian Academy of Sciences (ISC RAS), St. Petersburg, Russia

CB-9.4:IL05 Development of Ce-TZP-Al₂O₃ based UV Sensitive Resin for Stereolithography

S. CAILLIET, M. ROUMANIE, R. LAUCOURNET, Université Grenoble-Alpes, Grenoble, France and CEA, LITEN, DTNM, SERE, LRVM, Grenoble, France; G. BERNARD-GRANGER, Université Grenoble-Alpes, Grenoble, France and CEA, DEN, MAR, DRMC, SFMA, DIR, Bagnols-sur-Cèze, France

CB-9.4:IL06 Development of Photo-curable Ceramic Resin with High Dispersion Stability for SLA 3D Printing Application

SEYEON SONG^{1,2}, **JUNG WOO LEE**¹, **JI SUN YUN**¹, ¹Electronic Convergence Materials Division, Korea Institute of Ceramic Engineering and Technology, Jinju, South Korea; ²Department of Materials Engineering, Pusan National University, Busan, South Korea

CB-9.4:IL07 Manufacturing of Multimaterial Parts using Hybrid Additive Manufacturing Machine

C. CHAPUT, 3DCeram, Limoges, France; T. CHARTIER, SPCTS, CNRS/University of Limoges, Limoges, France

CB-9.4:IL08 State of the Art in Stereolithography of Ceramics

J. HOMA, M. SCHWENTENWEIN, Lithoz GmbH, Vienna, Austria

CB-9.4:IL09 Development of a Numerical Simulation Model for Predicting the Curing of Ceramic Systems in the Stereolithography Process

J. TARABEUX, V. PATELOUP, P. MICHAUD, T. CHARTIER, SPCTS - UMR CNRS 7315, Limoges, France

Session CB-9.5 Direct Writing

CB-9.5:IL01 Solvent-free Direct Deposition of Ceramic Components for Energy Application

HIROYA ABE, Osaka University, Ibaraki, Japan

CB-9.5:IL02 Aerosol Jet® Technology for Printed Electronic Devices Comprising Ceramics

M.A. PIECHOWIAK¹, G. ETCHEGOYEN¹, A. DELAGE², N. DELHOTE², A. ABDELGHANI², ¹Centre de Transfert de Technologies Céramiques (CTTC), Limoges Cedex, France; ²Laboratoire XLIM - UMR CNRS 7252 - Université de Limoges, Limoges Cedex, France

CB-9.5:IL03 Direct 3D Printing of Aluminum Nitride Using Ovalbumin As The Natural Binder

WAI HOONG KOK¹, K.C. YUNG¹, T.C. ANG², ¹Department of Industrial and Systems Engineering, Faculty of Engineering, The Hong Kong Polytechnic University, Hong Kong; ²School of Material Science, Nanyang Technolgy University, Singapore

Session CB-9.6

Other/Emerging AD Routes

CB-9.6:IL01 Layerwise Slurry Deposition for Additive Manufacturing of Ceramics

A. ZOCCA, P. LIMA, J. LÜCHTENBORG, J. GUENSTER, BAM Federal Institute for Materials Research and Testing, Berlin, Germany; T. MUEHLER, Clausthal University of Technology, Clausthal Zellerfeld, Germany

CB-9.6:IL02 Additive Manufacturing of Dense and Adherent Ceramic Coatings by Powder Deposition without Sintering

O. DURAND-PANTEIX, F. BERTHOIX, G. ETCHEGOYEN, Centre de Transfert de Technologies Céramiques (CTTC), Limoges Cedex, France

CB-9.6:IL03 Additive Manufacturing of Dense Ceramics with Laser Induced Slip Casting (LIS)

J. LUECHTENBORG, A. ZOCCA, J. GUENSTER, Federal Institute for Materials Research and Testing (BAM), Division 5.4 - Ceramic Processing and Biomaterials, Berlin, Germany; T. MUEHLER, Clausthal University of Technology (TUC), Institute of Non-Metallic Materials, Clausthal-Zellerfeld, Germany

CB-9.6:IL04 Acoustophoretic Printing for Ceramic Suspensions

D. FORESTI, B. ROMAN-MANSO, J.A. LEWIS, Wyss Institute for Biologically Inspired Engineering at Harvard John A. Paulson School of Engineering and Applied Science, Cambridge, MA, USA

CB-9.6:IL05 Laser-based Additive Manufacturing for Medical Applications

R.J. NARAYAN, UNC/NCSU Joint Department of Biomedical Engineering, Raleigh, NC, USA

CB-9.6:IL06 Creation of Dense Technical Ceramics by Powder Bed Three Dimensional Printing

P. GINGTER, A. LYNEN, J. HEYM, Schunk Ingenieurkeramik GmbH, Willich-Münchheide, Germany

CB-9.6:IL07 Digital Printing of Glass-ceramic Glazes

M. CANNIO¹, D.N. BOCCACCINI¹, V. RIVA¹, M. HANUSKOVA¹, M. ROMAGNOLI¹, R. TAURINO², F. BONDIOLI², M. TOGNETTI³, M. CICONI⁴, T. FEY⁴, V. NOVARESI⁵, A.R. BOCCACCINI⁶, ¹Dipartimento di Ingegneria Enzo Ferrari, Università di Modena e Reggio Emilia, Italy; ²Dipartimento di Ingegneria e Architettura, Università di Parma, Italy; ³Daxel S.r.l., Rubiera RE, Italy; ⁴Institute of Glass and Ceramics, Department of Materials Science and Engineering, University of Erlangen-Nuremberg, Erlangen, Germany; ⁵ALLOVIS Engineering, Torino, Italy; ⁶Institute of Biomaterials, Department of Materials Science and Engineering, University of Erlangen-Nuremberg, Erlangen, Germany

Focused Session CB-10 SHS CERAMICS

Session CB-10.1

Theory and Modeling of SHS Processes and Structural Transformations

CB-10.1:IL01 Concurrent and Complementary Methods in the Theory of SHS: Partial Differential Equations vs Molecular Dynamics

F. BARAS, Laboratoire ICB, CNRS-Université Bourgogne Franche-Comté, Dijon, France

CB-10.1:IL02 Modeling of SHS with a Transient Melt using the Kolmogorov-Avrami-Johnson-Mehl Approach

B.B. KHINA, Physico-technical Institute, National Academy of Sciences of Belarus, Minsk, Belarus

CB-10.1:IL03 A Molecular Dynamics Simulation of SHS in Nanofolds

O. POLITANO, Laboratoire ICB UMR 6303 CNRS-Université de Bourgogne, Dijon Cedex, France

CB-10.1:IL04 Influence of Mechanical Activation on Microstructure, Reactivity and Kinetic Parameters of SHS-mixtures

A.S. ROGACHEV, Merzhanov Institute of Structural Macrokinetics and Materials Science (ISMAN), Chernogolovka Moscow region, Russia

Session CB-10.2

SHS of Powders from the Micro- to Nano-scale. Consolidation of the SHS-powders

CB-10.2:IL01 Ultra-refractory Ceramics by Combination of SHS and SPS: Recent Advances

R. ORRU¹, G. TALLARITA, R. LICHERI, G. CAO, Dipartimento di Ingegneria Meccanica, Chimica e dei Materiali, Università degli Studi di Cagliari, Cagliari, Italy

SYMPOSIUM CC

CERAMICS AND COMPOSITES FOR ENHANCED TRIBOLOGIC AND CORROSION PERFORMANCE IN HIGH- DEMANDING APPLICATIONS

Session CC-1

Friction and Wear

CC-1:IL01 Strategies for Developing Hard Coatings for Demanding Application

P.H. MAYRHOFER, Materials Science and Technology, TU Wien, Vienna, Austria

CC-1:IL02 Structured and Layered Coatings for Reduction of Wear

DAE-EUN KIM, School of Mechanical Engineering, Yonsei University, Seoul, South Korea

CC-1:IL03 Towards Hard yet Self-lubricious CrAlSiN Coatings

SAM ZHANG, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

CC-1:IL04 Ceramic/Carbon Nanofiller Composites: New Materials with Improved Tribological Performance

M. BELMONTE, P. MIRANZO, M. I. OSENDI, Institute of Ceramics and Glass (ICV-CSIC), Madrid, Spain

CC-1:IL05 Hollow Spherical and Nanosheet-base BN Nanoparticles as Perspective Additives for Friction and Wear Reduction. Correlation between Large-scale Friction Behavior and In situ TEM Compression Testing

D.V. SHTANSKY¹, A.V. BONDAREV¹, A.M. KOVALSKII¹, K.L. FIRESTEIN^{1,2}, P.A. LOGINOV¹, D.A. SIDORENKO¹, N.V. SHVINDINA¹, I.V. SUKHORUKOVA¹, ¹National University of Science and Technology "MISIS", Moscow, Russia; ²School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology (QUT), Brisbane, QLD, Australia

CC-1:IL06 Frictional Behavior and Properties of Fabric Reinforced C/SiC Brake Pads on a Steel Brake Disk

S. FLAUDER, N. LANGHOF, W. KRENKEL, University of Bayreuth, Ceramic Materials Engineering, Bayreuth, Germany

CC-1:IL07 Composite Solid Lubricants for Use in Extreme Environments

M.T. DUGGER, Sandia National Laboratories, Albuquerque, New Mexico, USA

CC-1:IL08 Diamond, cBN Reinforced Ceramic Materials: Potential Wear Resistant Components

M. HERRMANN, B. MATTHEY, S. KUNZE, A.-K. WOLFRUM, Fraunhofer-IKTS, Dresden, Germany

CC-1:IL09 On Silicon-based Ceramics for Utilization in High Pressure Pumps for Gasoline Direct Injection and the Effects of Laser Surface Texturing

P. SCHREIBER, J. SCHNEIDER, Karlsruhe Institute of Technology IAM-CMS, Karlsruhe, BW, Germany; P. ZIELONKA, K.G. SCHELL, E.C. BUCHARSKY, M.J. HOFFMANN, Karlsruhe Institute of Technology IAM-KWT, Karlsruhe, BW, Germany

CC-1:IL10 Noncontact Friction via Capillary Shear Interaction in Ambient Condition

MANHEE LEE, B. KIM, J. KIM, W. JHE, Department of Physics, Chungbuk National University, Cheongju, Chungbuk, South Korea; Department of Physics and Astronomy, Seoul National University, Seoul, South Korea

CC-1:IL11 Mechanical Properties and Wear Behaviour of Boron Carbide/Graphene Platelet Ceramics

R. SEDLAK¹, **A. KOVALCIKOVA**¹, J. BALKO¹, P. RUTKOWSKI², A. DUBIEL², E. MUDRA¹, V. GIRMAN^{3,1}, J. DUSZA¹, ¹Institute of Materials Research, Slovak Academy of Sciences, Division of Ceramic and Non-Metallic Systems, Kosice, Slovak Republic; ²AGH University of Science and Technology in Krakow, Faculty of Materials Science and Ceramics, Department of Ceramics and Refractories, Krakow, Poland; ³Pavol Jozef Safarik University in Kosice, Faculty of Science, Institute of Physics, Department of Condensed Matter Physics, Kosice, Slovak Republic

CC-1:IL12 In Situ Generated Turbostratic 2D Graphite: A New Family of Self Lubricating Composites

J.D. BIASOLI DE MELLO¹, C. BINDER¹, R. BINDER², A.N. KLEIN¹, ¹Federal University of Santa Catarina, EMC, Florianópolis, SC, Brazil; ²Whirpool / Embraco, Joinville, SC, Brazil; ³Federal University of Uberlândia, Uberlândia, MG, Brazil

CB-10.2:L02 Design, Combustion Synthesis and Consolidation of the Borides in Zr-Ta-B System

V.V. KURBATKINA, E.I. PATCERA, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia

CB-10.2:L03 NiO and WO3 Coreduction by Combined Reducers Mg/C and Preparation of W-Ni Alloy

M.K. ZAKARYAN^{1,2}, S.V. AYDINYAN³, S.L. KHARATYAN^{1,2}, ¹A.B. Nalbandyan Institute of Chemical Physics NAS RA, Yerevan, Armenia; ²Yerevan State University, Yerevan, Armenia; ³Tallinn University of Technology, Tallinn, Estonia

CB-10.2:L04 Mechanically Activated SHS in Ta-Si-C System

S. VOROTILO, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia

CB-10.2:IL05 Contribution of SHS in Development and Production of Super-refractory Ceramic Materials

E.A. LEVASHOV, YU.S. POGOZHEV, V.V. KURBATKINA, I.V. IATSYUK, YU.YU. KAPLANSKII, S. VOROTILO, National University of Science and Technology "MISIS", Moscow, Russia

CB-10.2:L06 Selective Laser Melting of Ti-B-Si System produced by SHS

S.V. AYDINYAN, L. LIU, I. HUSSAINOVA, Tallinn University of Technology, Tallinn, Estonia

CB-10.2:L07 MoSi2 based Composites Preparation by Combustion Synthesis with Subsequent Selective Laser Sintering

T. MINASYAN¹, M.A. RODRIGUEZ², LE LIU¹, M. AGHAYAN¹, L. KOLLO¹, I. HUSSAINOVA^{1,3,4}, ¹Tallinn University of Technology, Tallinn, Estonia; ²Instituto de Ceramica y Vidrio (ICV-CSIC), Madrid, Spain; ³ITMO University, St. Petersburg, Russia; ⁴University of Illinois at Urbana-Champaign, Department of Mechanical Science and Engineering, Urbana, IL, USA

Session CB-10.3

SHS of Bulk Materials

CB-10.3:IL01 Hot Shock Welding Applications for Layered Composite Consisting of Non-oxide Ceramics and Metal

RYUICHI TOMOSHIGE, KANAKO SONODA, TAKUMI NAKAMURA, TAKUMA TANAKA, Sojo University, Japan; SEIICHIRO II, National Institute for Materials Science, Japan; YASUHIRO MORIZONO, National Institute of Technology, Kurume College, Japan

CB-10.3:IL02 Recent Progress in SHS Ceramics

A.S. MUKASYAN, Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN, USA, and National University of Science and Technology MISIS, Moscow, Russia

CB-10.3:IL03 Shedding New Light on the Microstructure of SiBOC Based Ceramics

G.D. SORARU¹, University of Trento, Trento, Italy

CB-10.3:L04 Combustion Synthesis of Ti3SiC2/SiC Ceramic Matrix Composites with Multichannel Structure

P.V. ISTOMIN, A.V. NADUTKIN, E.I. ISTOMINA, V.E. GRASS, Institute of Chemistry of Komi SC UB RAS, Syktyvkar, Russia

Session CB-10.4

Solution Combustion Synthesis of Ceramic Nanopowders and Materials, and Applications

CB-10.4:IL01 Product Structure Formation in SCS Processes

G. XANTHOPOULOU, Institute of Nanoscience and Nanotechnology, NCSR "Demokritos", Athens, Greece

CB-10.4:IL02 Solution Combustion Synthesis of Nanomaterials for Various Applications

Z.A. MANSUROV, G.T. SMAGULOVA, Institute of Combustion Problems, Kazakhstan, Almaty Al-Farabi Kazakh National University, Almaty, Kazakhstan

CB-10.4:IL03 Branding Study on SHS Technologies toward Efficient In-situ Resource Utilization Scenario

OSAMU ODAWARA, PROSAP Inc., Tokyo, Japan

CB-10.4:L04 Solution Combustion Synthesis of Gadolinium Oxide Nanopowders: Influence of the Fuel on the Properties of the Material

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CC-1:IL13 Tribocchemistry and Environmental Effects in Friction of Amorphous Carbon Films

F. MANGOLINI, Department of Mechanical Engineering, The University of Texas at Austin, Austin, TX, USA; K.D. KOSHIGAN, J. FONTAINE, Laboratoire de Tribologie et Dynamique des Systèmes, Ecole Centrale de Lyon, Ecully cedex, France; M.H. VAN BENTHEM, J.A. OHLHAUSEN, Sandia National Laboratories, Albuquerque, New Mexico, USA; J.B. McCLIMON, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA, USA; J. HILBERT, R.W. CARPICK, Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, PA, USA

CC-1:L14 Machining of Ceramic Matrix Composites

R. GOLLER, A. ROESIGER, Augsburg University of Applied Sciences, Augsburg, Germany

CC-1:IL15 Friction and Wear of Diamond: Atomic-scale Insights from Computer Simulations

G. MORAS, Fraunhofer IWM, MicroTribology Centre, Freiburg, Germany

CC-1:L16 Tribological Investigation on Friction and Wear of Al₂O₃-MgO Cutting-tool Ceramics on a Nickel-base Alloy

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CC-1:L17 Development of Si₃N₄ - SiC Composites for Tribological Applications

P. ZIELONKA, P. SCHREIBER, E.C. BUCHARSKY, K.G. SCHELL, J. SCHNEIDER, M.J. HOFFMANN, Institute for Applied Materials, Karlsruhe Institute of Technology, Karlsruhe, Germany

CC-1:IL18 Tribocorrosion in Biomaterials Science: An Overview

L.A. ROCHA^{1,2}, A.R. RIBEIRO^{2,3}, ¹UNESP - Universidade Estadual Paulista, Fac. Ciências Bauru, São Paulo, Brazil; ²IBTN/Br - Brazilian Branch of the Institute of Biomaterials, Tribocorrosion and Nanomedicine, Brazil; ³Postgraduate Program on Translational Biomedicine, Grande Rio University, Duque de Caxias, Rio de Janeiro, Brazil

CC-1:L19 Surface Properties of Sulfnitrided Layer formed on AISI4140 Steel by Plasma Nitriding

HYUN JUN PARK^{1,2}, SANG-SUP KIM², KYOUNG IL MOON¹, ¹Korea Institute of Industrial Technology, Heat Treatment R&D Group, Siheung-si, South Korea; ²School of Materials Science and Engineering, Inha University, Incheon, South Korea

CC-1:L20 Numerical Modelling of Nano / Micro Scratch Test Considering Scratch Tip Size Effect

KWANGMIN LEE, K.P. MARIMUTHU, H. LEE, Sogang University, Seoul, South Korea

Session CC-2 Corrosion

CC-2:IL01 Silicate Deposit Induced Degradation of Thermal and Environmental Barrier Coatings: Toward Integrated Models for Accelerated Coating Design

D.L. POERSCHKE, University of Minnesota, Minneapolis, MN, USA

CC-2:IL02 Corrosion and Oxidation of SiC Composites under High Temperature Water and Steam

TETSUYA HINOKI, S. KONDO, K. KAWASAKI, F. SHINODA, Kyoto University, Gokasho, Uji, Kyoto, Japan

CC-2:IL03 Electrochemical Corrosion and Electrochemical Machining of Ceramics

M. SCHNEIDER, Fraunhofer IKTS Dresden, Dresden, Germany

CC-2:IL04 Controllable Synthesis of Al₄SiC₄ by Carbothermal Reduction Method and its Oxidation Behavior at High Temperature

BIN LI¹, JUNHONG CHEN¹, XINMEI HOU², XINMING XING¹, KUO-CHIH CHOU², ¹School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China; ²State Key Laboratory of Advanced Metallurgy, University of Science and Technology Beijing, Beijing, China

CC-2:IL05 Progress in Gas-solid Reaction Kinetics for Non-oxide Ceramic Materials at High Temperature

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CC-2:IL06 Hot Gas Corrosion of Ceramic Materials

W. KUNZ, H. KLEMM, A. MICHAELIS, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany

CC-2:L07 Development of Advanced Environmental Barrier Coatings at NASA

KANG N. LEE, B.J. HARDER, B.J. PULEO, NASA Glenn Research Center, Cleveland, OH, USA; G. COSTA, Vantage Partners, Cleveland, OH, USA

CC-2:IL08 High Temperature Ceramic Materials for Space Applications

M. BALAT-PICHELIN, PROMES-CNRS Laboratory, Font-Romeu Odeillo, France

CC-2:IL09 Preparation and Oxidation Resistance of ZrB₂-SiC Composite Powders by Molten-salt-mediated Magnesiothermic Reduction Synthesis

HAIJUN ZHANG, The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science and Technology, Wuhan, China

CC-2:L10 Elastomer Seal Corrosion Protection using DLC-Ag Film

T. BAESSO¹, A.C. SENE¹, L.A. MANFROI, A.A. VIEIRA¹, P. A. RADI^{1,2}, M. A. RAMIREZ¹, T.C.A.SANTOS¹, **L.VIEIRA**^{1,2}, ¹University of Paraíba Valley-UNIVAP/ IP&D, Sao José dos Campos, SP-Brazil; ²Aeronautics Institute of Technology, ITA / LPP, Sao José dos Campos, SP-Brazil

CC-2:L11 High Temperature Corrosion in Molten Salts & Molten Salts Technology: Past, Present and Future Through Coatings Technology

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CC-2:L12 High-temperature Ageing of Si/SiC Ceramics

L. CHARPENTIER, C. CALIOT, PROMES-CNRS, Font-Romeu Odeillo, France

CC-2:L13 Tribocorrosion and Corrosion Studies on Stainless Steel Substrates Covered with DCL Films in Ethanol with Different Concentrations of Water

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CC-2:IL14 Environmental Barrier Coating Stability in High Temperature Water

R.A. GOLDEN, C.G. PARKER, M.J. RIDLEY, **E.J. OPILA**, Dept. of Materials Science and Engineering, University of Virginia, Charlottesville, Virginia, USA

CC-2:IL15 Effects of Oxygen Potential Gradient and Electrical Characteristics on Mass Transfer in Environmental Barrier Coatings at High Temperature

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SYMPOSIUM CD

JOINING OF INORGANIC MATERIALS: FROM MACRO- TO NANO-LENGTH SCALES

Session CD-1

Nano-scale Interface of Dissimilar Materials

CD-1:IL01 New Cu / Ceramics Bonding Technology for Highly Reliable Power Module Substrates

YOSHIYUKI NAGATOMO, NOBUYUKI TERASAKI, YOSHIROU KUROMITSU, Mitsubishi Materials Corporatin, Central Rearch Institute, Saitama, Japan

CD-1:IL02 Interface Engineering of Nanostructured Joining Materials

L.P.H. JEURGENS, B. RHEINGANS, M. CHIODI, V. ARAULLO-PETERS, C. CANCELLIERI, J. JANCZAK-RUSCH, Empa, Swiss Federal Laboratories for Materials Science and Technology, Laboratory for Joining Technologies & Corrosion, Duebendorf, Switzerland

CD-1:IL03 The Temperature and Time Dependence of Nanoscale Chemical Reactions at Brazed Alumina Joints

P.M. MALLINSON, AWE Plc, Reading, UK, M. ALI, K.M. KNOWLES, University of Cambridge, UK

CD-1:IL04 Defining Hetero-epitaxial Relationships of Films on Substrates

D. CHATAIN, CINAM, Aix Marseille Univ, CNRS, Marseille, France; P. WYNBLATT, A.D. ROLLETT, MSE, Carnegie Mellon University, Pittsburgh PA, USA; U. DAHMEN, NCEM-Molecular Foundry, LNBL, Berkeley, CA, USA

CD-1:L05 Wetting and Brazing of Vitreous Carbon by Reactive Ag-Cu-In-Ti Alloys

M. TAZI, V. CHAUMAT Univ. Grenoble Alpes, CEA, LITEN, DTBH, LCA, Grenoble, France; F. HODAJ, Univ. Grenoble Alpes, CNRS, Grenoble INP, SIMAP, Grenoble, France

CD-1:L06 Effect of Point Defects on Interfacial Bonding Between Noble Metal and TiO₂(110) Surface

KATSUYUKI MATSUNAGA, Department of Materials Physics, Nagoya University, Aichi, Japan; Nanostructures Research Laboratory, Japan Fine Ceramics Center, Aichi, Japan

CD-1:IL07 Reactive Wetting and Filling of Nanotubes by Molten Metals to Design Advanced Nanocomposites

P. NAUTIYAL, B. BOESL, A. AGARWAL, Plasma Forming Laboratory, Department of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA

CD-1:IL08 Atomic-scale Structural and Chemical Analysis of Heterointerfaces by Advanced Scanning Transmission Electron Microscopy

A. KUMAMOTO, N. SHIBATA, YUICHI IKUHARA, Institute of Engineering Innovation, School of Engineering, The University of Tokyo, Tokyo, Japan

CD-1:L09 Ionic Interdiffusion as Interaction Mechanism of Al and Si₃N₄

E. ADABIFIROOZJAEI¹, F. EMADI², P. KOSHY¹, C.C. SORRELL¹, ¹School of Materials Science and Engineering, UNSW Australia, Sydney, NSW, Australia; ²Department of Materials Science and Engineering, Sharif University of Technology, Tehran, Iran

Session CD-2

Micro-/Nano-joining

CD-2:IL01 Electric Field Induced Equilibrium Grain Boundary Configurations in Ceramic Bicrystals

L. HUGHES, K. VAN BENTHEM, University of California, Davis, CA, USA

CD-2:IL02 Metal-to-ceramics Joining using Reduction Reaction of Silver Oxide

AKIO HIROSE, K. ASAMA, K. MOTOYAMA, T. SANO, T. MATSUDA, Osaka University, Suita, Japan

CD-2:IL03 Development of Nanostructured Joining Materials

J. JANCZAK-RUSCH, M. CHIODI, V. ARAULLO-PETERS, C. CANCELLIERI, L.P.H. JEURGENS, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland

CD-2:L04 AE Evaluation of GaN Die-attach on DBC Substrate

CHANYANG CHOE, S. J. NOH, C. CHEN, S. NAGAO, K. SUGANUMA, The Institute of Science and Industrial Research, Osaka University, Osaka, Japan

Session CD-3

Macro-joining

CD-3:IL01 Wettability-induced Change in Crystallization Behavior of Supercooled Liquids Composed of Li₂O-SiO₂

SOHEI SUKENAGA, M. TASHIRO, H. SHIBATA, IMRAM, Tohoku University, Sendai, Japan

CD-3:IL02 Crack Paths in Layered, Graded Joints

I. REIMANIS, Colorado School of Mines, Golden, CO, USA

CD-3:L03 Homogeneous Diffusion Bonding of ZrCx: Empirical Evidence and Phase Field Modeling

RUI PAN^{1,2}, S. KOVACEVIC³, D.P. SEKULIC^{1,2}, S.DJ. MESAROVIC³, ¹University of Kentucky, Lexington, KY, USA; ²Harbin Institute of Technology, China; ³Washington State University, USA

CD-3:IL04 Joining of UHTC Composite using Powder-based Metallic Interlayer

NORITAKA SAITO, KUNIIHIKO NAKASHIMA, Kyushu University, Fukuoka, Japan

CD-3:IL05 The Role of Wetting in Joining

D.P. SEKULIC, College of Engineering, University of Kentucky, Lexington, KY, USA; School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, China

CD-3:L06 Mechanical Property of Dissimilar Metal Joints made by Friction Stirring

MASAHIRO FUKUMOTO, TOSHIKI YASUI, Toyohashi University of Technology, Toyohashi, Japan

Session CD-4

Application Engineering

CD-4:IL01 Importance of Chemical Exchanges between Matrix and Reinforcement during Synthesis of Metal Matrix Composite

O. DEZELLUS, J. ANDRIEUX, B. GARDIOLA, Laboratoire des Multimateriaux et Interfaces, Université Lyon 1, Villeurbanne, France

CD-4:IL03 Torsion Shear Testing of Ceramic Joints for Components Design

J. KUEBLER, G. BLUGAN, G. MATA-OSORO, Empa, Swiss Federal Laboratories for Materials Science and Technology Laboratory for High Performance Ceramics, Dübendorf, Switzerland

SYMPOSIUM CE

FRONTIERS IN NANOSTRUCTURED, NANOCOMPOSITE AND HYBRID FUNCTIONAL MATERIALS FOR ENERGY AND SUSTAINABILITY

Session CE-1

Innovative Processing of Nano- and Heterostructures and Films of Functional Materials

CE-1:IL01 Low Cost Solution Processing of Nanowires for Flexible Devices

YOUNG-JEI OH, B.-W. WANG, Opto/Electronic Materials & Devices Research Center, Korea Institute of Science and Technology (KIST), Seoul, South Korea; Department of Nanomaterials Science and Engineering, University of Science and Technology (UST), Dae-Jeon, South Korea

CE-1:IL02 2D Oxide Nanosheets as Single-crystal Templates to Control Growth and Properties of Functional Oxides

A. TEN ELSHOF, MESA+ Institute for Nanotechnology, University of Twente, AE Enschede, The Netherlands

CE-1:IL03 TiO₂-based Nanocrystals with Reduced Symmetry

P.D. COZZOLI, Dipartimento di Matematica e Fisica "E. De Giorgi", Università del Salento, Lecce, Italy

CE-1:IL04 Complex Composition and Structure Materials by Solution Chemistry

G. WESTIN¹, S.N. KATEA¹, M. LEIDEBORG^{1,3}, K. LASHGARI^{1,3}, K. JANSSON², ¹Chemistry-Angstroem, Angstroem Laboratory, Uppsala University, Uppsala, Sweden; ²Materials and Environmental Chemistry, Arrhenius Laboratory, Stockholm University, Stockholm, Sweden; ³S-Solar, Finspang, Sweden

CE-1:IL05 Low-temperature Synthesis of Metastable Materials with Anisotropic Morphology

S. BARTH, TU Wien, Institute of Materials Chemistry, Vienna, Austria

CE-1:IL06 Focused-ion-beam-enabled Electroless Metal Deposition on Silicon and Fabrication of Probes for Tip-enhanced Raman Spectroscopy

MASAYUKI NISHI, Kyoto University, Kyoto, Japan

CE-1:IL07 Flexibility of Core-shell Nanostructures for Clean Energy Work

D. HC CHUA, National University of Singapore, Singapore

CE-1:IL08 Recent Advances in the MOVPE Growth and Nano-Scale Characterization of III-V Nanowires for Photonics and Photovoltaics

N. LOVERGINE, Università del Salento, Lecce, Italy; P. PRETE, IMM-CNR, Lecce, Italy

CE-1:L09 Particle Sintering and Buildup of Solid-electrolyte Interfaces in Aporous TiO₂ Nanocrystal Electrodes

K. RETTENMAIER, J. MIGUEL JIMÉNEZ, T. BERGER, Department of Chemistry and Physics of Materials, University of Salzburg, Salzburg, Austria

Session CE-3

Functional Materials and Sustainability

CE-1:IL10 Low Temperature Growth of Graphene with In-situ TEM Observations

MASAKI TANEMURA¹, M.I. ARABY¹, R. VISHWAKARMA¹, M.S. ROSMI², S. SHARMA¹, Y. WAKAMATSU¹, K. TAKAHASHI¹, G. KALITA¹, M. KITAZAWA³, Y. YAAKOB⁴, M.Z.M. YUSOP⁵, ¹Dept. of Frontier Materials, Nagoya Inst. of Tech., Showa-ku, Nagoya, Japan; ²Dept. of Chemistry, Faculty of Science and Mathematics, Universiti Pendidikan Sultan Idris, Tanjong Malim, Perak, Malaysia; ³Olympus Co. Ltd., Nagano, Japan; ⁴Dept. of Physics, Univ. Putra Malaysia, UPM Serdang, Selangor, Malaysia; ⁵Dept. of Materials, Univ. Tech. Malaysia, Skudai, Johor, Malaysia

CE-1:L11 Hybrid Down-converting Nano-structures for Solid State Lighting

H. MENKARA, PhosphorTech, Kennesaw, GA, USA

CE-1:IL12 Novel Routes to Non-oxide Metal-containing Nanoparticles (phosphides, carbides, oxysulfides)

S. CARENCO, Sorbonne Universités, UPMC Univ Paris 06, CNRS, Collège de France, Lab. de Chimie de la Matière Condensée de Paris, Paris, France

Session CE-2

Functional Metal Oxide Nano- and Heterostructures

CE-2:IL01 Designing Catalysts for Water-Splitting Reactions: Oxide-Oxide Bilayers as High Efficiency Photoelectrocatalysts

S. MATHUR, Inorganic and Materials Chemistry University of Cologne, Cologne, Germany

CE-2:IL02 ZnO Particles with Hierarchical Structures and Gas Sensing Application

NORIKO SAITO, H. HANEDA, I. SAKAGUCHI; K. WATANABE, K. SHIMANOE, National Institute for Materials Science, Tsukuba, Japan; Kyushu University, Fukuoka, Japan

CE-2:IL03 High Efficiency Air-stable Hybrid Solar Cells Fabricated with Graphene and Metal Oxide Based Nanocomposites

YOON-BONG HAHN, School of Semiconductor and Chemical Engineering Chonbuk National University, South Korea

CE-2:IL04 Chemical Synthesis of TiO₂ and Complex Nanocrystals by Means of Colloidal Approaches

M. EPIFANI, CNR-IMM, Lecce, Italy

CE-2:IL05 Portable Static Hydroelectric Cell with Mesoporous SnO₂ as the Backbone

V. SOLANKI, S.B. KRUPANIDHI, **K.K. NANDA**, Materials Research Centre, Indian Institute of Science, Bangalore, India

CE-2:L06 Functionalization of Oxide Nanocrystals with Transition Metal Ions

M. NIEDERMAIER, University of Salzburg, Salzburg, Austria; **A. GHEISI**, Friedrich-Alexander-University Erlangen, Bavaria, Erlangen, Germany; **J. BERNARDI**, Vienna University of Technology, Vienna, Austria; **O. DIWALD**, University of Salzburg, Salzburg, Austria

CE-2:IL07 Strategies to Engineer Semiconducting Metal Oxides for Solar Energy Exploitation

I. CONCINA, Lulea University of Technology, Lulea, Sweden

CE-2:IL08 Back Interface Random Texturing for Enhanced Light Harvesting to Achieve High-efficiency Perovskite Solar Cells

J. TOUDERT, M. KRAMARENKO, H. ZHANG, J. OSMOND, J. MARTORELL*, ICFO - Institut de Ciències Fotoniques, The Barcelona Institute of Science and Technology, Castelldefels, Barcelona, Spain; *Departament de Física, Universitat Politècnica de Catalunya, Terrassa, Spain

CE-2:IL09 Low-loss Rutile TiO₂ Films for Nanophotonic Applications

S. KUPRENAITE¹, **S. GRIESSE-NASCIMENTO**², **S. MARGUERON**³, **C. MILLON**¹, **D. RADDENZATI**¹, **E. MAZUR**², **A. BARTASYTE**¹, ¹FEMTO-ST institute, Université Bourgogne Franche-Comté, ENSMM, Besançon, France; ²School of Engineering and Applied Sciences, Harvard University, Cambridge, USA; ³LMOPS Laboratory, Université de Lorraine et CentraleSupélec, Metz, France

CE-2:L10 Enhancement of Oxygen Reduction Reaction (ORR) Catalytic Activity on the Modified Surface of La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-δ} by Palladium Nanoparticles

MI YOUNG OH, HAN BIT KIM, TAE HO SHIN, Korea Institute of Ceramic Engineering and Technology, Jinju-si, Gyeongsangnam-do, South Korea

CE-3:IL01 Photovoltaics for Use in Energy Conversions: From Capturing the Sun's Rays to Transmitting Power Optically

K. HINZER, University of Ottawa, Ottawa, Ontario, Canada

CE-3:IL02 Organic-inorganic Hybrid Aerogels and Xerogels with High Strength and Flexibility

KAZUYOSHI KANAMORI, Department of Chemistry, Graduate School of Science, Kyoto University, Japan

CE-3:IL03 Li-ion Conductor for Future Energy Storage

LI LU, National University of Singapore National University of Singapore Suzhou Research Institute, Singapore

CE-3:IL04 High Conversion Efficiency Materials for Thermoelectric Applications

W. WONG-NG, C. BROWN, J. MARTIN, Q. HUANG, National Institute of Standards and Technology, Gaithersburg, MD, USA; **Y. YAN**, Wuhan University of Technology, Wuhan, China; **Y.C. LAN**, Morgan State University, Baltimore, MD, USA; **Z.F. REN**, University of Houston, Houston, TX, USA

CE-3:L05 Nano-catalyst Infiltration Enhancement of Porous Solid Oxide Fuel Cell Electrodes Using Catechol Surfactants

O. OZMEN, **K. SABOLSKY**, **J.W. ZONDLO**, **E.M. SABOLSKY**, West Virginia University, Morgantown, WV, USA; **S. LEE**, **G. HACKETT**, **H. ABERNATHY**, US Department of Energy, National Energy Technology Laboratory, Morgantown, WV, USA

CE-3:IL06 Engineering Hematite and Silicon for Efficient Photoelectrochemical Water Splitting

SHAOHUA SHEN, International Research Center for Renewable Energy, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, China

CE-3:IL07 3D Nanoarchitectures for Energy Technologies and Bio-medical Sensing - Enhancing Functionality through Correlative Microscopy

S.H. CHRISTIANSEN, Helmholtz-Zentrum Berlin, Germany

CE-3:L08 CO₂/H₂O Thermochemical Splitting on Porous SiOC Nanocomposites Decorated with 1D Catalytic Nanostructures

AITANA TAMAYO¹, **B. GARCIA**², **E. CASADO**³, ¹Ceramics and Glass Institute, CSIC, Madrid, Spain; ²Universidad Rey Juan Carlos, Madrid, Spain; ³Universidad Politécnica Madrid, Madrid, Spain

CE-3:IL09 Composite Nanostructures for High-efficiency Sunlight Harvesting

A. VOMIERO, Department of Engineering Science and Mathematics, Lulea University of Technology, Lulea, Sweden

CE-3:IL10 3D SEM Analysis of Nanostructured Materials prior to Morphological Characterization of Adipose Tissue

R. SKAUDZIUS, **E. GARSKAITE**, **A. KAREIVA**, Institute of Chemistry, Vilnius University, Vilnius, Lithuania

CE-3:IL11 Flux Crystal Growth Concept as New Approaches to Material Synthesis and Design: A Challenge for All-solid-state Lithium Ion Batteries

KATSUYA TESHIMA, NOBUYUKI ZETTSU, Center for Energy and Environmental Science, Shinshu University, Nagano, Japan

CE-3:L12 Ultra-long Vertically Aligned Lead Titanate Nanowire Arrays for Energy Harvesting in Extreme Environments

A. NAFARI¹, **C.C. BOWLAND**², **H.A. SODANO**^{1,3}, ¹Department of Aerospace Engineering, University of Michigan, Ann Arbor, MI, USA; ²Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA; ³Department of Material Science Engineering, University of Michigan, Ann Arbor, MI, USA

SYMPOSIUM CF
HIGH AND ULTRA HIGH
TEMPERATURE CERAMICS AND
COMPOSITES FOR EXTREME
ENVIRONMENTS

Session CF-1
 Synthesis and Processing

CF-1:IL01 Beyond YSZ For High Temperature Gas Turbines and Aerospace

D.R. CLARKE, Harvard University Cambridge, MA, USA

CF-1:IL02 Ultra-high Temperature Ceramic Matrix Composites (UHTCMCs)

J. BINNER, V. RUBIO, M. PORTER, University of Birmingham, Edgbaston, Birmingham, UK

CF-1:IL03 Synthesis, Processing and Characterization of Thermal Barrier Ceramics Based on Gd₂Hf₂O₇ Pyrochlore Structure

B. MATOVIC¹, J. MALETASKIC^{1,2}, J. LUKIC¹, M. PREKAJSKI DJORDJEVIC¹, M. FAJAR², K. YOSHIDA², T. YANO², ¹Centre of Excellence-CextremeLab, Institute for Nuclear Sciences Vinca, University of Belgrade, Belgrade, Serbia; ²Lab. for Advanced Nuclear Energy, Institute of Innovative Research, Tokyo Institute of Technology, Ookayama, Meguro-ku, Tokyo, Japan

CF-1:IL04 Fast Densification of UHT Ceramics and Composites by SPS

D. SCITI, L. SILVESTRONI, L. ZOLI, ISTECC-CNR, Faenza, Italy

CF-1:IL05 Synthesis of Ultra-fine Hafnium Carbide Powders Combining the Methods of Liquid Precursor Conversion and Plasma Activated Sintering

WEIMIN M. WANG, D.L. LU, H. WANG, F. ZHANG, J. WEI, Z.Y. FU, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, China

CF-1:IL06 Development of High Temperature Na₂SO₄-NaCl-ceramic Composites for Solar Thermal Energy Storage

YIFENG JIANG¹, **YANPING SUN²**, SEAN LI¹, ¹University of New South Wales, Sydney, NSW, Australia; ²CSIRO Energy, Newcastle, NSW, Australia

CF-1:IL07 Sintering of Ultra-high Temperature, High Entropy Ceramics based on Multi-component Metal Carbides

E.G. CASTLE, **M.J. REECE**, School of Engineering and Material Science, Queen Mary University of London, London, UK

CF-1:IL08 Developing Cost-effective Manufacturing Methods and Processing Strategies for UHTCs

C. TALLON, Department of Materials Science and Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA

CF-1:IL09 Target Materials for the Production of Radioisotopes at the SPES Facility

S. CORRADETTI, A. ANDRIGHETTO, M. BALLAN, F. BORGNA, M. MANZOLARO, INFN - Laboratori Nazionali di Legnaro, Legnaro, Italy; S. CARTURAN, Università di Padova, Dipartimento di Fisica e Astronomia, Padova, Italy; L. BIASETTO, Università di Padova, Dipartimento di Tecnica e Gestione dei Sistemi Industriali, Vicenza, Italy; G. FRANCHIN, P. COLOMBO, Università di Padova, Dipartimento di Ingegneria Industriale, Padova, Italy

CF-1:IL10 Preparation and Characterization of the New Ultra-high Temperature Ceramics Aerogels and the Related Composites

BAOSHENG XU, School of Aerospace Engineering, Tsinghua University, Beijing, China

CF-1:IL11 Additive Manufacturing of Hard Transparent Ceramics

A.E.M. BROWAR, G. GUSS, J.D. KUNTZ, M.J. MATTHEWS, N. SHEN, R.M. PANAS, C.M. SPADACCINI, Lawrence Livermore National Laboratory, Livermore, CA, USA; J.D. ELLIS, University of Rochester, Rochester, NY, USA

CF-1:IL12 Preparation of Highly Macroporous Monolithic Transition Metal Borides/Carbides by Polymerization-induced Phase Separation

FEI LI^{1,2}, XIAO HUANG², GUO-JUN ZHANG¹, ¹State Key Lab. for Modification of Chemical Fibers and Polymer Materials, Research Institute of Functional Materials, Donghua University, Shanghai, China; ²Shanghai Institute of Ceramics, CAS, Shanghai, China

Session CF-2
 Corrosion, Oxidation, and Testing

CF-2:IL01 High Temperature Behaviour of Ti₃SiC and TiAl₂C in Air and Water Vapour Environment

D.D. JAYASEELAN, Kingston University London, UK; KATSUMI YOSHIDA, Tokyo Institute of Technology, Japan; TOHRU TSUNOURA, Tokyo Tech, Japan; TAKUYA AOKI, Japan Aerospace Exploration Agency, Japan, TOSHIO OGASAWARA, Tokyo University of Agriculture and Technology, W.E. LEE, Imperial College London, UK

CF-2:IL02 Development of Environmental Barrier Coatings for Non-oxide Ceramic Matrix Composites

H. KLEMM, W. KUNZ, B. GRONDE, K. SCHÖNFELD, FhG IKTS Dresden, Dresden, Germany

CF-2:IL03 Creep of HfB₂-based UHTCs up to 2000 °C: A Critical Assessment on Structural Stability for Hypersonic Applications

E. ZAPATA-SOLVAS¹, D. GÓMEZ-GARCIA², A. DOMÍNGUEZ-RODRÍGUEZ², W.E. LEE¹, ¹Centre for Nuclear Engineering (CNE), Dept. Materials, Imperial College London, UK; ²Dept. Condensed Matter Physics, University of Seville, Seville, Spain

CF-2:IL04 Relation between Microstructure and Protection Efficiency of a Rare Earth Silicate-based Environmental Barrier Coating

F. REBILLAT¹, S. ARNAL¹, F. MAUVY², ¹Laboratoire des Composites Thermostructuraux, Pessac, France; ²Institut de Chimie de la Matière Condensée de Bordeaux, Pessac, France

CF-2:IL05 Cyclic Oxidation of Ti₃Al-based Materials

I. CVIJOVIC-ALAGIC, M.T. JOVANOVIĆ, D. ZAGORAC, B. MATOVIC, Institute of Nuclear Sciences "Vinča", University of Belgrade, Belgrade, Serbia; Z. CVIJOVIC, Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

CF-2:IL06 Thermoablative Resistance of ZrB₂-SiC-WC Ceramics at 2400 °C

JIZOU, V. RUBIO, J. BINNER, School of Metallurgy and Materials, University of Birmingham, Birmingham, UK

CF-2:IL07 Corrosion Behavior of Slurry Coated RE Monosilicate EBCs on SiC/SiC

N. AL NASIRI, Imperial College London, London, UK

CF-2:IL08 Ceramic Materials for High Efficiency Advanced Microturbines

S. CONCARI, F. CERNUSCHI, RSE - Ricerca Sistema Energetico SpA, Milano, Italy

CF-2:IL09 High-temperature Stability of (Ti,Nb)-Al-C MAX Phases Composites in Oxidizing and Hydrogen Atmosphere

T. PRIKHNA, Institute for Superhard Materials of the National Academy of Sciences of Ukraine, Kiev, Ukraine

CF-2:IL10 Laser Melting of Ultra-high Temperature Ceramics

D. MANARA, K. BOBORIDIS, D. ROBBA, M. COLOGNA, R. KONINGS, European Commission, JRC Karlsruhe, Germany

CF-2:IL11 UHTC Thermal Sprayed Coatings behavior under Plasma Wind Tunnel Tests

M. DE STEFANO FUMO, R. GARDI, CIRA, Capua, Italy; **M. TULUI**, F. ARCOBELLO VARLESE, S. LIONETTI, M. FORTUNATO, CSM, Rome, Italy

CF-2:IL12 Oxidation Behavior of HfB₂-SiC and ZrB₂-SiC Ultra-high Temperature Ceramics in Different Air Atmospheres

C. PIROU, O. RAPAUD, S. FOUCAUD, SPCTS-CNRS UMR 7315, Limoges, France; L. CHARPENTIER, M. BALAT-PICHELIN, PROMES-CNRS UPR 8521, Font-Romeu Odeillo, France

CF-2:IL13 Oxidation Performance of BN-coated SiC Sylramic Fibers under Relevant Conditions for High-temperature Applications

V. ANGELICI AVINCOLA, E.J. OPILA, University of Virginia, Charlottesville, VA, USA

CF-2:IL14 Anti-oxidation Performance of a Cf/UHTC Composite with a BN Interface

P. MAKURUNJE, **I. SIGALAS**, School of Chemical and Metallurgical Engineering, University of the Witwatersrand, Johannesburg, South Africa and DST-NRF Centre of Excellence in Strong Materials, South Africa

Session CF-3
 Mechanical and Thermal Properties

CF-3:IL01 Modeling of Damage Evolution and Life Prediction in Fiber-reinforced Ceramic Matrix Composites under Tensile and Cyclic Loading at Elevated Temperatures in Oxidative Environments

LONGBIAO LI, Nanjing University of Aeronautics and Astronautics, Nanjing, P.R. China

CF-3:IL02 Deformation Mechanisms in Transitional Metal Carbides
G.B. THOMPSON, C. SMITH, M. ROSS, XIAO-XIANG YU, N. DELEON, University of Alabama, Tuscaloosa, AL, USA; C.R. WEINBERGER, Colorado State University, Fort Collins, CO, USA

CF-3:L03 Finite Element Constitutive Modeling of High-temperature Ceramics
J.Y.R. RASHID, ANATECH-SI, San Diego, CA, USA

CF-3:IL04 Making Porous UHTC's for Transpiration Cooling of Components
L.J. VANDEPERRE, D. GLYMOND, L. LARRIMBE, W.E. LEE, Centre for Advanced Structural Ceramics & Department of Materials, Imperial College London, South Kensington Campus, London, UK

CF-3:IL05 Defect Engineering in Development of Low Thermal Conductivity Materials
WEI PAN, MENG ZHAO, XIAORUI REN, JUN YANG, CHUNLEI WAN, ZHIXUE QU, JING FENG, State Key Lab of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing, China

CF-3:L06 On the Non-linear Young's Modulus Behavior of Carbon-bonded Materials at High Temperatures
B. LUCHINI, J. GRABENHORST, J. FRUHSTORFER, C.G. ANEZIRIS, IKGB, TU-Bergakademie Freiberg, Freiberg, Sachsen, Germany; V.C. PANDOLFELLI, GEMM, UFSCar, São Carlos, SP, Brazil

CF-3:L07 Effect of Microstructural Features of SPSed Boron Carbide Ceramics on their Mechanical Properties
L. ROUMIGUIER, A. JANKOWIAK, DEN-Service de Recherches Metallurgiques Appliquées, CEA, Université Paris-Saclay, Gif-sur-Yvette, France; N. PRADEILLES, G. ANTOU, A. MAITRE, Science of Ceramic Processing and Surface Treatments Lab.- SPCTS, UMR CNRS 7315, Limoges, France

CF-3:L08 Aluminum-dodecaboride- and Boroncarbide-based Lightweight Ceramics
T.A. PRIKHNA¹, **P.P. BARVITSKIY¹**, V.B. MURATOV², S.N. DUB¹, V. DOMNICH³, M.V. KARPETS¹, R. HABER³, ¹Institute for Superhard Materials of the National Academy of Sciences of Ukraine, Kiev, Ukraine; ²Institute for Problems in Material Science, NAS Ukraine, Kiev, Ukraine; ³Department of Materials Science and Engineering, Rutgers, The State University of New Jersey, Piscataway, NJ, USA

CF-3:L09 Thermo-mechanical Behaviour of Carbon-carbon Composite
T. VOIRIN, P. REYNAUD, G. FANTOZZI, University of Lyon, INSA Lyon, MATEIS, Villeurbanne, France

CF-3:L10 Spark Plasma Sintering and Mechanical Characterization of Titanium Nitride Ceramics
B.M. MOSHTAGHIUN, D. GOMEZ GARCIA, A. DOMINGUEZ RODRIGUEZ, Department of Condensed Matter Physics, University of Seville, Spain

CF-3:L11 On the Thermal Properties of Celsian Ba/SrAl₂Si₂O₈ Ceramics: Theoretical and Experimental Study
LUCHAO SUN, J.Y. WANG, Shenyang National Laboratory for Materials Science; Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China

CF-3:L12 XFEM Investigations of Double Torsion Fracture Test
K.P. MARIMUTHU, K. LEE, H. LEE, Sogang University, Seoul, South Korea

CF-3:IL13 On the Plasticity and Grain Growth in Boron Carbide Ceramics
D. GOMEZ-GARCIA, B.M. MOSHTAGHIUN, A. DOMINGUEZ-RODRIGUEZ, Department of Condensed Matter Physics, University of Seville, Spain

CF-3:IL14 Boride Ceramics with High Strength at Ultra-high Temperatures
L. SILVESTRONI¹, D. SCITI¹, J. WATTS², W. FAHRENHOLTZ², G. HILMAS², ¹CNR-ISTEC, Faenza, Italy; ²Dept. of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO, USA

CF-3:L15 Graphene-reinforced Alumina and Zirconia Composites: On their Potential Applications
R. CANO-CRESPO, B.M. MOSHTAGHIUN, D. GOMEZ-GARCIA, R. MORENO, A. DOMINGUEZ RODRIGUEZ, Department of Condensed Matter Physics, University of Seville, Spain Institute of Ceramics and Glass, CSIC, Spain

CF-3:L16 The Opportunities and Challenges for Novel Materials for Future Power Generation Systems
K. NAWAZ, E. LARA-CURZIO, JIANG HAO, Z. MILLS, ORNL, OAK RIDGE, TN, USA

CF-3:L17 Alumina Whiskers-reinforced Alumina Composites. A New Option for High Temperature Applications?
YOSHIIHIRO TAMURA, B.M. MOSHTAGHIUN, E. ZAPATA-SOLVAS, D. GOMEZ-GARCIA, **A. DOMINGUEZ-RODRIGUEZ**, C. CERECEDO-FERNANDEZ, V. VALCARCEL-JUAREZ, Department of Condensed Matter Physics, University of Seville, Spain

CF-3:L18 A Theoretical Approach to Finite Strain Superplasticity in Carbon Nanofiber-reinforced and Graphene Oxide-reinforced Alumina and Zirconia Composites Sintered by Spark Plasma Sintering
C. RETAMAL¹, R. CANO-CRESPO², R. VALLE-FUENTES¹, M. LAGOS¹, B.M. MOSHTAGHIUN², D. GOMEZ-GARCIA^{2,3}, R. MORENO⁴, A. DOMINGUEZ-RODRIGUEZ², ¹Facultad de Ingeniería, Universidad de Talca, Campus Los Niches, Curicó, Chile; ²Departamento de Física de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain; ³Instituto de Ciencia de Materiales de Sevilla, CSIC-US, Sevilla, Spain; ⁴Instituto de Cerámica y Vidrio (ICV-CSIC), Madrid, Spain

Session CF-4

Characterization and Analysis

CF-4:IL01 Nano-mechanical Testing of ZrB₂ Ceramics
J. DUSZA, Institute of Materials Research, SAS, Kosice, Slovakia

CF-4:L02 Characterization of the Microstructure of 3C-SiC Coatings Grown by Chemical Vapor Infiltration (CVI)
I. VITROLLES^{1,2}, Y. LE PETITCORPS², H. PLAISANTIN^{1,2}, J. ROGER², ¹Safran CERAMICS; ²University of Bordeaux, LCTS, UMR 5801, Pessac, France

CF-4:L03 Pitfalls of Determining the Elastic Properties of Stabilized Zirconia with Indentation Methods
K. WERBACH¹, S. HUMMEL¹, C. EBNER¹, U. LOHBAUER², H. PETERLIK¹, ¹University of Vienna, Vienna, Austria; ²University Erlangen-Nürnberg, Erlangen, Germany

CF-4:IL04 Nanometer-scale Computer Simulation of Structure and Mechanical Properties of UHT Ceramics
D. BRENNER, S. DAIGLE, M. LIM, M. DELOWER HOSSAIN, J.-P. MARIA, Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC, USA; C. TOHER, P. SARKER, S. CURTAROLO, Department of Mechanical Engineering and Materials Science, Duke University, Durham, NC, USA

CF-4:IL05 Non-destructive Methods for Ceramic Materials - Characterization of SiC and SiC composite materials by HF Eddy Current Techniques
S. HILLMANN, M. SCHULZE, **H. HEUER**, Fraunhofer IKTS Dresden, Germany

CF-4:IL06 Prediction of Crack Deflection Behaviour in Ultra-high Temperature Ceramics
M. ASLE ZAEEM, Dept. of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO, USA

CF-4:L07 The Characterization of Highly Porous Reaction-bonded Silicon Nitride Ceramics in the Presence of Oxide Additives
R. NIKONAM M., M.D. PUGH, R.A.L. DREW, Concordia University, Department of Mechanical, Industrial and Aerospace Engineering, Montreal, Quebec, Canada

SYMPOSIUM CG

PROGRESS IN NANO-LAMINATED TERNARY CARBIDES, NITRIDES AND BORIDES (MAX/MAB) PHASES AND DERIVATIVES THEREOF (MXENES)

CG:KL Expanding the Structural and Elemental Space of MAX Phases and MXenes

J. ROSEN, Linköping University, Department of Physics, Chemistry and Biology (IFM), Linköping, Sweden

Session CG-1

Bulk and Thin Film Transport Properties of the MAX/ MAB/MXenes

CG-1:IL01 Transport Properties in MAX Single Crystals and MXenes
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CG-1:IL02 Mn₂GaC Thin Films: Magnetic MAX Phase from Theory and Experiment

A.S. INGASON^{1,2}, M. DAHLQVIST¹, A. MOCKUTE¹, A. PETRUHINS¹, G.K. PALSSON^{3,4}, J. ROSEN¹, ¹Thin Film Physics, Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden; ²Grein Research, Reykjavik, Iceland; ³Dept. of Physics and Astronomy, Uppsala University, Uppsala, Sweden; ⁴Institut Laue-Langevin, Grenoble, France

CG-1:IL03 Ab-initio Calculations of the Thermoelectric Properties of MXenes

U. SCHWINGENSCHLOGL, Physical Science and Engineering Division (PSE), King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

Session CG-2

New MAX/MAB/MXenes

CG-2:IL01 Prediction and Synthesis of New MAX Phases with in- and out of Plane Chemical Ordering

M. DAHLQVIST, JUN LU, R. MESHKIAN, QUANZHENG TAO, L. HULTMAN, J. ROSEN, Department of Physics, Chemistry, and Biology (IFM), Linköping University, Linköping, Sweden

CG-2:IL02 Novel Zr-based MAX Phase Solid Solutions

J. VLEUGELS^{1,2}, T. LAPAUW^{1,2}, B. TUNCA^{1,2}, K. VAN LOO¹, K. LAMBRINOUP², ¹KU Leuven, Department of Materials Engineering, Heverlee, Belgium; ²SCK•CEN, Mol, Belgium

CG-2:IL03 Magnetic MAX-phases: The Ultimate Material Class for Innovations in Spin-based Technologies ?

M. FARLE, R. SALIKHOV, U. WIEDOWALD, Faculty of Physics, University of Duisburg-Essen, Duisburg, Germany

CG-2:IL04 Novel MXene Materials and their Properties

JIE ZHOU, MIAN LI, XIAOJING BAI, XIANHU ZHA, SHIYU DU, **QING HUANG**, Ningbo Institute of Industrial Technology, CAS, Ningbo, China

CG-2:IL05 Compatibility of Zr₂AlC, (Zr,Ti)₂AlC and (Zr,Ti)₃AlC₂ MAX Phases with Lead-Bismuth Eutectic (LBE)

B. TUNCA^{1,2}, T. LAPAUW^{1,2}, K.G. PRADEEP³, J. SCHNEIDER³, R. DELVILLE¹, J. HADERMANN⁴, J. VLEUGELS², K. LAMBRINOUP¹, ¹Belgian Nuclear Research Centre, SCK•CEN, Mol, Belgium; ²Dept. of Materials Engineering, KU Leuven, Heverlee, Belgium; ³Materials Chemistry, RWTH Aachen University, Aachen, Germany; ⁴Dept. of Physics, University of Antwerp, Antwerp, Belgium

CG-2:IL06 New MAX Phases and MXenes for Energy Relevant Applications

M.H. TRAN, **C.S. BIRKEL**, Technische Universität Darmstadt, Darmstadt, Germany

Session CG-3

Mechanical Properties and Oxidation of MAX/MAB/MXenes

CG-3:IL01 Ripplifications: A Universal Mechanism in the Deformation of Layered Solids

M.W. BARSOUM, Drexel University, Philadelphia, PA, USA

CG-3:IL02 Self-healing Properties of MAX-phases: Thermodynamic Predictions and Reality

S. VAN DER ZWAAG, W.G. SLOOF, Delft University of Technology, Delft, The Netherlands

CG-3:IL03 Oxidation, Thermal Stability, and Mechanical Deformation of the Alumina-forming Nanolaminated Boride: MoAlB

S. KOTA, A. LY, O. ELKASSABANY, A. HUON, S.J. MAY, M.W. BARSOUM, Department of Materials Science & Engineering, Drexel University, Philadelphia, PA, USA; E. ZAPATA-SOLVAS, W.E. LEE, Centre for Nuclear Engineering & Department of Materials, Imperial College London, UK; YEXIAO CHEN, D. LOPEZ, M. RADOVIC, Department of Materials Science & Engineering, Texas A&M University, College Station, TX, USA; JUN LU, L. HULTMAN, Linköping University, Department of Physics (IFM), Linköping, Sweden; B. GARDIOLA, O. DEZELLUS, Université Claude Bernard LYON1, Laboratoire des Multimateriaux et Interfaces, UMR CNRS 5615, Villeurbanne, France

CG-3:IL04 MAX Phase High-temperature Plasticity: Nanoindentation and Transmission Electron Microscopy Analysis of Dislocations Elementary Mechanisms

W. SYLVAIN, **A. JOULAIN**, C. TROMAS, L. THILLY, Pprime Institute, CNRS, University of Poitiers, ISAE-ENSMA, France; S. SCHROEDERS, C. ZEHNDER, S. KORTE, C. IMM- RWTH Aachen University, Germany; G. RENO, SIMAP, Grenoble, France

CG-3:IL05 Ablation and Thermal Shock Behaviours of MAX Phases

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CG-3:IL06 Mechanical Behavior and Strengthening of Alumina forming MAX Phases

M. RADOVIC¹, R. BENITEZ², HULI GAO², YEXIAO CHEN¹, WEN HAO KAN³, G. PROUST³, P. NAIK PARRIKAR⁴, ARUN SHUKLA⁴, ¹Department of Material Science and Engineering, Texas A&M University, College Station, TX, USA; ²Department of Mechanical Engineering, Texas A&M University, College Station, TX, USA; ³School of Civil Engineering, The University of Sydney, NSW, Australia; ⁴Department of Mechanical, Industrial and Systems Engineering, University of Rhode Island, Kingston, RI, USA

CG-3:IL07 Structure and Local Composition Evolution of Cr₂AlC with and without Si Additions during Oxidation

J.M. SCHNEIDER, Materials Chemistry, RWTH Aachen University, Aachen, Germany

CG-3:IL08 Relationship between Microstructure and Oxidation Resistance of Ti₃AlC₂ MAX Phase

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CG-3:IL09 Corrosion Behaviour of MAX Phases in Molten Solar Salt and Liquid Heavy Metal

K. VAN LOO¹, T. LAPAUW^{1,2}, P. SZAKÁLOS³, K. LAMBRINOUP², J. VLEUGELS¹, ¹KU Leuven, Department of Materials Engineering, Heverlee, Belgium; ²SCK•CEN, Mol, Belgium; ³KTH, Surface and Corrosion Science, Stockholm, Sweden

CG-3:IL10 Experimental and Theoretical Investigations on MAX/ Intermetallic Two-phase Materials

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CG-3:IL11 Environmental Resistance of Cr₂AlC MAX Phase under Realistic Conditions

J. GONZALEZ-JULIAN, T. GO, D. MACK, O. GUILLON, R. VASSEN, Forschungszentrum Jülich, Institute of Energy and Climate Research (IEK-1), Juelich, Germany

CG-3:IL12 Tensile Creep Properties of Ti₃AlC₂

S. DUBOIS¹, E. DROUELLE^{1,2}, J. CORMIER¹, V. GAUTHIER-BRUNET¹, P. VILLECHAISE¹, P. SALLOT², ¹Institut Pprime, CNRS - Université de Poitiers - ENSMA, UPR CNRS 3346, Futuroscope Chasseneuil, France; ²Safran CRT, Magny-les-Hameaux Cedex, France

Session CG-4

MAX/MAB and MXene Composites and their Properties

CG-4:IL01 On the Processing and Characterization of MRM (MAX and MAB Reinforced Metals) Composites

S. GUPTA, M. FUKA, F. ALANAZI, S. GHOSH, M. DEY, University of North Dakota, Grand Forks, ND, USA

CG-4:IL02 Influence of Secondary Phases on Mechanical Properties of MAX Phases

K. KOZAK, G. ANTOU, T. CHOTARD, Université de Limoges, SPCTS, UMR 7315, Limoges, France; J. LIS, L. CHLUBNY, AGH UST, Cracow, Poland

CG-4:IL03 Magnetic Ordering Investigation in Mn₂AlB₂ using Neutron Diffraction

D. POTASHNIKOV, IAEC, Tel-Aviv, Israel; O. RIVIN, A. PESACH, E.N. CASPI, NRCN, Beer-Sheva, Israel; A. HOSEH, HZB, Berlin, Germany; S. KOTA, M.W. BARSOUM, Drexel University, Philadelphia, PA, USA

Session CG-5

Electronic Properties, *ab initio* Calculations and Structural Characterization**CG-5:IL01 MXene Surface Functionalization Characterized on the Nanometer Scale using EELS in the TEM**

V. MAUCHAMP, D. MAGNE, C. GARNERO, T. BILYK, P. CHARTIER, T. CABIOTCH, J. PACAUD; Institut Pprime - CNRS, Poitiers University, ISAE/ENSMA S. CELERIER, IC2MP, Poitiers University, France

CG-5:IL02 Understanding the Magnetic Properties of Nano-laminated Ternary Carbides, Nitrides and Borides: the Role of Neutron Scattering
E.N. CASPI, O. RIVIN, A. PESACH, NRCN, Beer-Sheva, Israel; H. SHAKED, BGU University, Beer-Sheva, Israel; A. HOSER, HZB, Berlin, Germany; R. GREGORII, MLZ, Garching, Germany; Q. TAO, J. ROSEN, Linköping University, Linköping, Sweden; S. KOTA, M.W. BARSOUM, Drexel University, Philadelphia, PA, USA

CG-5:IL03 Beyond High-Throughput: Robust and Optimal Ab-Initio Exploration of MAX Phase Spaces

R. ARROYAVE, A. TALAPATRA, SHAHIN BOLUKI, XIAONING QIAN, M. RADOVIC, Texas A&M University, College Station, TX, USA

CG-5:IL04 Band Structure and Fermi Surfaces of MAX Phases Investigated by Angle Resolved Photoemission Spectroscopy (ARPES)

TAKAHIRO ITO, Nagoya University Synchrotron Radiation Research Center (NUSR), Nagoya University, Nagoya, Japan; T. FUJITA, Graduate School of Engineering, Nagoya University, Nagoya, Japan; D. PINEK, T. OUISSE, Université Grenoble-Alpes, CNRS, LMGP Grenoble, France; M. NAKATAKE, Aichi Synchrotron Radiation Center, Seto, Japan; S. IDETA, K. TANAKA, Institute for Molecular Science, Okazaki, Japan

CG-5:IL05 Atomically Resolved Electron Microscopy of MXenes

P.O.A. PERSSON, Linköping University, Linköping, Sweden

CG-5:IL06 Electronic Properties of MXenes from ab initio Calculations Perspective

M. KHAZAEI, RIKEN Advanced Institute for Computational Science, Kobe, Japan

CG-5:L07 Theoretical Study on the Intrinsic Point Defect Sinks in MAX Phases under Irradiation

JIEMIN WANG, J.Y. WANG, High-performance Ceramic Division, Shenyang National Laboratory for Materials Science, Institute of Metal Research, CAS, Shenyang, China

CG-5:L08 Vacancy-ordered Mo_{1.33C} MXene from first principles and x-ray photoelectron spectroscopy

H. LIND, J. HALIM, S.I. SIMAK, J. ROSEN, Department of Physics, Chemistry, and Biology, Linköping University, Linköping, Sweden

Session CG-6

Synthesis and Fabrication of MAX/MAB/MXenes

CG-6:IL01 2D Atomic Sandwiches of Ordered Double-transition Metal Carbides (MXenes)

B. ANASORI, Y. GOGOTSI, A.J. Drexel Nanomaterials Institute and Department of Materials Science & Engineering, Drexel University, Philadelphia, PA, USA

CG-6:IL02 MAX Phase Thin Film Synthesis by Annealing Techniques

T. CABIOCH, D. MAGNE, V. MAUCHAMP, J. NICOLAI, M.F. BEAUFORT, Département de Physique et Mécanique des Matériaux, Institut P¹, University of Poitiers-CNRS-ENSMA, Chasseneuil-Futuroscope, France

CG-6:IL03 MXene Electrochemical Etching and Morphology Alteration

WANMEI SUN, SMIT SHAH, TOUSEEF HABIB, M. RADOVIC, **M.J. GREEN**, A. McFERRIN, Dept. of Chemical Engineering, Dept. of Materials Science & Engineering, Texas A&M University, College Station, TX, USA

CG-6:L04 Self-propagating High-temperature Synthesis and Properties of the MAX Phases in Ti-Al-C System

A. PAZNIK, D. KUZNETSOV, MUST "MISiS", Moscow, Russia, P. BAZHIN, A. STOLIN, ISMAN, Chernogolovka, Russia

CG-6:L05 Synthesis of MAX Phases by Molten Salt Shielded Synthesis Process in Air

A. DASH, O. GUILLON, R. VASSEN, J. GONZALEZ-JULIAN, IEK-1, Forschungszentrum Jülich GmbH, Jülich, Germany

CG-6:L06 Synthesis and Thermal Stability of High Pure V₂C MXene

BINGXIN WANG, **AIGUO ZHOU**, QIANQU HU, LIBO WANG, HONGTIAN HE, School of Materials Science and Engineering, Henan Polytechnic University, Jiaozuo, Henan, China

Session CG-7

Functional Properties of MAX/MAB/MXenes

CG-7:L01 Magnetic Properties of the Nanolaminated Mn₂GaC MAX Phase

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CG-7:L02 Large Uniaxial Magnetostriction with Sign Inversion at the First Order Phase Transition in Mn₂GaC Films

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Session CG-8

Energy Storage

CG-8:IL01 High-capacitance Mechanism for Ti₃C₂T_x MXene by in Situ Electrochemical Raman Spectroscopy Investigation

XIAOHUI WANG, Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China

CG-8:IL02 MXenes as Hosting Materials for Ions and Molecules

M. NAGUIB, Department of Physics and Engineering Physics, Tulane University, New Orleans, LA, USA

CG-8:IL03 Microwave-assisted Synthesis of MXene-based Hybrids for Energy Storage in Supercapacitor and LIB

W. ZHENG, **ZHENG MING SUN**, Jiangsu Key Laboratory of Advanced Metallic Materials, School of Materials Science and Engineering, Southeast University, Nanjing, P.R. China

CG-8:L04 A Fast Route to Synthesize CNTs@Ti₃C₂ Hybrid Structures

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CG-8:L05 Core-shell SnO₂@C Decorated 3D d-Ti₃C₂ Xerogel Framework as the Anode for High-performance Lithium-ion Battery

HENG ZHANG, P.G. ZHANG, W. ZHENG, J. CHEN, W.B. TIAN, Z.M. SUN, Jiangsu Key Laboratory of Advanced Metallic Materials, School of Materials Science and Engineering, Southeast University, Nanjing, P.R. China; Y.M. ZHANG, Jiangsu Key Laboratory of Construction Materials, Southeast University, Nanjing, P.R. China

CG-8:L06 Binder-free Ti₃C₂ MXene-carbon Nanotube Supercapacitor Electrode Produced by Electrophoretic Deposition

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Session CG-9

Applications of the MAX/MAB and MXene Phases

CG-9:IL01 Catalytic Activity of MXenes for Hydrogenation and Hydrogenolysis Reactions

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CG-9:IL02 TiG-Brazing of MAX Phases

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CG-9:L03 Applications 2D Carbides, Nitrides and Carbonitrides (MXenes)

Y. GOGOTSI, A.J. Drexel Nanomaterials Institute, and Department of Materials Science & Engineering, Drexel University, Philadelphia, PA, USA

CG-9:L04 Irradiation Tolerance of Zr₂AlC MAX Phase

H. QARRA, K. KNOWLES, University of Cambridge, Cambridge, UK

CG-9:IL05 On the Feasibility of Nano-laminated Carbides as ATF Coatings in LWRs

JIE ZHANG, YIMING LEI, LINA CHEN, JINGYANG WANG, Shenyang National Laboratory for Materials Science, Institute of Metal Research, CAS, Shenyang, China

CG-9:IL06 MAX Phase Materials for Gen-IV Lead-fast Nuclear Reactors (LFRs)

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CG-9:L07 Effect of Temperature and Atmosphere on Sn Whisker Growth on Ti₂SnC

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SYMPOSIUM CH

CERAMIC THIN FILMS AND COATINGS FOR PROTECTIVE, TRIBOLOGICAL AND MULTIFUNCTIONAL APPLICATIONS

CH:KL Functional Surfaces and Coatings - New ceramic technologies for the benefit of industries and mankind -

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Session CH-1

Advances in Deposition, Surface Modification and Characterisation Techniques

CH-1:IL01 Observing Unobservable: Active Diagnostics of Electrolytic Plasma Processes for In-situ Identification of Surface Properties

A. YEROKHIN, University of Manchester, Manchester, UK

CH-1:IL02 Cold Spray: From Coating to Additive Manufacturing

B. JODOIN, D. McDONALD, P. DUPUIS, Y. CORMIER, University of Ottawa, Ottawa, ON, Canada

CH-1:IL03 Deposition Mechanisms in Hybrid Molecular Beam Epitaxy of Complex Ceramic Oxides

R.P. HARKINS, TIANQI WANG, A. PRAKASH, C.J. CRAMER, B. JALAN, **W.L. GLADFELTER**, Departments of Chemistry and Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, USA

CH-1:IL04 Plasma Enhanced Magnetron Sputter (PEMS) Deposition of Ceramic Coatings for Extreme Environments

RONGHUA WEI, Southwest Research Institute, San Antonio, TX, USA

CH-1:IL05 High Velocity Flame Spraying (HVSFS) of Nano-structured Coatings and Related Industrial Applications

R. GADOW, **A. KILLINGER**, University of Stuttgart, Institute for Manufacturing Technologies of Ceramic Components and Composites (IFKB), Stuttgart, Germany

CH-1:IL06 Non Reactive High Impulse Magnetron Sputtering of Oxide Ceramics

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CH-1:L07 Aerosol Deposition: A Top-down Approach to Nano-crystalline, Functional Ceramic Films and Tribological Coatings

P.A. FUIERER, Materials & Metallurgical Engineering Dept., New Mexico Tech, Socorro, NM, USA

CH-1:L08 YBCO Seed Layer grown by Polymer Assisted Deposition for the Further Growth of MOD Propionate-based YBCO Film

M. NASUI, R.B. MOS, T. PETRISOR Jr., M.S. GABOR, A. MESAROS, L. CIONTEA, T. PETRISOR, Centre for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

CH-1:L09 Effect of Annealing Temperature on the Structural, Morphological, and Mechanical Properties of Polycrystalline Zirconium Oxynitride Composite Films Deposited by Plasma Focus Device

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CH-1:L10 Silicon Oxycarbide Coatings by Low Pressure Chemical Vapour Deposition

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Session CH-2

High Temperature Protective Coatings in Oxidising and Harsh Environments

CH-2:IL01 Environmental Barrier Coatings for All-oxide Ceramic Matrix Composite Combustor Liners

P. MECHNICH, German Aerospace Center (DLR) Institute of Materials Research, Koeln, Germany

CH-2:L02 Materials for Very High Temperature Solar Receivers

J. COLAS, L. CHARPENTIER, M. BALAT PICHELIN, PROMES-CNRS, Font-Romeu Odeillo, France ; M. PONS, F. MERCIER, D. CHEN, SIMaP, St-Martin-d'Hères cedex, France ; D. PIQUE, SIL'TRONIX ST, Archamps, France

CH-2:L03 Superior High-temperature Behavior of Amorphous Coatings from Quinary Hf-B-Si-C-N System

P. ZEMAN, S. ZUZJAKOVA, R. CERSTVY, J. VLCEK, Department of Physics and NTIS - European Centre of Excellence, University of West Bohemia, Plzen, Czech Republic

CH-2:L04 Structure Design and Fabrication of Environmental Barrier Coatings for Crack Resistance

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Session CH-3

Thermal Barrier Coatings

CH-3:IL01 Present and Future of Thermal Barrier Coatings

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CH-3:IL02 Microstructural Evolution and Thermal Barrier Performance of Plasma-sprayed YSZ Coatings

KYEONG-HO BAIK, HEE-JIN PARK, SANG-WOON KANG, Department of Materials Science and Engineering, Chungnam National University, Yuseong, Daejeon, South Korea

CH-3:IL03 Thermal Spray as an Additive/Layered Manufacturing Technology for Energy Related Applications

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CH-3:L04 Degradation of Zirconates and Novel Air-plasma-sprayed LaYbZr₂O₇ Thermal Barrier Coatings by Environmental Molten Salt and CMAS (CaO-MgO-Al₂O₃-SiO₂)

MIN WANG, XINCHUN LAI, JUN YANG, SICONG GUO, ZIYUAN WANG, WEI PAN, Institute of Materials, China Academy of Engineering Physics; State Key Laboratory of New Ceramics and Fine Processing, Tsinghua University, China

CH-3:L05 Corrosive and Mechanical Properties of ZrO₂ Thermal Barrier Coatings by Thermal Exposure

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Session CH-4

Tribological Thin Films and Coatings

CH-4:IL01 Self-Adaptive Mechanisms in Tribological Coatings Designed for Harsh Environment Applications

A.A. VOEVODIN, S. AOUADI, University of North Texas, Denton, TX, USA; C. MURATORE, University of Dayton, Dayton, OH, USA

CH-4:IL02 Self Adaption In Tribological Coatings

A. CAVALEIRO, F. FERNANDES, SEG-CEMMPRE, University of Coimbra and LED&Mat, Instituto Pedro Nunes, Coimbra, Portugal; T. POLCAR, FEL-CVUT, Czech Technical University, Prague, Czech Republic and nCATS, University of Southampton, UK

CH-4:L03 Tribological Properties of the Hydrogenated W-C/ a-C:H Coatings in Different Environments

F. LOFAJ¹, D. MEDVED¹, M. KABATOVA¹, J. NOHAVA², J. DOBROVODSKY³, P. NOGA³, ¹Institute of Materials Research of SAS, Kosice, Slovakia; ²Anton Paar, Peseux, Switzerland; ³Advanced Technologies Research Institute, Faculty of Materials Science and Technology in Trnava, Slovak University of Technology in Bratislava, Trnava, Slovakia

CH-4:L04 Chemical Vapour Deposition of ZrN using insitu Produced ZrCl₄ as a Precursor

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CH-4:IL05 Wear Resistant Thermal Spray Coatings

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CH-4:IL06 Application and Limitations of Residual Stress Analysis in Wear Resistant Materials

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CH-4:L07 High Performance Ti(C,N)-Ni₃Al Cermets and Coatings

K. PLUCKNETT, Z. MEMARRASHIDI, M. GAIER, W.A. SPARLING, T.L. STEWART, Dalhousie University, Halifax, NS, Canada

CH-4:L08 Tribological Characterization of Mo-Cu-N, Mo-Cu-X(X=Cr, Ni, Si)-N Coatings Using Alloy Targets

KYOUNG IL MOON, HAN-CHAN LEE, Korea Institute of Industrial Technology, Gyeonggi-do, South South Korea

Session CH-5

Smart and Multifunctional Thin Films and Coatings

CH-5:IL01 Amorphous Alumina Tunable Barrier Films: An Integrated Process-local Coordination-properties Investigation

C. VAHLAS, D. SAMELOR, CIRIMAT, Toulouse, France; V. SAROU-KANIAN, P. FLORIAN, CEMHTI, Orléans, France; B. CAUSSAT, H. VERGNES, LGC, Toulouse, France

CH-5:IL02 Iron Boride Coatings for Wear and Corrosion Resistance Applications

E. MEDVEDOVSKI, Endurance Technologies, Inc., Calgary, Canada

CH-5:L03 How to Improve the Oxidation Resistance of Ultra-high Temperature Ta-C Coatings: An ab initio Guided Approach

H. RIEDL, T. GLECHNER, N. KOUTNA, T. WOJCIK, P.H. MAYRHOFER, Institute of Materials Science and Technology, TU Wien, Wien, Austria; S. KOLOZSVARI, Plansee Composite Materials GmbH, Lechbruck am See, Germany; D. HOLEC, Department Physical Metallurgy and Materials Testing, Montanuniversität Leoben, Leoben, Austria; P. FELFER, Department of Materials Science, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

CH-5:L04 HiPIMS Deposition of Ta-O-N Coatings for Water Splitting Application

J. CAPEK, S. BATKOVA, J. HOUSKA, R. CERSTVY, S. HAVIAR, Department of Physics and NTIS - European Centre of Excellence, University of West Bohemia, Plzen, Czech Republic; T. DUCHON, Department of Surface and Plasma Science, Charles University, Praha, Czech Republic

CH-5:L05 Towards Understanding the Growth of Highly Epitaxial LaNiO₃ Films from a Propionate-based Solution

R.B. MOS, M. NASUI, T. PETRISOR Jr., M. GABOR, A. MESAROS, L. CIONTEA, T. PETRISOR, Center for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Cluj-Napoca, Romania

CH-5:IL06 Photochromic Properties of Thin Films of Oxidized Yttrium Hydride

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CH-5:IL07 Antifouling Coatings: Adhesion Mechanisms of Micro-organisms

C. TENDERO, CIRIMAT / INPT-ENSIACET, Toulouse, France

CH-5:IL08 Novel Ceramic and Layered Thin-film Materials for Contacts and Thermoelectric Applications

P. EKLUND, Energy Materials Group, Thin Film Physics Division, Dept. of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden

CH-5:L09 Superhydrophilic Coatings: Study and Improvement of the Sol-Spray Fabrication of ZnO-Based Self-Cleaning Ceramic Surfaces

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CH-5:L10 High-performance Hybrid Nanocomposites Based on Waterborne Polyurethane and Hydrophobic Fumed Silica by In Situ Polymerization

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Session CH-6

Modelling and Simulation of Coatings and Films

CH-6:IL01 Finite Element (FE) Modelling of Thermal Spray Coatings: Case Studies

G. BOLELLI, L. LUSVARGHI, T. MANFREDINI, P. PUDDU, V. TESTA, University of Modena and Reggio Emilia, Modena, Italy

CH-6:IL02 Multi-scale Modelling of Thin Films and Coatings for Scientific and Industrial Outcomes

H. RONKAINEN, A. LAUKKANEN, K. HOLMBERG, T. ANDERSSON, T. SUHONEN, VTT Technical Research Centre of Finland Ltd, Espoo, Finland

CH-6:IL03 Reactive Sputter Deposition Visualized by Modelling

D. DEPLA, K. STRIJCKMANS, R. SCHELFHOUT, Department of Solid State Sciences, Ghent University, Ghent, Belgium

CH-6:L04 Friction Regimes of Water-lubricated Diamond (111): The Role of Interfacial Ether Groups and Tribo-induced Aromatic Surface Reconstructions

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Session CH-7

Industrial Processing in Advanced Surface Technologies

CH-7:IL01 Generation and Optimization of Robot Trajectory in Thermal Spraying

SIHAO DENG, CHAOYUE CHEN, R. BOLOT, G. MONTAVON, **HANLIN LIAO**, LERMPS, ICB UMR 6303, CNRS, Univ. Bourgogne Franche-Comté, UTBM, Belfort, France

CH-7:IL02 Scratch-resistant Transparent Sapphire Coating by Aerosol Deposition for Cover Glass Application of Smart Phone

JAE-HYUK PARK, DAE-GUN KIM, JONGWOO LIM, HYE-WON SEOK, MYUNG-NO LEE, BYUNG-KI KIM, IONES Co.,Ltd., Anseong-si, Gyeonggi-do, South Korea

CH-7:IL03 Protective and Functional Coatings in Pulp and Paper Applications: From Wear Resistance to Anti-sticking Surfaces

P. VUORISTO, Tampere University of Technology Laboratory of Materials Science, Tampere, Finland

CH-7:IL04 Highly Ionized Deposition of Hard Coatings

H. GERDES, R. BANDORF, K. ORTNER, M. VERGÖHL, G. BRÄUER, Fraunhofer Institute for Surface Engineering and Thin Films IST, Braunschweig, Germany

SYMPOSIUM CI

POROUS CERAMICS FOR ENVIRONMENTAL PROTECTION, ENERGY-RELATED TECHNOLOGIES AND ADVANCED INDUSTRIAL CYCLES

Session CI-1

Novel Synthesis and Processing

CI-1:L01 Colloidal Processing of CeO₂ Pellets with Hierarchical Porosity as Spent Fuel Matrix Analogue

S. FERNANDEZ, J. COBOS, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Madrid, Spain; **R. MORENO**, Instituto de Cerámica y Vidrio, Consejo Superior de Investigaciones Científicas, Madrid, Spain

CI-1:IL02 Novel Processing of Open Celled Glass and Glass-ceramic Foams

E. BERNARDO, A. RINCON ROMERO, P. RABELO MONICH, H. ELSAYED, Università degli Studi di Padova, Dipartimento di Ingegneria Industriale, Padova, Italy

CI-1:IL03 Fabrication of Porous Si₃N₄/SiC Ceramics via Rapid Nitriding Processing and ZrO₂ as Catalyst

YUNPING ZENG, Shanghai Institute of Ceramics, CAS, Shanghai, China

CI-1:IL04 Additive Manufacturing of Porous Ceramics using Inorganic Polymers

P. COLOMBO, University of Padova, Dept. Industrial Engineering, Padova, Italy

CI-1:IL05 Preparation of Low-cost Gangue Porous Ceramic Microspheres for Wastewater Adsorption

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CI-1:IL06 Solidification Templating of Porous Polysilazane-derived Ceramics

T. KONEGGER, R. OBMANN, TU Wien, Institute of Chemical Technologies and Analytics, Vienna, Austria

CI-1:IL07 Geopolymer Foams Incorporating Silicate Waste

N. TONIOLO, A.R. BOCCACCINI, Institute of Biomaterials, University of Erlangen-Nuremberg, Erlangen, Germany; A. RINCON, E. BERNARDO, Department of Industrial Engineering, University of Padova, Padova, Italy

CI-1:IL08 Uniformly Porous Ceramics with 3-D Network Structure (UPC-3D) Prepared by Pyrolytic Reactive Sintering

YOSHIKAZU SUZUKI, Faculty of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan

CI-1:IL09 Reticulated Porous Ceramics – Cellular Structures for a Multitude of Functionalization Strategies

M. SCHEFFLER, S. RANNABAUER, Inst. of Material and Joining Technology, University of Magdeburg, Germany; U. BETKE, A. LIEB, F. SCHEFFLER, Inst. of Industrial Chemistry, University of Magdeburg, Germany

CI-1:IL10 Porous Glass-ceramics from Alkali Activation and Sinter-crystallization of Waste Glass Mixtures

P. RABELO MONICH¹, A. RINCON ROMERO¹, D. HÖLLEN², E. BERNARDO¹, ¹Dipartimento di Ingegneria Industriale, Università degli Studi di Padova, Padova, Italy; ²Chair of Waste Processing Technology and Waste Management, Montanuniversität Leoben, Leoben, Austria

CI-1:IL11 Synthesis and Properties of Macroporous SiC Ceramics by 3D-printing and Chemical Vapor Infiltration/Deposition

A. BAUX, S. JACQUES, G. CHOLLON, LCTS, CNRS, Pessac, France; T. PIQUERO, D. ROCHAIS, P. DAVID, CEA-DAM, Le Ripault, Monts, France

CI-1:IL12 Glass Ceramic Foams from Vitrified Wastes Produced by Inorganic Gel Casting and Sinter-crystallization

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CI-1:IL13 From Micro to Ultra-Macro Porosity in Alkali Bonded Ceramics (Geopolymers)

E. PAPA, A. NATALI MURRI, E. LANDI, V. MEDRI, CNR-ISTEC, Faenza, Italy

CI-1:IL14 Processing and Application of Porous TiC-Carbon Nanocomposites for Radioactive Ion Beam Production at CERN-ISOLDE

J.P. RAMOS, T. STORA, CERN, Geneva, Switzerland; A.M.R. SENOS, C.M. FERNANDES, CICECO, Aveiro, Portugal; **P. BOWEN**, EPFL, Switzerland

CI-1:IL15 High Content SiO₂ Porous Glass Ceramics for High Temperature Applications and their Properties

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CI-1:IL16 Effect of Starch Addition on the Cordierite Membranes Performances

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CI-1:IL17 Controlling Pore Structure of Porous Ceramics Fabricated by the Gel-casting Method

YUNZI XIN, DAISUKE ASAI, JEONGSOO HONG, TAKASHI SHIRAI, Advanced Ceramics Research Center, Nagoya Institute of Technology, Nagoya, Aichi, Japan

CI-1:IL18 Tailoring the Microstructure of TiO₂ Photoactive Electrodes by using Cellulose Nanofibers and by Polyelectrolyte Multilayer Absorption

Z. GONZALEZ GRANADOS¹, J. YUS¹, A.J. SANCHEZ-HERENCIA¹, A. RODRÍGUEZ², J. DEWALQUE³, L. MANCERIU³, C. HENRIST³, B. FERRARI¹, ¹Institute of Ceramics and Glass, CSIC, Tailoring through Colloidal Processing Group 5, Madrid, Spain; ²Chemical Engineering Department, University of Cordoba, Campus de Rabanales, Cordoba, Spain; ³University of Liege, Group of Research in Energy and Environment from Materials (GREENMAT), Liege, Belgium University

CI-1:IL19 Structural Features of Thin Nanoporous Anodic Aluminum Oxide (AAO) Templates on ITO/Glass Substrate

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Session CI-2

Absorption, Capillary Phenomena and Thermophysical Behaviour

CI-2:IL01 Ceramic Components with Hierarchical Porosity

C. VAKIFAHMETOGLU, Department of Materials Science and Engineering, Izmir Institute of Technology, Urla, Izmir, Turkey

CI-2:IL02 Thermophysical Behaviour of Porous Ceramics in Atmospheres with Controlled Humidity. Relevance to Drying of Green Bodies

B. NAIT-ALI, S. OUMMADI, A. ALZINA, C. DANGLADE, M. ZOUAOUI, D.S. SMITH, University of Limoges, Limoges, France

CI-2:IL03 Hierarchically Porous Metal Hydroxides Through an Assembly of Crystalline Nanobuilding Blocks

YASUAKI TOKUDOME, M. TAKAHASHI, Department of Materials Science, Graduate School of Engineering, Osaka Prefecture University, Sakai, Japan

CI-2:IL04 Low Temperature Processing of Silicon Carbide Membranes for Wastewater Treatment

YOUNG-WOOK KIM, HEE-JONG YEOM, HUI-YING SHENG, Functional Ceramics Laboratory, Department of Materials Science and Engineering, University of Seoul, Seoul, South Korea

CI-2:IL05 Micro-meso Porous Alkali Bonded Ceramics as Solid Adsorbent for CO₂ Capture

V. MEDRI¹, E. PAPA¹, E. LANDI¹, F. MICCIO¹, M. MINELLI², F. DOGHIERI², P. BENITO³, A. VACCARI³, ¹CNR-ISTEC, Faenza, Italy; ²Department of Civil, Chemical Environmental and Materials Engineering (DICAM), Alma Mater Studiorum - University of Bologna, Italy; ³"Toso Montanari" Department of Industrial Chemistry, Alma Mater Studiorum - University of Bologna, Italy

Session CI-3

Structure and Functional, Mechanical and Thermal Properties of Porous Ceramics; Structure/Transport/Functional Properties Relationships

CI-3:IL01 Mechanical Properties of Porous Ceramics

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CI-3:IL02 Oxidation-bonded SiC Membrane for Water Treatment

IN-HYUCK SONG, S.Z.A. BUKHARI, J.H. HA, J.M. LEE, Korea Institute of Materials Science (KIMS), Changwon, Gyeongnam, South Korea

CI-3:IL03 Material Design for High Temperature Application

F. RAETHER, G. SEIFERT, Fraunhofer Center for High Temperature Materials and Design (HTL), Bayreuth, Germany

CI-3:IL04 Hydrogen-selective Si-based Inorganic-organic Hybrid Membranes for Solar Hydrogen Production via Photoelectrochemical Water-splitting

YUJI IWAMOTO, Nagoya Institute of Technology, Nagoya, Japan

CI-3:IL05 Aerogel Based Composites for Applications in Energy Technologies

G. REICHENAUER, **C. SCHERDEL**, ZAE Bayern, Wuerzburg, Germany

CI-3:L06 Hydrophobic Ceramic Capillary Membranes for Controlled Virus Retention

J. BARTELS¹, M. MAAS^{1,2}, K. REZWAN^{1,2}, ¹University of Bremen, Advanced Ceramics, Bremen, Germany; ²MAPEX Centre of Materials and Processes, University of Bremen, Bremen, Germany

CI-3:L07 Impact of Illite Clay and Sintering Conditions on Development of Porous Cordierite Ceramics

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Session CI-4

Advances in the Characterization of the Porous Structures

CI-4:IL01 2D and 3D Imaging Characterization Techniques for Porous Ceramics

G. BRUNO, BAM, Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany

CI-4:IL02 Characterization of Porous Ceramics via μ CT

T. FEY, Chair of Glass and Ceramics, University Erlangen-Nürnberg, Erlangen, Germany

CI-4:L03 Synthesis and Characterization of Xerogel and Aerogel Nanocomposites Based on Platinum Dispersed in Sol-gel Silica

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CI-4:L04 Environmental Remediation of Silicon Oxycarbide (SiCO) Porous Materials

S. AGUIRRE-MEDEL, P. KROLL, Chemistry and Biochemistry Department, University of Texas, Arlington, TX, USA

CI-4:L05 Spatially Resolved NMR Study of Regular and Irregular Ceramic Catalysts by Thermally Polarized Gas

M. MIRDRIKVAND, W. DREHER, DFG Research Training Group MIMENIMA (Micro-, meso- and macroporous nonmetallic Materials), In-vivo-MR Group, Department of Chemistry, University of Bremen, Bremen, Germany

Session CI-5

Modeling and Simulation of Porous Structure and Properties

CI-5:IL01 Modelling of the Thermal Properties of Porous Ceramics: From Green to Fired Bodies

D.S. SMITH, B. NAIT-ALI, S. OUMMADI, F. PUECH, D. NOUGUIER, A. ALZINA, Institute of Research for Ceramics (CNRS UMR 7315), University of Limoges, Limoges, France

CI-5:IL02 Modelling of Porous Ceramics Produced by Additive Manufacturing

A. ORTONA, SUPSI, Manno, Switzerland

CI-5:IL03 Modeling and Simulation of Porous Materials with Microstructures of Triply Periodic Minimal Surfaces

R. ABU AL-RUB¹, O. AL-KETAN¹, DONG-WOOK LEE¹, ALIA ABU ALI¹, R. REZGUI², R. ROWSHAN³, ¹Masdar Institute, Khalifa University of Science and Technology, Abu Dhabi, UAE; ²Core Technology Platforms, New York University Abu Dhabi, Abu Dhabi, UAE

Session CI-6

Progress in Applications of Porous Ceramics

CI-6:IL01 Additively-manufactured Reactors for the Intensification of H₂ Production by Steam Methane Reforming: Fabrication, Functionalization and Recycling Issues

F. ROSSIGNOL, T. CHARTIER, B. TROUILHET, IRCER, UMR CNRS 7315, Limoges cedex, France; B. CROISSANT, R. FAURE, P. DEL GALLO, AIR LIQUIDE, CRPS, Jouy en Josas, France

CI-6:L02 Development of Small Scale Ceramic Microbial Fuel Cells for Clean Energy Extraction from Urine

I. GAJDA, X.A. WALTER, T. OBATA, J. GREENMAN, I. IEROPOULOS, Bristol BioEnergy Centre, BRL, T-Bloc, University of the West of England, Bristol, UK

CI-6:L03 Transesterification of Soybean Oil using Geopolymers as Heterogeneous Catalysts

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CI-6:L04 Ultrasmall Mesoporous Silica: A Better Catalysis Support

JIASHENG WANG, W. WU, W.H. WANG, M. BAO, School of Petroleum and Chemical Engineering, Dalian University of Technology, Panjin, China

CI-6:IL05 Polymer-derived Mesoporous Ceramics as Catalysis Supports and Co-catalysts for Hydrogen Generation

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CI-6:IL06 High Performance Porous Ceramics for Energy Related Applications

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CI-6:L07 Design Approach for Porous Ceramics in Concentrated Solar Power Application

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CI-6:L08 Enzyme-modified Porous Ceramic Capillaries for Continuous Flow Hydrolysis of Proteins

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CI-6:IL09 Particle-stabilized Foams: From Satellite Housings to High Performance Insulators and Fire Protection Materials

U.T. GONZENBACH, P.N. STURZENEGGER, de Cavis Ltd., Duebendorf, Switzerland

CI-6:IL10 Porous Geopolymers for Indoor Humidity Control

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CI-6:L11 Emission Studies of Hydrogen Combustion for Cooking and Heating on Catalytic Coated Ceramic Foams

U.F. VOGT, T. BUETLER, B. FUMEY, EMPA, Duebendorf, Switzerland

CI-6:L12 DOE Analysis of Tailored Porosity Alumina Supports Obtained by Sintering in Two Steps

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SYMPOSIUM CJ

**ADVANCES IN ELECTROCERAMICS:
PROCESSING, STRUCTURE,
PROPERTIES, AND APPLICATIONS**

Session CJ-1

Dielectrics and Microwave Materials

CJ-1:IL01 Ultra-Low Temperature Co-fired Ceramics (ULTCC) – Current Situation and What is Needed for Industrial Applications

J. VARGHESE, M.Y. CHEN, N. JOSEPH, M. SOBOCINSKI, **H. JANTUNEN**, Microelectronics Research Unit, University of Oulu, Faculty of Information Technology and Electrical Engineering, Oulu, Finland

CJ-1:IL02 Microwave and THz Characterization of Electroceramics

D. JABLONSKAS, M. IVANOV, J. MACUTKEVIC, S. RUDYS, R. GRIGALAITIS, S. LAPINSKAS, S. SVIRSKAS, **J. BANYS**, Vilnius University, Vilnius, Lithuania

CJ-1:IL03 Ultralow Temperature Cofiring Ceramics for LTCC Applications

HONG WANG, Department of Materials Science and Engineering, Southern University of Science and Technology, Shenzhen, China & State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an, China

CJ-1:L04 Electrical Resistivity of Silicon Nitride Produced by Various Methods

O. LUKIANOVA, Belgorod State National Research University, Belgorod, Russia

CJ-1:L05 Aluminiumoxide and Hafniumoxide as Nonlinear Dielectrics

L. KANKATE, H. KLIEM, Institute of Electrical Engineering Physics, Saarland University Campus A5, Saarbruecken, Germany

CJ-1:L06 Rheological Aspects of Formation Thin Smooth Nanostructured Ceramic Films by Screen-printing Method

S.O. UMEROVA, A.V. RAGULYA, Frantsevich Institute for Problems of Materials Science of NASU, Ukraine

CJ-1:L07 Ceramics Materials and Microelectronic Energy Frontiers

V.V. MITIC^{1,2}, V. PAUNOVIC¹, N. CVETKOVIC¹, G. LAZOVIC³, L. KOCIC¹, ¹University of Nis, Faculty of Electronic Engineering, Nis, Serbia; ²Institute of Technical Sciences of SASA, Belgrade, Serbia; ³University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia

Session CJ-2

Ferroelectric, Piezoelectric, Pyroelectric, and Ferroelastic Ceramics

CJ-2:IL01 Symmetry Breaking in Bulk Ceramics and Crystals

D. DAMJANOVIC, S. HASHEMIZADEH, Group for Ferroelectrics and Functional Oxides, Swiss Federal Institute of Technology - EPFL, Lausanne, Switzerland; E. OVEISI, S. DE ZANET, Interdisciplinray Centre for Electron Microscopy, EPFL, Switzerland; T. HOSHINA, Tokyo Institute of Technology, Tokyo, Japan; A. BENCAN, T. ROJAC, Jozef Stefan Institute, Ljubljana, Slovenia; G. DRAZIC, National Institute of Chemistry, Ljubljana, Slovenia

CJ-2:IL02 Domain Walls in Multiferroic Bismuth Ferrite: An Ab Initio Study

O. DIEGUEZ, Department of Materials Science and Engineering, Tel Aviv University, Tel Aviv, Israel

CJ-2:IL03 Niobate Based Lead-free Ceramics for Piezoelectric and Energy Storage Applications

JING-FENG LI, School of Materials Science and Engineering, Tsinghua University, Beijing, China

CJ-2:IL04 Tuning of the Depolarization Field, Built-in Voltage and Nanodomain Structure in Ferroelectric Thin Films and Superlattices

C. LICHTENSTEIGER¹, S. FERNANDEZ-PENA¹, C. WEYMANN¹, P. ZUBKO², P. PARUCH¹, J.-M. TRISCONI¹, ¹Department of Quantum Matter Physics, University of Geneva, Geneva, Switzerland; ²London Center for Nanotechnology and Department of Physics and Astronomy, University College London, London, UK

CJ-2:IL05 Nanoscale Susceptibilities in Ferroelectric Thin Films: Insights from Multidimensional Spectroscopy and Machine Learning

L. MARTIN, **J. AGAR**, University of California at Berkeley, USA

CJ-2:L06 Process and Electromechanical Properties of Thick Films Based on Lead-free Sol-gel BHT

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CJ-2:L07 Designing Pseudocubic Perovskite Solid Solutions with Enhanced Nanoscale Polarization

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CJ-2:L08 New Diagnostic Technique to Control Grain-boundary Conduction in Thin Perovskite Ferroelectric Films

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CJ-2:IL09 Iron's Valence Control of BiFeO3-based Piezoelectric Ceramics for Property Enhancement

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CJ-2:IL10 Deposition of Epitaxial and Composite Ferroelectrics Directly on Silicon

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CJ-2:L11 Accurate Determination of Material Coefficients from Electromechanical Resonances of Lead-free Ba1-xCaTi0.9Zr0.1O3 (x=0.10-0.18) Mixed Oxide Ceramics

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CJ-2:L12 Polarization in Ferroelectric Tungsten Bronzes

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CJ-2:L13 Enhanced Piezoelectric Properties in PNZT-ZrO2 Composites at Low Frequencies

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CJ-2:L14 Structure-bandgap Relationship in Ba(M,Ti)O3 Ferroelectric Solid Solutions

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CJ-2:L15 Soft Mode and Microwave Dielectric Relaxation in Low-lead BT-PMN Ceramics

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CJ-2:L16 Modeling the Size Effects in Ferroelectric Ceramics with Different Grain Sizes

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CJ-2:L17 Impedance Spectroscopy Analysis of Ca doped BaTiO3 Ferroelectric Ceramic

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CJ-2:L18 Simultaneous Characterization of Charge and Structural Motion during Ferroelectric Polarization Reversal

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CJ-2:L19 Processing and Properties of Lead-free BiFeO3-SrTiO3 Piezoceramics

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CJ-2:L20 Dead-layer Analysis in Ferroelectric Thin Films

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CJ-2:L21 Effect of Mg-Nb Addition to AlN Piezoelectric Thin Film

MASATO UEHARA, Y. FUJIO, T. NAGASE, M. AKIYAMA, AIST, Tosu, Saga, Japan; H. SHIGEMOTO, Kyushu University, Kasuga, Fukuoka, Japan; Y. AIDA, K. UMEDA, Murata Manufacturing Co., Ltd., Nagaokakyo, Kyoto, Japan

CJ-2:IL22 Morphotropic Phase Boundaries in Polycrystalline Relaxor-ferroelectrics

M. OTONICAR, H. URSIC, B. JANCAR, A. BENCAN, B. MALIC, T. ROJAC, Jozef Stefan Institute, Ljubljana, Slovenia; G. ESTEVES, J.L. JONES, Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC, USA

Session CJ-3

Multiferroics and Magnetoelectric Ceramics

CJ-3:IL01 Charged Defects and Domain Walls in Polycrystalline BiFeO₃
T. ROJAC, A. BENCAN, H. URSIC, B. JANCAR, M. MAKAROVIC, A. BRADESKO, B. MALIC, Jozef Stefan Institute, Ljubljana, Slovenia; G. DRAZIC, National Institute of Chemistry, Ljubljana, Slovenia; L. LIU, J.E. DANIELS, University of New South Wales, Sydney, NSW, Australia; D. DAMJANOVIC, Swiss Federal Institute of Technology, Lausanne, Switzerland

CJ-3:IL02 Magnetoelectricity at the Antiperovskite/Perovskite Interface
 DING-FU SHAO, T.R. PAUDEL, **E.Y. TSYMBAL**, Department of Physics and Astronomy, University of Nebraska, Lincoln, NE, USA

CJ-3:IL03 Magnetic Energy Harvesting by Magnetoelectric Composite Structure for Ubiquitous Self-powered Autonomous IoT Systems
DAE-YONG JEONG¹, GEON-TAE HWANG², WOON-HA YOON², SHASHANK PRIYA³, JUNGHO RYU², ¹Inha University, Incheon, South Korea; ²Korea Institute of Materials Science, South Korea; ³Pennsylvania State University, USA

CJ-3:IL04 Cool - Spark Plasma Sintering: Exploring Fragile Ferroic Ceramics and Beyonds

T. HERRISSON DE BEAUVOIR, A. SANGREGORIO, I. CORNU, V. VILLEMOT, C. ELISSALDE, D. MICHAU, U.-C. CHUNG-SEU, **M. JOSSE**, ICMCB-CNRS, Université de Bordeaux, UPR 9048 CNRS, Pessac, France

CJ-3:IL05 Multiferroic (Nd,Fe)-doped PbTiO₃ Ceramics with Coexistent Ferroelectricity and Magnetism at Room Temperature

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CJ-3:IL06 Real-space Imaging of the Spin Cycloid in BiFeO₃ Thin Films

V. GARCIA, K. GARCIA, C. CARRETERO, A. BARTHELEMY, M. BIBES, S. FUSIL, Unite Mixte de Physique, CNRS, Thales, Univ. Paris Sud, Université Paris-Saclay, Palaiseau, France; I. GROSS, W. AKHTAR, L.J. MARTINEZ, S. CHOUAIEB, V. JACQUES, Laboratoire Charles Coulomb, Université de Montpellier and CNRS, Montpellier, France; J.-Y. CHAULEAU, M. VIRET, SPEC, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France; P. APPEL, P. MALETINSKY, Department of Physics, University of Basel, Basel, Switzerland

CJ-3:IL07 Ferroelectric Properties of Bi(Fe,Sc)O₃ Ceramics Addressed by Piezoresponse Force Microscopy

V.V. SHVARTSMAN, Institute for Material Science, University of Duisburg-Essen, Essen, Germany; A.N. SALAK, Department of Materials and Ceramic Engineering/CICECO, University of Aveiro, Aveiro, Portugal; D.D. KHALYAVIN, ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot, UK

CJ-3:IL08 Complex Functional Characterization of Percolative CoFe₂O₄-PbTiO₃ Composite Ceramics

C.E. CIOMAGA¹, M. AIRIMIOAEI², I. TURCAN², A.V. LUKACS², L. PADURARIU², S. BALCIUNAS³, J. BANYNS³, L. MITOSERIU², ¹Research Department, Faculty of Physics, Dielectrics, Ferroelectrics & Multiferroics Group, Al. I. Cuza Univ. of Iasi, Iasi, Romania; ²Dielectrics, Ferroelectrics & Multiferroics Group, Faculty of Physics, "Al. I. Cuza" University of Iasi, Iasi, Romania; ³Faculty of Physics, Vilnius University, Vilnius, Lithuania

Session CJ-4

Semiconducting Ceramics

CJ-4:IL01 Gas Sensing with Semiconducting Metal Oxide Nanostructures
TETSUYA KIDA, Division of Materials Science, Faculty of Advanced Science and Technology, Kumamoto University, Kumamoto, Japan

CJ-4:IL02 Mechanically Tuned Conductivity in Piezoelectric Semiconductors

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CJ-4:IL03 Highly Sensitive and Selective Hydrogen Sensing Utilizing an Interface between Noble Metal and Anodized Titania

TAKEO HYODO, Y. SHIMIZU, Graduate School of Engineering, Nagasaki University, Nagasaki, Japan

CJ-4:IL04 Nanostructural Metal Oxide and Chalcogenide Semiconductor Gas Sensors

CHONG-YUN KANG, Korea Institute of Science and Technology, Seoul, South Korea

CJ-4:IL05 MEMS Gas Sensors Based on Metal Oxide Nano Particles
KENGO SHIMANO¹, W. HARANO², T. OHYAMA², K. SUEMATSU¹, K. WATANABE¹, M. NISHIBORI¹, ¹Faculty of Engineering Sciences, Kyushu University, Fukuoka, Japan; ²Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Kasuga, Fukuoka, Japan

CJ-4:IL06 Sol-gel Coatings for Sensing Devices and Electronics Applications

O.A. SHILOVA, Institute of Silicate Chemistry, Russian Academy of Sciences, Saint-Petersburg, Russia

CJ-4:IL07 Narrow Band Gap Observed in Multicomponent Equitatomic Rare Earth Oxides

L. VELASCO¹, A. SARKAR^{1,2}, H. HAHN^{1,2,3}, ¹Institute of Nanotechnology, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany; ²Joint Research Laboratory Nanomaterials – Technische Universität Darmstadt and Karlsruhe Institute of Technology, Darmstadt, Germany; ³Helmholtz Institute Ulm – Electrochemical Energy Storage, Ulm, Germany

Session CJ-5

Fast Ion-conducting Ceramics

CJ-5:IL01 Understanding Irradiation Effect on the Structure and Electrochemical Charge Storage Properties of TiO₂ Anode for Lithium-ion Batteries

K.A. SMITH¹, A.I. SAVVA¹, YONGQIANG WANG², J.P. WHARRY³, SOOYEON HWANG⁴, DONG SU⁴, D.P. BUTT⁵, **HUI XIONG**¹, ¹Micron School of Materials Science and Engineering, Boise State University, Boise, ID, USA; ²Ion Beam Materials Laboratory, Los Alamos National Laboratory, Los Alamos, NM, USA; ³School of Nuclear Engineering, Purdue University, West Lafayette, IN, USA; ⁴Center for Functional Materials, Brookhaven National Laboratory, Upton, NY, USA; ⁵College of Mines and Earth Sciences, University of Utah, Salt Lake City, UT, USA

CJ-5:IL02 Material Design for an Electrode of an Oxygen Pump Based on Oxide-ion Conductors

KEN WATANABE, Kyushu University, Kasuga, Japan

CJ-5:IL03 Electrochemical Membranes in Energy Conversion

F. MARQUES, Dept. of Materials and Ceramic Eng./CICECO, University of Aveiro, Aveiro, Portugal

CJ-5:IL04 Enhancement of Ionic Conductivity in Electric Field-assisted Pressureless Sintered Solid Electrolytes

R. MUCCILLO^{1,2}, ¹Center of Science and Technology of Materials, Energy and Nuclear Research Institute, S. Paulo, SP, Brazil; ²Center of Engineering, Modeling and Applied Social Sciences, Federal University of ABC, Santo André, SP, Brazil

CJ-5:IL05 Development and Electrical Discharge Machining of Electrical Conductive Pressure-less Sintered TiC/Al₂O₃ Composites

S. CONZE, S. HILDEBRANDT, T. HUTZLER, L.-M. BERGER, A. MICHAELIS, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany

CJ-5:IL06 Cubic Phase Stabilization and Ionic Conductivity of Zirconia-scandia by Co-doping with Europium Oxide

J.P. SOUZA, **E.N.S. MUCCILLO**, Energy and Nuclear Research Institute-IPEN, Cidade Universitária S. Paulo, SP, Brazil

CJ-5:IL07 Properties of Shape-controlled Gadolinia-doped Ceria Nanoparticles

M.F.S. MACHADO, L.P.R. MORAES, L.N. RODRIGUES, T. RODRIGUES, **F. CORAL NONSECA**, Nuclear and Energy Research Institute - IPEN, Sao Paulo, SP, Brazil

CJ-5:IL08 Interfacial Contributions to Mixed Ionic and Electronic Conducting (MIEC) Materials in Solid Oxide Fuel Cells, Membrane Separations and Solid-State Battery Applications

K.S. BRINKMAN, Materials Science and Engineering, Clemson University, Clemson, SC, USA

CJ-5:IL09 Effects of Remnant Metastability in Nanoscaled Oxygen Ionic Conductors

V. ESPOSITO, Technical University of Denmark, Department of Energy Conversion and Storage, Roskilde, Denmark

CJ-5:IL10 Design, Synthesis and Electrochemical Characterizations of Electrode Materials for Rechargeable Li-sulfur Batteries

DO KYUNG KIM, Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea

SYMPOSIUM CK

FUNCTIONAL MAGNETIC OXIDES

Session CK-1

Magnetic Oxide Thin Films Interfaces and Heterostructures

CK-1:IL01 Engineering the Functional Properties of 2-dimensional Electron Gases at Oxide Interfaces

F. MILETTO GRANOZIO, CNR-SPIN, Napoli, Italy

CK-1:IL02 Tuning the Properties of Oxide Heterostructures by Interfacial Oxygen Octahedral Coupling

G. KOSTER, University of Twente, Enschede, The Netherlands

CK-1:IL03 Domain Wall Conduction at All-in-all-out Antiferromagnetic Iridate Heterostructure

MASAKI UCHIDA, University of Tokyo, Tokyo, Japan

CK-1:IL04 Complex Magnetic Order in Rare-earth Nickel Oxide Multilayers

E. BENCKISER, Max Planck Institute for Solid State Research, Stuttgart, Germany

CK-1:IL05 Carrier Density Controlled Topological Hall Effect in EuTiO₃ Films

K. AHADI, S. STEMMER, Materials Department, University of California, Santa Barbara, CA, USA

CK-1:IL06 Giant Topological Hall Effect from Magnetic Skyrmion Bubbles in Correlated Manganite Thin Films

L. VISTOLI, A. SANDER, QIUXIANG ZHU, S.E. FUSIL, A. BARTHELEMY, V. GARCIA, M. BIBES, Unité Mixte de Physique CNRS/Thales, Université Paris-Sud, Université Paris-Saclay, Palaiseau, France; **WENBO WANG, WEIDA WU**, Rutgers Center for Emergent Materials and Department of Physics and Astronomy, Rutgers University, Piscataway, NJ, USA; **B. CASALS, R. CICHELEIRO, G. HERRANZ**, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus de la UAB, Bellaterra, Catalonia, Spain

CK-1:IL07 New Electronic States in Iridate Single Crystals and Thin Films

A. FORGET, J.-B. MOUSSY, D. COLSON, SPEC, CEA-Saclay, Gif-sur Yvette, France; **Z.Z. LI, V. BROUET**, LPS, Université Paris-Sud, Orsay, France

Session CK-2

Spin Transport in Magnetic Oxides

CK-2:IL01 Spin/Charge Interconversion in Oxide Two-dimensional Electron Gases

M. BIBES, F. TRIER, Unité Mixte de Physique CNRS/Thales, Palaiseau, France

CK-2:IL02 Transport Phenomena in Heterostructures of Strong Spin-orbit Interaction Oxides

JOBU MATSUNO, RIKEN Center for Emergent Matter Science (CEMS), Saitama, Japan

CK-2:IL03 Spin Seebeck Effects in Magnetic-oxide-based Multilayers

R. RAMOS, Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; **T. KIKKAWA**, Advanced Institute for Materials Research and Institute for Materials Research, Tohoku University, Sendai, Japan; **A. ANADON, I. LUCAS**, Fundacion Instituto de Nanociencia de Aragon and Departamento de Fisica de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; **R. IGUCHI**, National Institute for Materials Science, Tsukuba, Japan; **S. DAIMON**, Advanced Institute for Materials Research and Institute for Materials Research, Tohoku University, Sendai, Japan; **K. UCHIDA**, National Institute for Materials Science, Tsukuba and PRESTO, Japan Science and Technology Agency, Saitama, Japan; **H. ADACHI**, Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Japan; **P.A. ALGARABEL**, Departamento de Fisica de la Materia Condensada and Instituto de Ciencia de Materiales de Aragon, Universidad de Zaragoza and Consejo Superior de Investigaciones Científicas, Zaragoza, Spain; **L. MORELLON**, Fundacion Instituto de Nanociencia de Aragon and Departamento de Fisica de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; **M.H. AGUIRRE**, Fundacion Instituto de Nanociencia de Aragon and Departamento de Fisica de la Materia Condensada and Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza, Zaragoza, Spain; **S. MAEKAWA**, Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Japan; **M.R. IBARRA**, Fundacion Instituto de Nanociencia de Aragon and Departamento de Fisica de la Materia Condensada and Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza, Zaragoza, Spain; **E. SAITOH**, Advanced Institute

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Session CK-3

Electronic Structure and Correlation Effects

CK-3:IL01 Correlated Electronic Structure of Oxide Heterostructures

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CK-3:IL02 Charge Transfer Effects in Rare Earth Nickelates

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CK-3:IL03 Emergent Quantum Phases in Relativistic Magnetic Oxides

C. FRANCHINI, University of Vienna, Vienna, Austria

CK-3:IL04 High Pressure Synthesis of Oxides and Mixed-anion Oxides with Novel Magnetic and Transport Properties

HIROSHI KAGEYAMA, Kyoto University, Kyoto, Japan

Session CK-4

Interplay Between Spin, Charge and Lattice Degrees of Freedom

CK-4:IL01 Unconventional Metals from Doped Spin-orbit Assisted Mott States

S.D. WILSON, University of California at Santa Barbara, Santa Barbara, CA, USA

CK-4:IL02 Magnon Study in (Y, Lu)MnO₃ System using Raman Spectroscopy

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Session CK-5

Multiferroic and Magnetoelectric Compounds

CK-5:IL01 Marrying Ferroelectricity and Metallicity: "It's Complicated"

V. FIORENTINI, A. FILIPPETTI, Cagliari University, Monserrato (CA), Italy; **F. RICCÌ**, Louvain University, Belgium; **A. URRU, P. DELUGAS**, SISSA, Trieste, Italy; **J. INIGUEZ, H.J. ZHAO**, LIST, Luxembourg; **E. CANADELL**, ICMAB, Spain; **L. BELLAICHE**, University of Arkansas, USA

CK-5:IL02 Nonlinear Spin-lattice Coupling in EuTiO₃: Novel Two-dimensional Magneto-optical Device for Light Modulation

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CK-5:IL03 Nanopillars with E-field Accessible Multi-state (N≥4) Magnetization with Giant Magnetization Changes in Self-assembled BiFeO₃-CoFe₂O₄/Pb(Mg_{1/3}Nb_{2/3})-38at%PbTiO₃ Heterostructures

XIAO TANG, JIEFANG LI, D. VIEHLAND, Dept. of Materials Science and Engineering, Virginia Tech, Blacksburg, VA, USA

CK-5:IL04 Observation of Metamagnetic Transition and Magnetoelectric Coupling in Acentric and Non-polar Pb₂MnO₄

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CK-5:IL05 Origin of High Magnetoelectric Coupling in Multiferroic BiFeO₃-BaTiO₃ Superlattices

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CK-5:IL06 Crystal and Magnetic Structure of Bi_{1-x}LaxFe_{1-y}MnyO₃ Ceramics

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Session CK-6**Coexistence of Superconductivity and Magnetism****CK-6:IL01 Superconducting Properties of Ultrathin FeSe Films on Oxide Substrates**

TSUTOMU NOJIMA, J. SHIOGAI, T. MIYAKAWA, Y. ITO, T. HARADA, A. TSUKAZAKI, Institute for Materials Research, Tohoku University, Sendai, Japan

CK-6:IL02 Novel Proximity Phenomena at High T_c Superconductor Interfaces

D. SANCHEZ-MANZANO¹, M. ROCCI¹, F.A. CUELLAR¹, M. VARELA¹, Z. SEFRIQUI¹, C. LEON¹, J. TRASTOY², X. PALERMO², V. ROUCO², J. VILLEGAS², M. GARCIA HERNANDEZ³, Q. WANG⁴, Y.H. LIU⁴, S.G.E. TE VELTHUIS⁴, M.R. FITZSIMMONS⁵, **J. SANTAMARIA**¹, ¹GFMC, Depto. Física de Materiales, Universidad Complutense de Madrid, Madrid, Spain; ²Unité Mixte de Physique CNRS/Thales, Campus de Polytechnique, Palaiseau and Université Paris-Sud, Orsay, France; ³Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Cantoblanco. Madrid, Spain; ⁴Materials Science Division, Argonne National Laboratory, Argonne, IL, USA; ⁵Oak Ridge National Laboratory, Oak Ridge, TN, USA

CK-6:IL03 Helical Magnetic Order and Pressure Induced Superconductivity in Binary Pnictides CrAs and MnP

R. KHASANOV, A. AMATO, P.K. BISWAS, P. BONFA¹, I. EREMIN, Z. GUGUCHIA, H. LUETKENS, E. MORENZONI, R. DE RENZI, CH. RÜEGG, A.S. SEFAT, M.A. SUSNER, N.D. ZHIGADLO, Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institut, Villigen, Switzerland

Session CK-7**Amorphous, Nano-crystalline Materials and Granular Materials****CK-7:IL01 Transparent Diluted Magnetic and Plasmonic Metal Oxide Nanocrystals**

P.V. RADOVANOVIC, Department of Chemistry, University of Waterloo, Waterloo, ON, Canada

Session CK-8**Novel Synthesis and Characterization Techniques****CK-8:IL01 Imaging Magnetic Field at the Nanoscale with a Single Spin Microscope**

V. JACQUES, Laboratoire Charles Coulomb, Université de Montpellier and CNRS, UMR 5221, Montpellier, France

CK-8:IL02 Atomic-scale Characterization of Charge Distributions at Oxide Interfaces and Néel-Type Domain Walls Using Scanning Transmission Electron Microscopy

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CK-5:IL03 Microstructural Evaluation of Magnetite Nanoparticles (Fe₃O₄) Synthesized by Different Routes

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Session CK-9**Applications in Electronics and Energy****CK-9:IL01 Energy Efficiency in Electrocaloric Heat Exchangers**

E. DEFAY, R. FAYE, S. NICOLAU, D. SETTE, H. STROZYK, Luxembourg Institute of Science and Technology, Belvaux, Luxembourg

CK-9:IL02 Magnetoelectric Multilevel Non-volatile Memory Devices

YOUNG SUN, DASHAN SHANG, YISHENG CHAI, JIANXIN SHEN, PEIPEI LU, Institute of Physics, CAS, Beijing, China

CK-5:IL03 Purely Antiferromagnetic Magnetoelectric Random Access Memory (AF-MERAM)

T. KOSUB, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

SYMPOSIUM CL**INORGANIC MATERIALS SYSTEMS FOR ADVANCED PHOTONICS****Session CL-1****Photonic Nanomaterials and Nanostructures****CL-1:IL01 Synthesis of Nanoparticles: the Role of Chemical Parameters Toward Functional Materials**

A. LAURIA, Laboratory for Multifunctional Materials, Swiss Federal Institute of Technology (ETH-Zurich), Zürich, Switzerland

CL-1:IL02 Yb³⁺ Photoluminescence Enhancement by Disordered Plasmonic Networks Assembled on Anisotropic Crystals

L. SANCHEZ-GARCIA, M.O. RAMIREZ, **L.E. BAUSA**, Dept. Física de Materiales, Universidad Autónoma de Madrid, Madrid, Spain; J.J. CARVAJAL, R. SOLE, M. AGUILO, F. DIAZ, Física i Cristal·lografia de Materials i Nanomaterials, Universitat Rovira i Virgili, Tarragona, Spain

CL-1:IL03 Tuning Plasmonic and Photonic Properties in Mesoporous Nanocomposite Materials

G.J.A.A. SOLER-ILLIA, Instituto de Nanosistemas, Universidad Nacional de General San Martín, San Martín, Buenos Aires, Argentina

CL-1:IL04 Colloidal Nanocrystals: Functional Materials for Photonic Applications

M. STRICCOLI¹, E. FANIZZA^{2,1}, A. PANNIELLO¹, N. DEPALO¹, M. CORRICELLI¹, C. INGROSSO¹, R. COMPARELLI¹, A. AGOSTIANO^{2,1}, M. L. CURRI¹, ¹CNR IPCF Bari c/o Chem. Dept., University of Bari, Bari, Italy; ²Chemistry Dept., University of Bari, Bari, Italy

CL-1:IL05 Integrated Lithium Niobate Photonics

M.A. BAGHBAN, K. GALLO, Department of Applied Physics, KTH-Royal Institute of Technology, Stockholm, Sweden

Session CL-2**Luminescent and Chromogenic Ceramics and Glass Systems****CL-2:IL01 Ceramic Phosphor Development for Solid State Lighting (SSL)**

I. KINSKI, M. ARNOLD, Fraunhofer Institute for Ceramic Technologies and Systems, Hermsdorf, Germany; M. FRIES, U. PARTSCH, Fraunhofer Institute for Ceramic Technologies and Systems, Dresden, Germany

CL-2:IL02 Rare-earth-doped Glass and Glass-ceramic Phosphors for Radiation Imaging and Dosimetry

GO OKADA¹, F. CHICILLO², JUMPEI UEDA³, S. TANABE³, A. EDGAR⁴, G. BELEV², T. WYSOKINSKI⁵, D. CHAPMAN², T. YANAGIDA¹, S. KASAP², ¹Nara Institute of Science and Technology, Nara, Japan; ²University of Saskatchewan, Canada; ³Kyoto University, Japan; ⁴Victoria University of Wellington, New Zealand; ⁵Canadian Light Source, Canada

CL-2:IL03 GGAG Nanoceramics Doped with Rare Earth for Application in LED Lighting

P. GLUCHOWSKI, W. STREK, W. RYBA-ROMANOWSKI, P. SOLARZ, Institute of Low Temperature and Structure Research PAS, Wrocław, Poland

CL-2:IL04 Optical, Luminescent and Mechanical Properties of SPSed Ceramics Based on YSZ and MgAl₂O₄

E.S. DVILIS, **O.L. KHASANOV**, E.F. POLISADOVA, V.D. PAYGIN, Tomsk Polytechnic University, Tomsk, Russia

CL-2:IL05 Theoretical Modeling of Optical Properties of Red Phosphors for White LEDs

M.G. BRIK, College of Sciences, Chongqing University of Posts and Telecommunications, Chongqing, P.R. China; Institute of Physics, University of Tartu, Estonia; Institute of Physics, Jan Długosz University, Częstochowa, Poland

CL-2:L06 Morphological, Photoluminescent and Structural Properties Study of Pr³⁺-Doped α -Ag₂WO₄ Synthesized by the Coprecipitation Methodology

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Session CL-3

Transparent Conducting and Non-conducting Ceramics

CL-3:IL01 Rare Earth Ion Doped Transparent Ceramics with Long Optical Coherence Lifetime

HAITAO ZHANG, J. YANG, S. GRAY, J.A. BROWN, T.D. KETCHAM, D.E. BAKER, A. CARAPPELLA, R.W. DAVIS, J.G. ARROYO, D.A. NOLAN, Corning Research & Development Corp., Sullivan Park, Corning, NY, USA

CL-3:IL02 Chalcogenide Glass-ceramics Transparent in the Infrared

L. CALVEZ, Glass and ceramic team UMR-CNRS 6226, Institute of Chemical Sciences of Rennes, Université de Rennes 1, Rennes, France

CL-3:IL03 Transparent Ceramics Based on Rare Earth Ions-doped Cubic Tungstate/Molybdate Matrices: A Challenge and Prospect for New Efficient Optical Materials?

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CL-3:L04 Spark Plasma Sintering (SPS) of Alumina-based Transparent Ceramics

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Session CL-4

Laser Materials

CL-4:IL01 Optical Ceramics for High Energy Lasers

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CL-4:IL02 Yb :CaF₂ Laser Ceramics: Synthesis and Physical Characterizations

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CL-4:L03 Holmium Doped Yttria Transparent Ceramics for 2- μ m Solid State Lasers

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CL-4:IL04 Vision for Advanced Laser Materials

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CL-4:IL05 Mid-infrared Transition Metal Doped Chalcogenide Laser Materials and Lasers

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CL-4:L06 Recent Progress on Fabrication of Rare-earth Doped Sesquioxide Laser Ceramics

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CL-4:L07 Nd³⁺-doped Lu₂O₃ Laser Materials as Ceramics (SPS, HIP) and Single Crystals (μ -Pulling Down). Spectroscopic Properties and Comparison of Laser Outputs

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CL-4:L08 Effect of Gd³⁺ on Yb³⁺ Emission in Gd Admixed Yb:YAG at Cryogenic Temperature

S.P. DAVID, V. JAMBUNATHAN, F. YUE, P. NAVRATIL, M. MIKA; A. LUCIANETTI, T. MOCEK, HiLASE Centre, Institute of Physics CAS, Dolní Brežany, Czech Republic; Department of Glass and Ceramics, University of Chemistry and Technology, Prague, Prague, Czech Republic

Session CL-5

Inorganic Optical Fibers

CL-5:IL01 Optical Fiber Materials and Process Innovations for Next Generation Telecommunication Systems

P. TANDON, Corning Inc., Corning, NY, USA

CL-5:IL02 Shining a Light on Disease with Mid-infrared Fiberoptics

A.B. SEDDON, Ł. SOJKA, T.M. BENSON, D. FURNISS, Z.Q. TANG, H. PARNELL, D. JAYASURIYA, Y. FANG, M. SHEN, S. SUJECKI, Mid-Infrared Photonics Group, George Green Institute for Electromagnetics Research, University of Nottingham, Nottingham, UK

CL-5:IL03 Telluride and Fluoride Glass Fiber Lasers for UV to Mid-IR

N. PEYGHAMBARIAN, University of Arizona, Tucson, AZ, USA

CL-5:IL04 Composite Material Optical Fibres - Functionalisation with Semiconductors and 2D Materials

P.J.A. SAZIO, A. LEWIS, F. DE LUCIA, W. BELARDI, F. POLETTI, C.C. HUANG, D. HEWAK, ORC, University of Southampton, UK; V. GOPALAN, J.V. BADDING, Dept. of Chemistry and Materials Research Institute, Pennsylvania State University, State College, PA, USA

Session CL-6

Photons Management

CL-6:IL01 Whispering Gallery Mode Resonator Based Sensors

T. IOPPOLO, Southern Methodist University, Dallas, TX, USA

CL-6:IL02 Rare Earth Microcavity Lasers for Silicon Nanophotonics

J.D.B. BRADLEY, McMaster University, Hamilton, Ontario, Canada

CL-6:IL03 Efficient Frequency Conversion in PhoXonic Cavities Based on Whispering Gallery Mode Resonators

D. FARNESI, G. RIGHINI, G. NUNZI CONTI, **S. SORIA**, CNR-IFAC, Institute of Applied Physics "N. Carrara", Sesto Fiorentino, Italy

Session CL-7

Advances in Characterization Techniques

CL-7:IL01 New Directions in Materials Characterization with Hard x-ray Photoemission

C.S. FADLEY, Department of Physics, University of California Davis and Materials Sciences Division, Lawrence Berkeley National Laboratory, Davis, CA, USA

CL-7:IL02 New Spectroscopic Tools for the Investigation of Energy Transfer Dynamics: Coherent Multidimensional Techniques

E. COLLINI, Dipartimento di Scienze Chimiche, Università di Padova, Padova, Italy

CL-7:IL03 The Role of Computations in Complex Optical Problems

L. RAMUNNO, A. CALÀ LESINA, P. BERINI, University of Ottawa, Ottawa ON, Canada

CL-7:L04 Ultrafast Scanning Electron Microscopy (USEM) to Probe Charge Dynamics in Oxide Thin Films

S.M. PIETRALUNGA^{1,2}, V. SALA^{2,3}, G. CERULLO^{1,3}, G. LANZANI^{2,3}, G. IRDE^{2,3}, M. ZANI³, A. TAGLIAFERRI^{2,3}, 1CNR-IFN, Milano, Italy; ²CNST@Polimi, IIT, Milano, Italy; ³Department of Physics, Politecnico di Milano, Milano, Italy

Session CL-8

Ongoing Applications and Forecasts

CL-8:IL01 Transparent Ceramics: Materials, Engineering Progress and Applications

A.E. GOLDSTEIN, Israel Ceramics and Silicates Institute, Haifa, Israel

CL-8:IL02 Progress in Transparent Ceramic Development and its Laser Applications

M. DUBINSKII, US Army Research Laboratory, Adelphi, MD, USA

CL-8:IL03 Additive Manufacturing of Ceramic and Glass Materials for Photonics Applications

SHUO LI¹, RAN ZOU¹, MOHAN WANG¹, SHENG HUANG¹, MING-JUN LI², M. BURIC³, P. OHODNICKIC³, **KEVIN P. CHEN**¹, ¹Department of Electrical and Computer Engineering, University of Pittsburgh, Pittsburgh, PA, USA; ²Corning Incorporated, Corning, NY, USA; ³National Energy Technology Laboratory, Pittsburgh, PA, USA

CL-3:L04 Glass and Glass-ceramic of Silica-calcia System Doped with Eu³⁺ Ions

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CM-1:IL06 Transparent Titania-based Thin Films with Silicate Binder for Self-cleaning and Photocatalytic Applications

U. LAVRENVIC STANGAR^{1,2}, N. VODIŠEK², A. ŠULIGOJ^{1,3}, ¹University of Ljubljana, Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia; ²University of Nova Gorica, Nova Gorica, Slovenia; ³National Institute of Chemistry, Ljubljana, Slovenia

CM-1:L07 Eco-friendly Self-cooling System of Porous Silicate Plates by Evaporation of Absorbed Water

HIROAKI KATSUKI, EUN-KYOUNG CHOI, WON-JUN LEE, UNG-SOO KIM, KWANG-TAEK HWANG, WOO-SEOK CHO, SRIDHAR KOMARNENI, Korea Institute of Ceramic Engineering & Technology; The Pennsylvania State University, USA

Session CM-2

Green Silicate Ceramics

CM-2:IL01 Valorization of Industrial Wastes in Green Ceramic Products

RUI M. NOVAIS, L. BURUBERRI, J. CARVALHEIRAS, J. CARNEIRO, M. SAELI, M.P. SEABRA, **J.A. LABRINCHA**, Department of Materials and Ceramic Engineering / CICECO-Aveiro Institute of Materials, University of Aveiro, Campus Universitário de Santiago, Aveiro, Portugal

CM-2:IL02 Porcelain Stoneware Tiles Above and Beyond Innovation: a Break with Tradition

E. RAMBALDI, Centro Ceramico, Bologna, Italy

CM-2:IL03 Synthesizing Building Ceramics with High Crystallinity and Improved Properties from High Amounts of Industrial Wastes

A. KARAMANOV, E. KARAMANOVA, G. AVDEEV, S. ATANASOVA-VLADIMIROVA, Institute of Physical Chemistry "Acad. Rostislav Kaishev", Bulgarian Academy of Sciences, Sofia, Bulgaria

CM-2:IL04 Waste Recycling in Clay Bricks

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CM-2:L05 Technical Feasibility of Using Electric Arc Furnace Slag in Manufacturing of Bricks

A.A. GUZMAN, N.C. TORRES, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, Colombia

CM-2:L06 Sustainable Construction Materials: Renewable Synthesis of Glass and Glass-ceramics Using Sugarcane Bagasse Ash (SCBA) as Main Raw Material

J.A. PEREZ-CASAS¹, C. MUGONI², C. SILIGARDI², A.A. ZALDIVAR-CADENA¹, E.I. CEDILLO-GONZÁLEZ¹, J.J. RUIZ-VALDÉS¹, A.I. SÁNCHEZ-VÁZQUEZ¹, ¹Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, San Nicolás de los Garza, N.L., Mexico; ²Università Degli Studi di Modena e Reggio Emilia, Dipartimento di Ingegneria "Enzo Ferrari", Modena, Italy

CM-2:IL07 Green Silicate Ceramics Based on Agro-residues

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CM-2:L08 High-content Waste-based Bodies for Porcelain Stoneware Tiles: Technological Profiling

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CM-2:L09 Technical Feasibility of Using Cigarettes Butts in Manufacturing of Bricks (LADRICOL)

K.M. CORREDOR, A.A. GUZMÁN, N.C. TORRES, Escuela Colombiana de Ingeniería Julio Garavito, Bogotá, Colombia

Session CM-3

Coating and Decoration of Silicate Ceramics

CM-3:IL01 Viscous Flow Sintering in Ceramic Glaze and Body Compositions

J.L. AMOROS, A. MORENO, E. BLASCO, Instituto de Tecnología Cerámica (ITC). Asociación de Investigación de las Industrias Cerámicas (AICE), Universitat Jaume I, Castellón, Spain

SYMPOSIUM CM

SCIENCE AND TECHNOLOGY FOR
SILICATE CERAMICS

Session CM-1

Smart Silicate Ceramics

CM-1:IL01 Functionalised Exposed Building Materials

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CM-1:IL02 Energy Efficient Manufacturing of Ceramic Wall Tiles With and Without Functionality

F. KARA, Department of Materials Science and Engineering, Anadolu University, Eskisehir, Turkey

CM-1:IL03 Enhancing Silicate Ceramics with Photocatalytic Activity

A. SEVER SKAPIN, E. ŠVARA FABJAN, N. ROZMAN, L. ŠKRLEP, P. NADRAH, National Building and Civil Engineering Institute of Slovenia, Ljubljana, Slovenia

CM-1:IL04 Effect of Firing Temperature on the Photocatalytic Activity of Ceramic Glazes

M. SCARPATO, **A.M. BERNARDIN**, Ceramic Materials Group, UNESC, Criciúma, Santa Catarina, Brazil

CM-1:IL05 Development and Characterization of Multifunctional Coatings: Scratch Resistant Superhydrophobic Surfaces

R. TAURINO, F. BONDIOLI, Dipartimento di Ingegneria e Architettura, Università di Parma, Parma, Italy; M. MESSORI, M. CANNIO, Dipartimento di Ingegneria Enzo Ferrari, Università di Modena e Reggio Emilia, Modena, Italy; D.R. BOCCACCINI, G. MORINI, Tecnoitalia, Sassuolo, Italy

CM-3:IL02 Influence of Printing Parameters on Optical Properties of Ink-jet Ceramic Decoration

C. FERRARI, C. SILIGARDI, Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Modena, Italy

CM-3:IL03 Novel Steatite Coatings for Silicate Ceramics: Preparation and Sintering of the Steatite Powders

A. TERZIC, Institute for Materials Testing IMS, Belgrade, Serbia

CM-3:IL04 Improvement of Colour Quality and Reduction of Defects in the Ink Jet-printing Technology for Ceramic Tiles Production: A Design of Experiments Study

M. MONTORSI, Department of Science and Methods for Engineering, University of Modena and Reggio Emilia, Reggio Emilia, Italy

CM-3:L05 Impact of Alkali Metal Oxygens on Structure and Properties of Ceramic Glazes

J. PARTYKA, K. PASIUT, M. LESNIAK, M. BUCKO, AGH University of Science and Technology, Krakow, Poland

Session CM-4

Innovative Processing in Silicate Ceramics

CM-4:IL01 Chemical Tempering of Porcelain Tiles

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CM-4:IL02 Varying the Firing Regime of Naturally Occurring Clays Using Thermal Analysis

M.V. VASIC, Institute for Testing of Materials IMS, Belgrade, Serbia; J.D. ZDRAVKOVIĆ, Innovation Centre - Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia; L.L. PEZO, University of Belgrade, Institute of General and Physical Chemistry, Belgrade, Serbia; P.J. VULIC, Faculty of Mining and Geology, University of Belgrade, Belgrade, Serbia; Z. RADOJEVIC, Institute for Testing of Materials IMS, Belgrade, Serbia

CM-4:IL03 Advantages of the MW Sintering in Ceramics

C. LEONELLI, R. ROSA, P. VERONESI, Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Modena, Italy

CM-4:IL04 Traditional Raw Materials as Active Components in Biocleaning Desalination Processes

S. VUCETIC¹, **J. RANOGAJEC**¹, H. HIRSENBERGER², A. VIDAKOVIC¹, S. MARKOV¹, ¹University of Novi Sad, Faculty of Technology, Novi Sad, Serbia; ²University of Novi Sad, Faculty of Technical Science, Novi Sad, Serbia

CM-4:IL05 Study of the Thermal Behavior and VOC Emission of Digital Inks and Glazes for Ceramic Tiles

P. ZANNINI, G. FERRARI, University of Modena and Reggio Emilia, Chemical and Geological Science Department, Modena, Italy

CM-4:IL06 New Advances on Functional Porcelain Technology

NOBUAKI KAMOCHI, K. NISHIYAMA, H. KATSUKI, Saga Ceramics Research Laboratory, Arita-machi, Saga, Japan

CM-4:L07 Densification of Porcelain Stoneware Tiles: A Simplified Model Based on Technological Properties

C. ZANELLI, S. CONTE, R. SOLDATI, M. DONDI, CNR-ISTEC, Faenza, Italy

CM-4:L08 Phase Transformations and Related Liquid Phase Physical Properties: Evolution During the Viscous Flow Sintering in Porcelain Stoneware Tiles

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CM-4:L09 The Valorization of Phosphogypsum in the Development of New Composite Materials and Modeling of Mechanical Stress

Y. RAKHILA, A. EZZAHI, A. MESTARI, A. ELMCHAOURI, Laboratory of Physical Chemistry and Bioorganic Chemistry, Faculty of Science and Techniques Mohammedia, Mohammedia, Morocco

Session CM-5

Geopolymers

CM-5:IL01 Working Mechanisms of Superplasticizers on Alkali-Activated Cements

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CM-5:L02 Multifunctional Waste-based Geopolymer Spheres

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CM-5:L03 Thermal Resistant Alkali-activated Materials Based on Various Aluminosilicate Sources

M. FRICHETEAU, A. GHARZOUNI, S. ROSSIGNOL, Science des Procédés Céramiques et de Traitements de Surface (SPCTS), Limoges Cedex, France

CM-5:L04 Mechanical and Thermal Properties of Fly Ash Based Geopolymer Composites

P. TIMAKUL, P. HENPRASIRTAE, DUANGDUEN ATONG, PAVADEE AUNGKAVATTANA, National Metal and Materials Technology Center and National Nanotechnology Center, Klong Luang, Pathumthani, Thailand

CM-5:L05 Effect of Aluminum and Alkali Cation Earth Reactivity on Alkali-activated Materials Formation and Structure

A. GHARZOUNI, L. OUAMARA, S. ROSSIGNOL, Science des Procédés Céramiques et de Traitements de Surface (SPCTS), Ecole Nationale Supérieure de Céramique Industrielle, Limoges, France; I. SOBRADOS, Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas (CSIC), Madrid, Spain

CM-5:L06 Thermal Stability and Mechanical Properties of Wollastonite Reinforced Fly Ash-based Geopolymer

K. HEMRA, S. JIEMSIRILERS, Department of Materials Science, Faculty of Science, Chulalongkorn University, Bangkok, Thailand; P. AUNGKAVATTANA, National Nanotechnology Center, Bangkok, Thailand; T. KOBAYASHI, Department of Materials Science and Technology, Nagaoka University of Technology, Niigata, Japan

CM-5:L07 Synthesis of Geopolymer Foams: Application in the Retention of Heavy Metals

K. KHATIB, H. BENBAKRIM, M. EL AZHARI, Cadi Ayyad University, Marrakech, Morocco

CM-5:L08 Synthesis and Characterization of Alkali-activated Metakaolin/Slag Mixtures with TiO₂ Nanoparticles

L.Y. GOMEZ-ZAMORANO, E.A. LLANO GUERRERO, Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, Programa Doctoral en Ingeniería de Materiales, San Nicolás de los Garza, Nuevo León, México

CM-5:IL09 Alkali Activated Green Building Materials - Selected Case Studies

V. DUCMAN, Slovenian National Building and Civil Engineering Institute, Ljubljana, Slovenia

CM-5:L10 Valorization of Biochar By-products into Alkali-activated Materials

R. FARGES, A. GHARZOUNI, S. ROSSIGNOL, SPCTS, UMR 7315, Limoges cedex, France; P. JEULIN, B. RAVIER, Etablissement MAILLOT, Vernouillet, France

CM-5:L12 Effect of NaOH Concentration and Curing Time on Mechanical Properties and Microstructure of Geopolymer Prepared from Kaolin Processing Waste

S. PRASANPHAN, S. JIEMSIRILERS, Department of Materials Science, Faculty of Science, Chulalongkorn University, Pathumwan, Bangkok, Thailand; T. KOBAYASHI, Department of Materials Science and Technology, Nagaoka University of Technology, Kamitomioka, Nagaoka, Niigata, Japan; A. WANNAGON, National Metal and Materials Technology Center, Thailand Science Park, Khlong Nueng, Khlong Luang, Pathum Thani, Thailand

CM-5:L13 Formation, Structure and Mechanical Properties of Alkali-activated Materials Based on CO_x Argillite

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CM-5:L14 Synthesis of a New Geopolymer Based on Moroccan Pozzolana

A. AZIZ¹, I.-E. EL AMRANI EL HASSANI¹, A. ELBOUARI², C. SADIK², ¹Laboratory Physicochemistry of Applied Materials / Faculty of Sciences Ben M'sik; ²Laboratory of Geomaterials and Geoenvironment / Rabat Scientific Institute, Casablanca, Morocco

CM-5:IL15 Lignocellulose-geopolymer Composites

M. ILLIKAINEN, J. KIVENTERA, H. SREENIVASAN, A. AMMALA, J. YLINIEMI, P. KINNUNEN, University of Oulu, Fiber and Particle Engineering Research Unit, University of Oulu, Oulu, Finland

CM-5:IL16 NMR Investigations on Silicate Compounds

I. SOBRADOS, Instituto de Ciencia de Materiales de Madrid-Consejo Superior de Investigaciones Científicas, Madrid, Spain

CM-5:IL17 Novel Perspectives in the Synthesis and Application of Aluminosilicate Matrix Composite Materials

C. FERONE, G. ROVIELLO, L. RICCIOTTI, R. CIOFFI, Dipartimento di Ingegneria, Università di Napoli 'Parthenope', INSTM Research Group Napoli Parthenope, Napoli, Italy

SYMPOSIUM CN
REFRATORIES: MEETING
REFRACTORY INDUSTRY NEEDS
OF TODAY AND IT'S FUTURE
CHALLENGES

Session CN-1**Raw Materials Needs****CN-1:IL01 Fabrication and Characterization of Highly Porous Alumina using Platelets**

SHINOBU HASHIMOTO, SAWAO HONDA, YUSUKE DAIKO, YUJI IWAMOTO, Nagoya Institute of Technology, Department of Life Science and Applied Chemistry, Nagoya, Japan

CN-1:IL02 Raw Material Needs for Modern Clean Steel Technology and Refractories Engineering

A. BUHR, Almatix GmbH, Frankfurt, Germany; **R. BRUCKHAUS**, Dillinger, Dillingen, Germany; **R. FANDRICH**, Stahlinstitut VDEh, Düsseldorf, Germany

CN-1:IL03 Meeting the Future Needs of Refractory Raw Materials through Innovation

H.S. TRIPATHI, Refractory & Traditional Ceramics Division, CSIR-Central Glass & Ceramic Research Institute, Kolkata, India

CN-1:IL04 Characterization of Porous Alumina Bodies Fabricated by High-temperature Evaporation of Boric Acid with Sodium Impurity

DAIMU MUTO, SHINOBU HASHIMOTO, SAWAO HONDA, YUSUKE DAIKO, YUJI IWAMOTO, Nagoya Institute of Technology, Department of Life Science and Applied Chemistry, Nagoya, Japan

Session CN-2**Product Testing and Quality Control****CN-2:IL01 Metastability, Energy Landscapes, and the Search for New Refractory Materials**

A. NAVROTSKY, University of California, Davis, CA, USA

CN-2:IL02 New Approach of Corrosion Kinetics: High-temperature Time-resolved Raman and XRD Techniques and Applications

E. DE BILBAO¹, M. DOMBROWSKI¹, R. MICHEL¹, M. RAMZI AMMAR¹, A. CAZINARES¹, H. PILLIERE², P. SIMON¹, J. POIRIER¹, ¹CEMHTI CNRS Univ. Orleans, Orleans, France; ²Thermo Fisher Scientific Inel, France

CN-2:IL03 Three Stage Creep Behavior of MgO Containing Ordinary Refractories in Tension and Compression

S. SCHACHNER, S. JIN, H. HARMUTH, D. GRUBER, Montanuniversitaet, Leoben, Austria

CN-2:IL04 Laser Induced Thermal Cycling and Hot Thermal Shock on Refractories Using TOM wave

H. FRIEDRICH, J. BABER, F. RAETHER, Fraunhofer Institute Silicate Research ISC, Fraunhofer-Center for High Temperature Materials and Design HTL, Bayreuth, Germany

CN-2:IL05 Analysis of the Fracture Behaviour of Magnesia-spinel Refractories by Digital Image Correlation

I. KHLIFI, M. HUGER, IRCER, Université de Limoges, UMR CNRS 7315, CEC, Limoges Cedex, France; **O. POP GEMH**, Université de Limoges, Egletons Cedex, France; **J.-C. DUPRÉ**, P. DOUMALIN, Institut Pprime, Université de Poitiers, UPR CNRS 3346, Futuroscope Chasseneuil Cedex, France

Session CN-3**Product Manufacturing and Installation****CN-3:IL01 Carbon-bonded Monolithic: Innovation and Perspectives**

C. PAGLIOSA¹, V.C. PANDOLFELLI², ¹MAGNESITA S.A., Contagem, Brazil; ²Federal University of São Carlos (UFSCar), Brazil

CN-3:IL02 Applications of Microwave Heating to Refractory Materials

HATSUO TAIRA, Krosaki Harima Corporation, Kitakyusyu, Japan

Session CN-4**Modelling and Simulation of the Process Environment****CN-4:IL01 Application of Testing and Simulation for Fracture Mechanical Refractory Characterization**

H. HARMUTH¹, Y. DAI², D. GRUBER¹, S. JIN¹, ¹Montanuniversitaet Leoben, Leoben, Austria; ²Wuhan University of Science and Technology, Wuhan, China

CN-4:IL02 Thermo-chemo-mechanical Modelling of Refractories at High Temperatures: Basics, Keyoints and New Numerical Developments

E. BLOND¹, A.K. NGUYEN^{1,2}, T. SAYET¹, E. DE BILBAO³, A. BATAKIS², M.-D. DUONG⁴, ¹Université d'Orléans, LaMé, Polytech Orléans, Orléans, France; ²Université d'Orléans, MAPMO, UMR CNRS 6628, Orléans, France; ³Université d'Orléans, CEMHTI, UPR CNRS 3079, Orléans, France; ⁴University of Science, Hochiminh city, Nguyen Van Cu, Vietnam

CN-4:IL03 Numerical Modelling by Discrete Element Method of Nonlinear Mechanical Behaviour of Refractories: Influence of Damage Involved by CTE Mismatch

T.T. NGUYEN, D. ANDRE, N. TESSIER-DOYEN, M. HUGER, University of Limoges, UMR CNRS 7315 - IRCER, Centre Européen de la Céramique, Limoges, France

CN-4:IL04 Interactions of Refractory Materials with Molten Gasifier Slag

JINICHIRO NAKANO, A. NAKANO, AECOM, Albany, OR, USA; **J.P. BENNETT**, National Energy Technology Laboratory, U.S. Dept. of Energy, Albany, OR, USA

CN-4:IL05 Thermodynamic Database for the Slag and Refractory System in the Coal Combustion Process

IN-HO JUNG, M.-A. VAN ENDE, Department of Materials Science and Technology, Seoul National University, Seoul, South Korea; **DONG-GEUN KIM**, E. MOOSAVI-KHOONSARI, Department of Mining and Materials Engineering, McGill University, Montreal, QC, Canada; **MINAMI TAI**, RCCM, Tokyo, Japan

Session CN-5**Refractory Failure Analysis****CN-5:IL01 Post-mortem Analysis of Refractory Wear in Metal Processing Caused by Slag and Temperature – The Importance of Understanding the Process and Requirements for the Slag**

A.M. GARBERS-CRAIG, Centre for Pyrometallurgy, Department of Materials Science & Metallurgical Engineering, University of Pretoria, Pretoria, South Africa

CN-5:IL02 Stability of Thermal Insulating Materials Used in Hall-Héroult Cells

R. LUNENG, T. GRANDE, Department of Materials Science and Engineering, NTNU, Norwegian University of Science and Technology, Trondheim, Norway; **S.N. BERTEL**, J. MIKKELSEN, Skamol A/S, Nykøbing Mors, Denmark; **A.P. RATVIK**, SINTEF Materials and Chemistry, Trondheim, Norway

CN-5:IL03 MgO Refractory Wear in the Ferrovandium Production Process

M.C.J. VAN DER MERWE, R.D. CROMARTY, A.M. GARBERS-CRAIG, Centre for Pyrometallurgy, Department of Materials Science and Metallurgical Engineering, University of Pretoria, South Africa

CN-5:IL04 Operational Issues in Slagging Gasifier Causing Refractory and Thermocouple Sensor Wear and Failure

J.P. BENNETT, National Energy Technology Laboratory, U.S. Dept. of Energy, Albany, OR, USA; **A. NAKANO**, J. NAKANO, AECOM, Albany, OR, USA

CN-5:IL05 An European Innovative Training Network dedicated to Refractories: ATHOR

M. HUGER, University of Limoges, UMR CNRS 7315 - IRCER, Centre Européen de la Céramique, Limoges, France

CN-5:IL06 Autopsy of Refractory Lining in Anode Baking Furnaces with Open and Closed Design

T. BRANDVIK, T. GRANDE, NTNU Norwegian University of Science and Technology, Trondheim, Norway; **A.P. RATVIK**, SINTEF Materials and Chemistry, Trondheim, Norway

Session CN-6

Refractory Materials for Novel or Advanced Applications

CN-6:IL01 Innovative Sintered Mullite-zirconia Refractory Composite for Hazardous Waste Incinerators

A. VILLALBA WEINBERG^{1, 2, 5}, M.L. BOUCHETOU¹, E.S. FOTSO, O. JOUBERT⁴, C. VARONA⁵, D. GOEURIOT², J. POIRIER¹, ¹CNRS, CEMHTI UPR 3079, Univ. Orléans, Orléans, France; ²LGF CNRS UMR 5307, Mines Saint-Etienne, France; ³CARRD, Imerys, Villach, Austria; ⁴Imerys Refractory Minerals Clerac; ⁵Bony SA, Saint Etienne, France

CN-6:IL02 Enhanced Mechanical Properties of Al₂O₃-C Refractories with Silicon Hybridized Expanded Graphite

YAWEI LI, The State Key Laboratory of Refractories and Metallurgy, Wuhan University of Science & Technology, Wuhan, P.R. China

CN-6:L03 Reactive Filter Collectors Based on Calcium Aluminates with Carbon for Clean Steel Approaches

E. STORTI, D. VERES, M. FARHANI, C.G. ANEZIRIS, Institute of Ceramic, Glass and Construction Materials, TU Freiberg, Freiberg, Germany; C. WÖHRMEYER, Kerneos GmbH, Oberhausen, Germany; C. PARR, Kerneos SA, Puteaux, France

CN-6:IL04 Flame Spraying Approaches for Advanced Refractory Applications

P. GEHRE, C.G. ANEZIRIS, TU Bergakademie Freiberg, Institute of Ceramic, Glass and Construction Materials, Freiberg, Saxony, Germany

CN-6:IL05 Refractory Filtering Materials for Clean Steel Technology

C.G. ANEZIRIS, P. GEHRE, A. SCHMIDT, E. STORTI, S. DUDCZIG, J. HUBALKOVA Institute of Ceramic, Glass and Construction Materials, Technical University of Freiberg, Freiberg, Germany

CN-6:L06 Study of Innovative Refractory Solutions for Improving Efficiency of Industrial Furnaces

D. OLEVANO, U. Martini, P. Miceli, A. Di Donato, RINA CONSULTING - Centro Sviluppo Materiali S.p.A., Rome, Italy

Session CN-7

Future Refractory Education Needs

CN-7:IL01 Complex Engineering Systems; The Next Step for the Ceramic Refractory Area

V.C. PANDOLFELLI, Federal University of São Carlos - DEMa, São Carlos, SP, Brazil

CN-7:IL02 The FIRE Compendium Series on Corrosion of Refractories to Match Educational Needs

M. RIGAUD, Ecole Polytechnique, University of Montreal, Montreal, Quebec, Canada

CN-7:IL03 How to Cover the Spectrum of Education Needs for the Refractory Industry

P. QUIRMBACH, ECREF European Centre for Refractories, Höhr-Grenzhausen, Germany

CO-1:IL02 High-performance SiC-polycrystalline Fiber

TOSHIHIRO ISHIKAWA, Tokyo University of Science, Yamaguchi, Sanyo-Onoda, Yamaguchi, Japan

CO-1:IL03 A Novel PAN/Silazane Hybrid Material for Processing of Carbon Fibers with Extraordinary Oxidation Resistance

G. MOTZ, University of Bayreuth, Ceramic Materials Engineering, Bayreuth, Germany; L. RIBEIRO, R.A.F. MACHADO, Federal University of Santa Catarina Materials Engineering, Florianopolis, Brazil

CO-1:IL04 Structure and Properties of Carbon Fibers

H. PETERLIK, University of Vienna, Faculty of Physics, Vienna, Austria

CO-1:L05 High Temperature Potential of Oxide Ceramic Fibers Investigated by Mini-composites Approach

K. TUSHTEV, R.S.M. ALMEIDA, K. REZWAN, Advanced Ceramics, University of Bremen, Bremen, Germany

CO-1:L06 In-situ Formed h-BN Platelet Reinforced Boron Carbide Composites Sintered via SPS

FAN ZHANG, ZHENG YI FU, WEIMIN WANG, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, China

CO-1:L07 An Original Way to Produce Carbon Reinforcements: Polyoxometalate - Reduced Graphene Oxide Nanocomposite

C. DEBIEMME-CHOUVY¹, B. THOMAS², I. LUCAS¹, M.M.T. TRAN¹, A. VEILLERE², J.-M. HEINTZ², J.-F. SILVAIN², ¹Laboratoire Interfaces et Systèmes Electrochimiques, LISE - UMR 8235, Sorbonne Universités, UPMC Univ Paris 06, CNRS, Paris, France; ²Institut de Chimie de la Matière Condensée de Bordeaux, ICMCB-CNRS, Pessac Cedex, France

CO-1:IL08 Development of Non-oxide Ceramic Fibers

A. NOETH, A. RÜDINGER, Fraunhofer Center for High Temperature Materials and Design HTL, Bayreuth, Germany; M. ROTHMANN, Werner Humbs, BJS Ceramics GmbH, Germany

CO-1:IL09 Production and Properties of High-temperature Resistant SiC Fiber and its Composites

JUN WANG, HAO WANG, YANZI GOU, Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, National University of Defense Technology, Changsha, P.R. China

CO-1:L10 Manufacturing Condition using the MI-PIP Hybrid Technique to Make a High Thermal Conductive SiC Fiber-Reinforced SiC Matrix Composite

KOHEI EJIRI, Tokyo University of Science, Noda-shi, Chiba, Japan; M. KOTANI, Japan Aerospace Exploration Agency, Mitaka-shi, Tokyo, Japan; S. OGIHARA, Tokyo University of Science, Noda-shi, Chiba, Japan

CO-1:L11 Development of a Colloidal SiC-C-slurry for the Manufacturing of SiC/SiC Composites

A. HELD, S. KNOHL, W. KRENKEL, Department of Ceramic Materials Engineering, University of Bayreuth, Bavaria, Germany

CO-1:L12 Pre-ceramic Prepreg Production and use to produce low cost CMCs

C. MINGAZZINI, F. MAZZANTI, M. SCAFFI et al., ENEA-TEMAF, Faenza, Italy

CO-1:L13 Thermal Condensation Reaction of Polydimethylsilane in a CO₂ Atmosphere for Synthesis of Polycarbosilane

MASAKI NARISAWA, KOUYA YAMADA, RINTARO HANATANI, HIROFUMI INOUE, Osaka Prefecture University, Sakai, Osaka, Japan

CO - 8th International Conference
**ADVANCED INORGANIC FIBRE
 COMPOSITES FOR STRUCTURAL
 AND THERMAL MANAGEMENT
 APPLICATIONS**

Session CO-1

Production and Properties of Reinforcements, Preforms, and Matrix Materials

CO-1:IL01 Oxide Ceramic Fibers - State of the Art and New Developments

B. CLAUSS, S. PFEIFER, German Institutes of Textile and Fiber Research (DITF Denkendorf), Denkendorf, Germany; M.R. BUCHMEISER, DITF Denkendorf and University of Stuttgart, Institute of Polymer Chemistry, Stuttgart, Germany

Session CO-2

Interfaces / Interphases

CO-2:IL01 Active Metal Brazing of Composites for Thermal Management Applications

R. ASTHANA¹, M. SINGH², N. SOBCZAK³, J.J. SOBCZAK³, ¹University of Wisconsin-Stout, Menomonie, Wisconsin, USA; ²Ohio Aerospace Institute, Cleveland, OH, USA; ³Foundry Research Institute, Krakow, Poland

CO-2:IL02 Interfaces and Interface Design in CMCs

J. LAMON, CNRS/Ecole Normale Supérieure Paris - Saclay, Laboratoire de Mécanique et Technologie, Cachan, France

CO-2:IL03 Fiber-matrix Interfaces Optimized for Nuclear and Thermomechanical Applications

C. FELLAH, J. BRAUN, C. SAUDER, Den-Service de Recherche de Métallurgie Appliquée (SRMA), CEA, Université Paris-Saclay, Gif-sur-Yvette, France; M.-H. BERGER, MINES ParisTech, PSL Research University, MAT - Centre des matériaux, CNRS UMR 7633, Evry, France

CO-2:IL04 Preparation and Properties of Born-based Interphases for SiCf/SiC Composites

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CO-2:IL05 Pyrocarbon Interphases in Carbon/Carbon and Ceramic-Matrix Composites: Modelling Activities

G.L. VIGNOLES, University of Bordeaux, CNRS, Safran, CEA : Lab. for ThermoStructural Composites (LCTS) - UMR5801, Pessac, France

CO-2:L06 RE2Si2O7 Disilicates: Promising Oxidation and Corrosion Resistant Weak Interface in SiCf/SiC CMC

JINGYANG WANG, High-Performance Ceramics Division, Shenyang National Laboratory for Materials Science, Institute of Metal Research, CAS, Shenyang, China

Session CO-3

Processing and Fabrication of MMCS, CMCS, and C/C Composites

CO-3:IL01 Design, Structure and Properties of Organomorphic Composites as New Materials

E.A. BOGACHEV, Joint Stock Company "Kompozit", Korolev, Moscow region, Russia

CO-3:IL02 Fast and Ultra-fast Sintering of Ceramics by Plastic Deformation as Dominating Mechanism

ZHENG YI FU, Wuhan University of Technology, Wuhan, China

CO-3:L03 Multi-functionally Graded Electroconductive Alumina

I. HUSSAINOVA, Tallinn University of Technology, Tallinn, Estonia

CO-3:IL04 Additive Manufacturing of Ceramics and Composites

TATSUKI OHJI, NAOKI KONDO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CO-3:IL05 New Approaches for the Manufacture of C/C-SiC Composite Materials

W. KRENKEL, N. LANGHOF, Ceramic Materials Engineering, University of Bayreuth, Bayreuth, Germany

CO-3:IL06 Rapid Densification of CMCs by Controlling the Multi-scale Pores in CVI Process

LAIFEI CHENG, Science and Technology on Thermostructural Composite Materials Laboratory, Northwestern Polytechnical University, Xi'an, China

CO-3:IL07 An Overview on the Recent Researches on Metal Matrix Composites

Y. LE PETITCORPS, LCTS UMR 5801, University of Bordeaux, Pessac, France

CO-3:IL08 Additive Manufacturing of Light Weight and High Power Density Propulsion Systems

M.C. HALBIG, NASA Glenn Research Center, Cleveland, OH, USA; **M. SINGH**, Ohio Aerospace Institute, Cleveland, OH, USA

CO-3:IL09 High Temperature Molybdenum Matrix Composites

S. MILEIKO, Institute of Solid State Physics of Russian Academy of Sciences, Chernogolovka, Russia

CO-3:L10 Ceramic Matrix Composites (CMCs) for High Temperature Industrial Applications

L. CAVALLI, F. GIACOMETTI, F. BERNARDINELLO, Petroceramics spa, Stezzano, Italy

CO-3:L11 Impact of Matrix Composition on the Properties of SiC/ SiC Ceramic Matrix Composites

K. SCHOENFELD, H. KLEMM, Fraunhofer IKTS, Dresden, Germany

CO-3:L12 New Large-scale Production Method for C/C-SiC Ceramics

D.J. NESTLER, **J. STILLER**, L. KROLL, University of Technology Chemnitz, Chemnitz, SN, Germany

Session CO-4

Ultrahigh Temperature Ceramic Composites (UHTCCs) and Laminated Composite Structures

CO-4:IL01 Joining of Ceramics and CMC for Extreme Applications

M. FERRARIS, Politecnico di Torino, Torino, Italy

CO-4:IL02 Mechanical Properties and Microstructure of Unidirectional UHTCCs

L. ZOLI, A. VINCI, S. FAILLA, P. GALIZIA, D. SCITI, CNR-ISTEC, Faenza, Italy

CO-4:IL03 Design, Fabrication and Properties of Cf/(ZrB₂)-ZrC-SiC Ultra-high Temperature Ceramic Matrix Composites

DE WEI NI, J. WANG, X. CHEN, S. DONG, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

CO-4:L04 Novel UD UHTCMCs Produced by EPD and Sintering

S. FAILLA^{1,2}, L. ZOLI¹, P. GALIZIA¹, D. SCITI¹, ¹CNR-ISTEC, Faenza, Italy; ²University of Parma, Italy

CO-4:L05 Low Temperature Spark Plasma Sintering of TiB₂ Ceramics with High-entropy Alloy as Sintering Aid

WEI JI, ZHENG YI FU, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, China

Session CO-5

Property, Modeling and Characterization

CO-5:IL01 Multi-scale Modelling of CMCs

E. BARANGER, LMT, ENS Paris-Saclay, CNRS Cachan, France

CO-5:L02 A Nonlinear Model of Deformation of Porous Ceramics and Ceramic-matrix Composites at Loading and Unloading

T. KARIMBAYEV, Central Institute of Aviation Motors, Moscow, Russia

CO-5:L03 High Temperature Oxidation Resistance of SiC/SiC Composites in Air or Steam Environments

KAZUYA SHIMODA, HIDEYUKI MURAKAMI, National Institute for Materials Science (NIMS), Tsukuba, Japan

Session CO-6

Composites for Thermal Management

CO-6:IL01 Unsteady Modelling of CVI for Production of SiC-matrix Composites

A.V. KULIK, M.S. RAMM, M.V. BOGDANOV, STR Group, Inc. - Soft-Impact, Ltd., Saint Petersburg, Russia; **VI. KULIK**, Baltic State Technical University, Saint Petersburg, Russia

CO-6:IL02 C/C-SiC Sandwich Structures

B. HEIDENREICH, YUAN SHI, R. JEMMALI, D. KOCH, German Aerospace Center (DLR), Stuttgart, Germany

CO-6:L03 Interphase Creation in Cu/C Composites using an Innovative Solid-liquid Co-existent Process

C. AZINA^{1,2}, **I. CORNU**¹, **B. MORTAIGNE**³, **Y.F. LU**², **J.-F. SILVAIN**^{1,2}, ¹Institut de Chimie de la Matière Condensée de Bordeaux (ICMCM), CNRS, Pessac, France; ²Department of Electrical and Computer Engineering, University of Nebraska-Lincoln, Lincoln, NE, USA; ³DGA/DS/Mission pour la Recherche et l'Innovation Scientifique, Paris, France

Session CO-7

Applications

CO-7:IL01 Ceramic Composites for Space Structures

M. KROEDEL, ECM Engineered Ceramic Materials GmbH, Moosinning, Germany

CO-7:IL02 Recent CMC Technological Improvements for Aero Gas Turbine Applications

E. BOUILLON, Safran Ceramics, Le Haillan, France

CO-7:L03 Ceramic Composites for Industrial High Temperature Applications

R. WEISS, Schunk Kohlenstofftechnik GmbH, Heuchelheim, Germany

CO-7:IL04 SiC/SiC for Fuel Cladding and Other Nuclear Applications

C. SAUDER, J. BRAUN, C. LORRETTE, CEA Saclay, DEN/DMN, Gif sur Yvette, France

Poster Presentations

CA:P01 Synthesis and Thermophysical Properties of Gd-doped La₂Zr₂O₇ for Thermal Barrier Coatings

MING YANG¹, XUEYING WANG¹, LI AP², LILI ZHAO¹, YONGPING ZHU¹,
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CA:P02 Synthesis of α -cordierite Powder from Preheated Kaolinite, Talc and Alumina

HSIN-WEN FAN, FU SU YEN, National Cheng Kung University, Tainan, Taiwan

CA:P03 Synthesis of NIR-reflective CoFe₂O₄ Black Pigment Doped with CaO and Al₂O₃ Derived from Minerals

N. SANGWONG, M. SUWAN, S. SUPOTHINA, National Metal and Materials Technology Center, National Science and Technology Development Agency (NSTDA), Klong Luang, Pathum Thani, Thailand

CA:P04 The Effect of Varying Quantity and Particle Size of Cristobalite Powders during Synthesizing Cordierite

YI-HSIN LIN, FU-SU YEN, HSING-I HSIANG, Department of Resources Engineering, National Cheng Kung University, Tainan, Taiwan

CA:P05 Fabrication of Translucent Alumina by Vacuum Sintering at Low Temperature

WEN-CHIAO HUANG, FU-SU YEN, CHI-YUEN HUANG, Department of Resources Engineering, National Cheng Kung University, Tainan, Taiwan

CA:P06 $\gamma + \alpha$ -Al₂O₃ Composite Powders for Fabricating Translucent Aluminas

I-TING LIU, FU-SU YEN, M.C. TOM KUO, Department of Resources Engineering, National Cheng Kung University, Tainan, Taiwan

CA:P07 Particle Size Distribution Variations Driven by Ostwald Ripening Processes

MENG YING LEE, FU SU YEN, Department of Resources Engineering, National Cheng Kung University, Tainan, Taiwan

CA:P08 Impact of Pressure in Static and Dynamic Pressing of Ultrafine Plasmochemical ZrO₂ (Y)-Al₂O₃ Powders on Compact Density and Compaction Efficiency during Sintering

T.S. FRANGULYAN, S.A. GHYNGAZOV, National Research Tomsk Polytechnic University, Tomsk, Russia

CA:P09 On the Role of Microfibrillated Cellulose in the Microstructure and Properties of Ti(C,N)-based Cermet

ZHENHUA YAO, Wuhan University of Science, Wuhan, Hubei, China

CA:P10 Influence of Starting Powder Particle Size on Microstructure and Thermal Diffusivity of Y₂O₃ Containing Si₃N₄ Ceramics

P. UYAN, S. TURAN BILECIK, S.E. University Vocational School Metallurgy Program, Bilecik, Turkey; Anadolu University Department of Materials Science and Engineering, Eskişehir, Turkey

CA:P11 Silicon Carbide Ceramics Sintering with Yb₂O₃-Al₂O₃ as Additives

YONG JIANG, LANER WU, North Minzu University, Xixia District, Yinchuan, China

CA:P12 Effects of Added Nano Titanium on the Microstructure of Vitrified Bond Diamond Tools

ZUN-KAI JHUANG¹, YUO-TERN TSAI², KUAN-HONG LIN¹, ¹Department of Mechanical Engineering, Tunghan University, New Taipei City, Taiwan; ²Department of Mechanical Engineering, HungKuo Delin University of Technology, New Taipei City, Taiwan

CA:P13 Synthesis, Processing, and Properties of Infrared Transparent Y₂O₃-MgO Nanocomposite

DOO HYUN CHOI, SEOK-MIN YONG, KISU LEE, SEOK-YOUNG KO, DONG-IK CHEONG, Agency for Defense Development, Daejeon, South Korea

CA:P14 Thermal Expansion Properties and Structural Analysis of ZrW₂-xMoxO₈

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CA:P15 Preparation of Translucent Polycrystalline Alumina Ceramics by Vacuum Sintering

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CA:P16 Effect of Two Step Sintering on Composites Containing ZrO₂ and Al₂O₃

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CA:P17 Peculiarities in Phase Development in the ZnO-stabilized ZrO₂ System

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CA:P18 Development of High Strength-high Porosity Si₃N₄ Bodies via Modified Gel-casting Process

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CB:P01 Improvement of Optics, Mechanical Properties and Controlled-release Drug Delivery of Powder Cosmetics

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CB:P02 Study of Mechanical Properties and the Hydrothermal Behavior of Ce-TZP/Al₂O₃ Sintered by Microwave

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CB:P03 Preparation of Low Frictional Surfaces by Mimicking Firebrat's Scales

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CB:P04 Evaluations of Barnacle Settlements on Self-assembled Monolayer Surfaces

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CB:P05 Ceramic Injection Moulding with 3D-printed Mold Inserts

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CB:P06 Model of Thermocapillary Heat Transfer in a Porous Matrix

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CB:P07 Diagnostics of SHS: Time Resolved X-ray Diffraction

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CB:P08 Production of SHS Ceramics and Electrically Conductive Coatings on the Basis of MAX-phases and MXen Systems of Ti-Al-C

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CB:P09 Features of Dynamic, Structural and Emission Characteristics during SHS in Metallic Composites

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CB:P10 SH-synthesis of Metal-ceramic Composites of Various Purposes on the Basis of Mechanically Activated Energy-intensive Systems

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CB:P11 SHS of MAX Phase (Ti_{0.5}Zr_{0.5})₃AlC₂

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CB:P12 Ceramic Coatings Based on the Ti-Cr-C System Obtained by the SHS Method

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CB:P13 Synthesis of ZnWO₄ Ceramic Powders by Chemical Method: Correlation between Structural Evolution and Photoluminescent Properties

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CB:P14 Structure, Morphology, and Optical Properties of α -Ag₂-2xMxWO₄ (M = Zn²⁺, and Cu²⁺) Solid Solutions Obtained by Coprecipitation and by Femtosecond Laser

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CB:P15 Hydroxyapatite Synthesis using the Microwave Assisted Hydrothermal Method

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CB:P16 Synthesis and Characterization of Pseudoboehmite Obtained by Sol-gel Method Started with Aluminum Chloride (AlCl₃) and Potassium Hydroxide (KOH)

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CB:P17 Spark Plasma Sintering of Y-TZP/Al₂O₃-NbC Nanocomposites

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CB:P18 Electrical Behavior and Microstructural Features of Conventionally and Electric Field-assisted Sintered 3 mol% Yttria-stabilized Zirconia

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CB:P19 Flash Sintering of ZrO₂ / Al₂O₃ Composites

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CB:P20 Preparation and Characterization of Foam-glass with Low Density and High Mechanical Resistance using Glass Waste

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CB:P21 Effect of the Spinel Reduction Methods on Microstructure and Mechanical Properties of Al₂O₃-Co Composite

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CC:P01 Boron Carbide/Graphene Platelet Ceramics with Improved Fracture Toughness, Functional and Tribological Properties

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CC:P02 The Corrosion Behavior of Hybrid Zeolite on Aluminium Alloy (6082)

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CC:P03 Corrosion Protection of Ceramics Using Carbon-silver Film

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CC:P04 Graphene Nanoplatelets Reinforced Plasma Sprayed Alumina-titania Coating with Improved Corrosion and Wear Resistances

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CC:P05 Transparent DLC Films Development for Glasses Protection

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CD:P01 Atomic Interface Structure of Body Centered Cubic Metal/Ceramic Interface

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CD:P02 Theoretical Prediction and Experimental Determination of the Phase Transformation Sequence in Al-Ni Multilayer Termite Structures

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CD:P03 Investigation of Wave Combustion Processes in Multilayer Al-Ni Structures Formed on the Surface of Three-dimensional Silicon Structures

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CD:P04 Joining Technology of Dielectric Materials with Metal Fittings of SHF Devices

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CD:P05 Welding of Silicon to Invar for Application in Synchrotron Light Instrumentation

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CD:P06 Brazing Vacuum Ceramic Tubes for Magnets Applications

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CE:P01 Fabrication and Mechanism of the Enhanced Mechanical Properties of Electrospun SiOC Ceramic Nanofibrous Membrane

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CE:P02 In-situ Growth Nano-catalyst for Diverse Energy Devices

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CE:P03 Effect of Electrochemically Induced Phase Transformation on the Electrical and Mechanical Properties of Yttria-stabilized Zirconia

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CE:P04 ZnO Nanorods Array as Electrode for Supercapacitors and Photo-supercapacitors

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CE:P05 A Novel Ultrafast Inorganic Absorbent for Micropollutants in Aquatic Systems

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CE:P06 Fabrication and Electro-catalytic Performances of Ce(Mn,Fe)O₂ Infiltrated La(Sr)Cr(Mn)O₃ Electrode

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CE:P07 In situ Activation for A-site Deficient La(Sr)A-xTi_{1-y}(M)yO₃ as a Potential Redox Stable Ceramic Anode for SOFCs

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CE:P08 Preparation of Polymethylsilsesquioxane Aerogels with Improved Strength Using Strong Base Catalyst

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CE:P09 New Ceramic Nanoparticle-reinforced Polyacrylates Fabricated by 3D Inkjet Printing and UV-curing

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CE:P10 Maximizing Thermoelectric Performance of AgPb₂SbTe₂ by Optimizing Spark Plasma Sintering Temperature

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CE:P11 Preparation of Monolithic Porous Mg-based MOFs via Sol-gel and Solvothermal Processes

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CE:P12 CuxS Superionic Compounds: Electronic Structure and Thermoelectric Performance Enhancement

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CE:P13 Synthesis and Deposition of Hematite Nanoparticles on FTO Substrate for Photovoltaic Applications

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CF:P01 Chromium Carbide-ceramics Degradation Caused by Laser Treatment

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CF:P02 Mechanical Properties of Thin Film Prepared by AlCr Based Single Alloy Target

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CF:P03 Spinel MgAl₂O₄ Formed by Plasma Spraying

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CF:P04 Dielectric Material Measurement of Hypersonic Electromagnetic Windows for High Temperature

YINFANG XU, HUAN LIANG, Beijing Institute of Space Long March Vehicle, Beijing, China

CF:P05 The Effect of Core to Shell Volume Ratio on the Mechanical Properties of Fibrous TaC-based Ceramics

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CG:P01 Microstructure Characterization of Ti-Al-C MAX Phases Obtained by SPS

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CG:P02 Characterization and Simulation of Filler Element Incorporation in the Ti₂AlC Ceramics

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CG:P03 Carbosilicothermic Synthesis of (Zr,Ti)3SiC₂ and (Zr,Ti)4SiC₃ MAX-phase Solid Solutions

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CG:P04 Rapid Preparation and Characterization of 2D Ti₃C₂ Nanocrystals

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CG:P05 Emphasis on the Crucial Role of the Etching Agent on the Reactivity of Ti₃C₂: Selective Formation in Water of TiO₂@Ti₃C₂ Composite with Tunable Rutile/Anatase TiO₂ and TiO₂/Ti₃C₂ Ratios

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CH:P01 Damage Detection of Multilayer Coating System by Digital Image Correlation at High Temperature

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CH:P02 Protective Aluminum Oxide-nitride Coatings on Stainless Steel

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CH:P03 Oxidation Behavior of Ytterbium Silicides

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CH:P04 Silicon Carbide Based Coatings for Graphite to Increase Oxidation Resistance

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CH:P05 Use of Non-destructive Techniques for the Determination of Failure in Thermal Barrier Coatings

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CH:P06 Characterization of Glass Viscosity from Softening to Melting Point with Parallel Plate and Rotational Viscometry

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CH:P07 Application of Tungsten Oxide Thin Films for Active Gases Detection

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CH:P08 DLC Impregnated with Clove Oil for Application in Surgical Tools

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CH:P09 Study of Cavitation Erosion Experiments on Thermally Oxidized Rutile Phase TiO₂ Films on Stainless Steel

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CH:P10 Synthesis and Studies on YPSZ and Rare-earth Zirconate Pyrochlore Multilayered TBCs

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CH:P11 Wear Resistance of Plasma Sprayed Graphene Nanoplatelets Reinforced Alumina Coating in Dry and Wet Environment

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CH:P12 Plasma Sprayed Carbon Nanotube and Graphene Nanoplatelets reinforced Alumina Hybrid Composite Coating with Outstanding Toughness

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CH:P13 The Effect of Tungsten Doping on the Band-gap of VO₂ Thin Films

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CI:P01 Preparation and Characterization of Transparent SiO₂ Sponges for Water Treatment

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CI:P02 Fabrication of Functional Porous Ceramics by In-situ Solidification Process for Mitigating Environmental Issues

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CJ:P03 Synthesis and Characterization of Ta₂O₅ Monolith with Co-continuous Macroporous Structure via Sol-gel Routea
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CJ:P04 Multiscale Controlled Fe₂O₃ Monoliths via Polymerization-Induced Phase Separation
YOSUKE HARA, K. KANAMORI, K. NAKANISHI, Department of Chemistry, Graduate School of Science, Kyoto University, Japan

CJ:P05 Preparation of Hierarchically Porous Cerium-based Monoliths from Metal Salt Precursor
SHOTA MAKIMOTO, K. KANAMORI, K. NAKANISHI, Department of Chemistry, Graduate School of Science, Kyoto University, Japan

CJ:P06 Synthesis of MgO Porous Monoliths via Sol-gel Process Accompanied by Phase Separation
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CJ:P07 Wood-derived Ceramics for Microbial Fuel Cells
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CJ:P08 Thermal and Physical Characterization of Composite Materials based on Plaster
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CJ:P09 Improvement of the Clay Bentonite Catalytic Properties Aiming its Use as Heterogeneous Catalysts in the biodiesel Production
D.S. MARINS, A.G. ADAMCZEWSKI, A.V. CHAVES DE ANDRADE, E.C. FERREIRA DE SOUZA, S.R. MASETTO ANTUNES, **M.E. PAYRE ARRUA**, State University of Ponta Grossa, Ponta Grossa, Paraná, Brazil

CJ:P01 Magnetic and Dielectric Properties of Thermally Conductive Sheets Effective for Reducing Radiated Emissions from Heat Sinks
TAKASHI TAKEO, N. OHTA, Mie University, Tsu, Mie, Japan; T. MATSUZAKI, Kitagawa Industries Co. Ltd., Kasugai, Aichi, Japan

CJ:P02 Dielectric Relaxation and Electrical Properties of Piezoelectric Improved (Na_{0.53}K_{0.47})(Nb_{1-x}Tax)O₃ Ceramics
JIN SOO KIM, H.S. LEE, Department of Physics, Changwon National University, Gyeongnam, South Korea

CJ:P03 Porous PZT Films: Microstructure and Electrical Properties
K. VOROTILOV, A. SIGOV, D. SEREGIN, N. KOTOVA, Moscow Technological University (MIREA), Moscow, Russia; L. DELIMOVA, N. ZAITSEVA, Ioffe Institute RAS, Saint-Petersburg, Russia

CJ:P04 Dielectric Relaxation above Phase Transition Temperature in the Ba(1-x)EuxTiO₃ Ceramics Fabricated by Sol-gel
JONG-HO PARK, Department of Science Education, Chonju National University of Education, Jinju, Gyeongnam, South Korea

CJ:P05 Synthesis of BaTiO₃ Nanofibres and their Influence on the Properties of Barium Titanate Composite Fibers
T. SEBASTIAN, A. MICHALEK, T. LUSIOLA, F. CLEMENS, Empa - Swiss Federal Laboratories for Materials Science and Technology, Laboratory for High Performance Ceramics, Dübendorf, Switzerland

CJ:P07 Electrical Properties of ZrO₂ Added Lithium-titanium-zinc Ferrite Ceramics
E. LYSENKO, A. SURZHIKOV, S. NIKOLAEVA, Tomsk Polytechnic University, Tomsk, Russia

CJ:P08 Study of Microstructure and Functional Properties of Layered BaTiO₃-ferrite-BaTiO₃ Magnetolectric Composites Obtained by the SPS Method
C.E. CIOMAGA¹, M. AIRIMIOAEI², A. GUZU², N. HORCHIDAN^{2,3}, L.P. CURECHERIU², N. LUPU⁴, F.M. TUFESCU^{1,3}, **L. MITOSERIU²**, ¹Research Department, Faculty of Physics, Dielectrics, Ferroelectrics & Multiferroics Group, Al. I. Cuza Univ. of Iasi, Iasi, Romania; ²Dielectrics, Ferroelectrics & Multiferroics Group, Department of Physics, Al. I. Cuza Univ. of Iasi, Iasi, Romania; ³GRADIENT Srl., Iasi, Romania; ⁴National Institute of Research and Development for Technical Physics, Iasi, Romania

CJ:P09 Structures and Magnetic Properties of Quadruple Perovskites
YUKIO HINATSU, Y. DOI, M. WAKESHIMA, Hokkaido University, Sapporo, Japan

CJ:P10 Local Electrostatic and Ferroelectric Properties of P(VDF-TrFE)/Graphene and P(VDF-TrFE)/Graphene Oxide Composite Nanofibers
M.V. SILIBIN¹, V.S. BYSTROV^{1,2}, D. KARPINSKY^{1,3}, P. MIRZADEH⁴, P.A.A.P. MARQUES⁴, N. NASANI⁴, G. GONCALVES⁴, B.A. SINGH⁴, I.K. BDIKIN^{1,4}, ¹National Research University of Electronic Technology, Shokina Square, Building 1, Zelenograd, Moscow, Russia; ²Inst. Mathematical Problems of Biology, Keldysh Institute of Applied Mathematics RAS, Pushchino, Moscow region, Russia; ³Scientific-Practical Materials Research Centre of NAS of Belarus, Minsk, Belarus; ⁴TEMA-NRD, Mechanical Engineering Department and Aveiro Institute of Nanotechnology (AIN), University of Aveiro, Aveiro, Portugal

CJ:P11 Development and Application of Hybrid Materials Obtained by In situ and Ex situ Synthesis
C. VENEGAS^{1,2}, S. BOLLO¹, D. RUIZ², ¹Universidad de Chile, Santiago, Chile; ²Universidad de Santiago de Chile, Santiago, Chile

CJ:P12 Composite with Mixed Conductivity for Fuel Cells
T. KABBAS JUNIOR, E.C. GRZEBIELUCKA, A.S.A. CHINELATTO, **A.L. CHINELATTO**, Departamento de Engenharia de Materiais, Universidade Estadual de Ponta Grossa, Ponta Grossa, Brazil; G.C. MATHER, Instituto de Cerámica y Vidrio, CSIC, Madrid, Spain

CJ:P13 Electrical Characterization of SrTiO₃ Solid Solution with Pr₃₊ and Zr⁴⁺
G. LOPEZ-PACHECO, A. REYES-MONTERO, M.E. VILLAFUERTE-CASTREJÓN, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Ciudad de México, México; F. GONZÁLEZ-GARCÍA, Departamento de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana, Ciudad de México, México

CJ:P14 Structural and Microwave Dielectric Properties of xBa₃MgNb₂O₉-(1-x)Ba₂InNbO₆ [x = 0.4, 0.6, 0.8]
A. DUTTA, S.K. SINGH, V.R.K. MURTHY, P.K. MUKHOPADHYAY, T.P. SINHA, Department of CMPMS, S.N. Bose National Centre for Basic Sciences, Salt Lake, Kolkata, India; Microwave Laboratory, Department of Physics, Indian Institute of Technology Madras, Chennai, India; Department of Physics, Bose Institute, Kolkata, India

CJ:P15 Citrate Precursor Synthesis, Structural Characterization and Dielectric Properties of Ba_{1-x}CaxZrO₃ (0.05 ≤ x ≤ 0.20) Nanoparticles
M. UBAIDULLAH, T. AHMAD, The Glocal University, Mirzapur pole, Saharanpur, India; Jamia Millia Islamia, New Delhi, India

CJ:P16 Microstructure and Electrical properties of B- Site Modified Bismuth Sodium Barium Titanate Ferroelectric Ceramic
E. ZEREFFA, Chemistry program, School of Applied Natural Science, Adama Science & Technology University, Ethiopia

CJ:P17 Structural, Dielectric and Optical Analysis of Li₂O-Nb₂O₅-TiO₂ Based Dielectric Ceramics
S. BAHTEL, R. SINGH, Dept. of Electronics Technology, GND University, Amritsar, India

CK:P01 Multiglass Property in the Multiferroic Spin-chain Compound Sm₂BaNiO₅
A. INDRA, K. DEY, S. GIRI, Department of Solid State Physics, Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India

CK:P02 Coexistence of Ferroelectricity and Magnetic Memory in Double Perovskite La₃Ni₂NbO₉
K. DEY, A. INDRA, S. GIRI, Department of Solid State Physics, Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India

CL:P01 Emission Properties of Nd³⁺: Y₂Si₂O₇ Nanocrystals under High Power Excitation
R. TOMALA, W. STREK, Institute for Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Poland

CL:P02 Crystal Structure, Electronic Structure, and Photoluminescence Properties of Eu³⁺ Doped (Li,Na,K)LaMgWO₆ Red Phosphors
WEIGUANG RAN¹, **JUNG HYUN JEONG¹**, KIWAN JANG², HO SUEB LEE², ¹Department of Physics, Pukyong National University, Busan, South Korea; ²Department of Physics, Changwon National University, Changwon, South Korea

CL:P03 Direct-write Photolithography for Rapid Prototyping of Silicon Nitride Waveguides on Silicon
D.B. BONNEVILLE, H.C. FRANKIS, J.D.B. BRADLEY, Department of Engineering Physics, McMaster University, Hamilton, Ontario, Canada

CL:P04 Structural and Optical Properties of Nanocrystalline ZnS:Tb Thin Films Grown by Sol-gel Method
A. TOUNSI, **D. TALANTIKITE-TOUATI**, R. KHALFI, H. HADDAD, Department of Chemistry, LGE Laboratory, Abderrahmane Mira University, Bejaïa, Algeria; H. MERZOUK, Department of Physic, Abderrahmane Mira University, Bejaïa, Algeria

CL:P05 Cataion Exchange Mediated Synthesis of Ternary Alloyed Plasmonic Cu₃BiS₃-xSex Nanorods

S. PAUL, S.K. DE, Department of Materials Science, Indian Association for the Cultivation of Science, Kolkata, India

CM:P01 Densification Behavior of Clay Brick Body Incorporated with Coffee Grounds Waste

K.A. VASCONCELLOS, P.F. BUSCH, **J.N.F. HOLANDA**, Group of Ceramic Materials/LAMAV, Northern Fluminense State University - UENF, Campos dos Goytacazes, RJ, Brazil

CM:P02 Study of Industrial Wastes Treated by Hydrocyclones for Use in Ceramic Mass Formulations

A. ARAUJO, L. CAMPOS, D. MACEDO, **R. DUTRA**, Federal University of Paraíba, João Pessoa, Paraíba, Brazil

CM:P03 Pigmented Glazed Ceramic Roof Tiles: Optical Behavior Using the Kubelka-Munk Model in Solar Spectrum Range

L.M. SCHABBACH, M. FREDEL, CERMAT - UFSC, Florianópolis, Santa Catarina, Brazil; D.L. MARINOSKI, S. GÜTHS, CB3E - UFSC, Brazil; A.M. BERNARDIN, UNESC, Brazil

CM:P04 The Yellow Pavement of Sofia - How to Recover this Important Historical Heritage?

A. KARAMANOV, B. RANGUELOV, **S. ATANASOVA-VLADIMIROVA**, I. PIROEVA, E. KARAMANOVA, D. TACHEV, G. AVDEEV, Institute of Physical Chemistry "Acad. Rostislav Kaishev", Bulgarian Academy of Sciences, Sofia, Bulgaria

CN:P01 High-temperature Ceramic Sensors for Assessing Refractory and Component Conditions

K. SABOLSKY, G.A. YAKABOYLU, K.A. SIERRAS, E.M. SABOLSKY, M.R. COMPARETTO, D.S. REYNOLDS, West Virginia University, Morgantown, WV, USA; J. BOGAN, M. RAUGHLEY, J. SAYRE, Harbison Walker International Technology Center, West Mifflin, PA, USA

CN:P02 The Investigation of the Effects of Phenolic Resin and Wastes Pyrolytic Liquids on the Physical and Mechanical Behaviours of MgO-C Refractories

T. BAHTLI, V.M. BOSTANCI, Necmettin Erbakan University, Konya, Turkey; D.Y. HOPA, Afyon Kocatepe University, Afyonkarahisar, Turkey

CN:P03 Evolution of Physical and Mechanical Properties of a Low Cement High-alumina Refractory Castable

E. BENAVIDEZ, Facultad Regional San Nicolás - UTN, San Nicolás, Argentina; A. SCHANZLE, N. BELLANDI, Magnesita Refractorios Argentinos, San Nicolás, Argentina

CN:P04 Study on the Slag Phases and Physical Properties Evolution during Foaming Practice Applied to Prolong BOF Lining Life

E. BRANDALEZE, L. SANTINI, Fisicoquímica de alta temperatura, Departamento Metalurgia - DEYTEMA - UTN - Facultad Regional San Nicolás, Argentina

CN:P05 Development of High Alumina Cement Bonded Monolithic Refractories from Egg Shells

Sk S. HOSSAIN, R. PYARE, P. KUMAR ROY, Department of Ceramic Engineering, Indian Institute of Technology (BHU), Varanasi, (U.P.), India

CO:P01 Fabrication of SiC Fiber Textiles via Silicidation of Carbon Fabrics with SiO Gas

E.I. ISTOMINA, P.V. ISTOMIN, A.V. NADUTKIN, Institute of Chemistry of Komi SC UB RAS, Syktyvkar, Russia

CO:P02 In Situ Fabrication of SiC Fibers with Controllable Carbon Layer for Excellent High-temperature Resistance

YANZI GOU, HAO WANG, JUN WANG, National University of Defense Technology, Changsha, China

CO:P03 Nanocomposites of Pseudoboehmite Polystyrene

A.H. MUNHOZ Jr., M.A. SOUZA VASCONCELOS, R.M. PERES, T.J. MASSON, L.F. MIRANDA, R. OLIVEIRA, Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil; H.T.T.S. MELO, UNIGEL, São Paulo, SP, Brazil

CO:P04 Effect of CVI C Layer's Thickness on Mechanical Properties of C/C-SiC Composites Prepared by Gaseous Silicon Infiltration Process

RONGJUN LIU, HUAMING MIAO, Science and Technology on Advanced Ceramic Fibers and Composites Laboratory, National University of Defense Technology, Changsha, P.R. China

CO:P05 High-temperature Stability of Carbon Fiber Reinforced Polymer-derived SiAlOC Composites under Different Environment

QINSONG MA, T.H. XU, CFC Key Laboratory, National University of Defense Technology, Changsha, P.R. China

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SYMPOSIUM FJ - Development and Application of New Functional Transparent Conducting and Semiconducting Inorganic Materials

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SYMPOSIUM FK - Materials Challenges for Sustainable Nuclear Fission and Fusion Technologies

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Focused Session FK-10 - Materials Issues in Nuclear Waste Treatment and Disposal

Conveners: Kevin Fox, *USA* Cory Trivelpiece, *USA* *Members:* Dirk Bosbach, *Germany* Kyle S. Brinkman, *USA* Jordi Bruno, *Spain* Nicolas Clavier, *France* Nicolas Dacheux, *France* Rodney C. Ewing, *USA* Neil C. Hyatt, *UK* Adel Mesbah, *France* Vincenzo Rondinella, *Germany* Sergey Stefanovsky, *Russia* Elie Valcke, *Belgium* Eric R. Vance, *Australia* John D. Vienna, *USA* Yuezhou Wei, *China* Hans-Conrad zur Loye, *USA*

SYMPOSIUM FL - Biological, Biohybrid and Bioinspired Materials: From Electronics and Photonics to Medicine

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FM - 3rd International Conference “Emerging Materials, Technologies and Applications for Non-volatile Memory Devices”

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FN - 6th International Conference “Novel Functional Carbon Nanomaterials”

Co-Chairs: Yury Gogotsi, *USA (Convener)* Morinobu Endo, *Japan* Andrea C. Ferrari, *UK* Robert Nemanich, *USA* *Members:* Philippe Bergonzo, *France* Alberto Bianco, *France* Li-Chyong Chen, *Taiwan* Ying (Ian) Chen, *Australia* Hui-Ming Cheng, *China* Luigi Colombo, *USA* Etienne Gheeraert, *France* Mark C. Hersam, *USA* Karsten Horn, *Germany* Robert Hurt, *USA* Richard Jackman, *UK* Stefan Kaskel, *Germany* Nikhil Koratkar, *USA* Alexander Kromka, *Czech Rep.* Kian Ping Loh, *Singapore* Cesar Merino Sanchez, *Spain* Klaus Muellen, *Germany* Daniel Neumaier, *Germany* Vincenzo Palermo, *Italy* Maurizio Peruzzini, *Italy* Nicola Pugno, *Italy* Martin Pumera, *Singapore* Juan Tascon, *Spain* Tran Thanh Tung, *Australia* Alexander Vul, *Russia* Andrew Wee, *Singapore* Jin Zhang, *China*

FO - 8th International Conference “Science and Engineering of Novel Superconductors”

Co-Chairs: Davor Pavuna, *Switzerland (Convener)* Ivan Bozovic, *USA* John Wei, *Canada* *Members:* Henri Alloul, *France* Evgeny V. Antipov, *Russia* Elisa Baggio-Saitovitch, *Brazil* Arun Bansil, *USA* Neven Barisic, *Austria* Mark Blamire, *UK* Alexandre I. Buzdin, *France* Paolo Calvani, *Italy* Paul C.W. Chu, *USA* Guy Deutscher, *Israel* Mikhail Eremets, *Germany* Ali Gencer, *Turkey* Fedor Gomöry, *Slovakia* Renato Gonnelli, *Italy* Hideo Hosono, *Japan* Yoshihiro Iwasa, *Japan* Peter B. Littlewood, *USA* Victor V. Moshchalkov, *Belgium* Masatomu Murakami, *Japan* Yung Woo Park, *South Korea* Zoran Radovic, *Serbia* Bernard Raveau, *France* Paul Seidel, *Germany* Frank Steglich, *Germany* Denis Sunko, *Croatia* Jeffery Tallon, *New Zealand* Yoshinori Tokura, *Japan* Yasutomo J. Uemura, *USA* Dirk Van der Marel, *Switzerland* Andrey Varlamov, *Italy* Harald W. Weber, *Austria*

FP - 12th International Conference “Medical Applications of Advanced Biomaterials and Nano-biotechnology”

Co-Chairs: Luigi Ambrosio, *Italy* Justin Cooper-White, *Australia* Vladimir P. Torchilin, *USA* Min Wang, *Hong Kong (Convener)* *Members:* Serena Best, *UK* Marc Bohner, *Switzerland* Jeffrey R. Capadona, *USA* Guoping Chen, *Japan* Peilin Chen, *Taiwan* Jin-Ho Choy, *South Korea* Brian Derby, *UK* Christophe Drouet, *France* Paul Ducheyne, *USA* Mohan Edirisinghe, *UK* Changyou Gao, *China* Mingyuan Gao, *China* Paul V. Hatton, *UK* Jons Hilborn, *Sweden* Esmail Jabbari, *USA* Cato Laurencin, *USA* In-seop Lee, *South Korea* Jin Ho Lee, *South Korea* Andreas Lendlein, *Germany* Jun Li, *Singapore* Feng-Huei Lin, *Taiwan* Duncan J. Maitland, *USA* Patrick T. Mather, *USA* Claudio Migliaresi, *Italy* Jun Ohta, *Japan* Kinam Park, *USA* Christelle Prinz, *Sweden* Seeram Ramakrishna, *Singapore* Philippe Renaud, *Switzerland* Davide F. Ricci, *Italy* Mario I. Romero-Ortega, *USA* Maryam Tabrizian, *Canada* Zhong Lin Wang, *USA* Thomas J. Webster, *USA* Younan Xia, *USA* Jackie Ying, *Singapore* Baohong Yuan, *USA* Nobuhiko Yui, *Japan* Hua Zhang, *Singapore*

OUTLINE FORUM

SYMPOSIUM **FA**

Materials Issues in Flexible and Stretchable Electronics

SYMPOSIUM **FB**

Towards Next Generation Solar Cells: Emerging Materials, Phenomena and Device Architectures

*Focused Session **FB-6**
Perovskite Photovoltaics*

SYMPOSIUM **FC**

Hydrogen Production and Storage

SYMPOSIUM **FD**

Materials Demands Towards New Generation Electrochemical Energy Storage Systems

SYMPOSIUM **FE**

Fuel Cells: Materials and Technology Challenges

SYMPOSIUM **FF**

Progress in Materials and Devices for Direct Thermal-to-Electric Energy Conversion

SYMPOSIUM **FG**

Magnetic Materials for Energy

SYMPOSIUM **FH**

Advanced Photocatalytic Materials for Energy Transition, Solar-driven Chemistry and Environmental Applications

SYMPOSIUM **FI**

Materials and Technologies for Next Generation Solid State Lighting

SYMPOSIUM **FJ**

Development and Application of New Functional Transparent Conducting and Semiconducting Inorganic Materials

SYMPOSIUM **FK**

Materials Challenges for Sustainable Nuclear Fission and Fusion Technologies

*Focused Session **FK-10**
Materials Issues in Nuclear Waste Treatment and Disposal*

SYMPOSIUM **FL**

Biological, Biohybrid and Bioinspired Materials: From Electronics and Photonics to Medicine

Serial Conferences

FM

3rd International Conference

Emerging Materials, Technologies and Applications for Non-volatile Memory Devices

FN

6th International Conference

Novel Functional Carbon Nanomaterials

FO

8th International Conference

Science and Engineering of Novel Superconductors

FP

12th International Conference

Medical Applications of Advanced Biomaterials and Nano-biotechnology

SESSIONS TIMETABLE

8th Forum on New Materials - June 10-14, 2018

Sunday June 10

15.00-19.00
REGISTRATION
Centro Congressi Hotel Quattrotorri
Via Corcianese, 260
Perugia, Italy

Monday June 11

Morning: 9.30-13.00

Opening Session

Welcome Addresses

Plenary Lectures (F:PL1-PL3)

Afternoon: 14.25-18.30

Symposium FA (FA-1:IL01-IL02)
(FA-1:IL03-IL04)

Symposium FB (FB-1.1:IL01-IL02)
(FB-1.2:IL01-IL04)

Symposium FC (FC-1.1:IL01-IL03)
(FC-1.3-IL01-L03)

Symposium FD (FD-1:IL01-L03)
(FD-1:IL04-L05)

Symposium FE (FE-1:IL01-IL02)
(FE-1:IL03-L05)

Symposium FF (FF-1:IL01-IL02)
(FF-1:IL03-IL04)

Symposium FG (FG-1:IL01-IL03)
(FG-1:IL04-IL06)

Symposium FH (FH-1:IL01-IL02)
(FH-1:IL03-IL04)

Symposium FI (FI-1:IL01-IL02)
(FI-1:IL03-IL04)

Symposium FJ (FJ-1:IL01-IL02)
(FJ-1:IL03-L05)

Symposium FK (FK-1:IL01-IL03)
(FK-3:IL01-IL02)
(FK-4:L01)

Symposium FL (FL:KL+FL-1:IL01)
(FL-1:IL02-IL03)

Conference FM (FM-3:IL01-IL04)
(FM-3:IL05-L07)

Conference FN (FN-1:IL01-IL03)
(FN-1:IL04-IL06)

Conference FO (FO-1:IL01-IL03)
(FO-2:IL01-IL03)

Conference FP (FP-1:IL01-IL03)
(FP-1:IL04-IL05)

8.30-13.00
14.30-18.30
POSTER MOUNTING

20.30-22.00
Welcome Party

Tuesday June 12

Morning: 8.30-13.00

Symposium FA	(FA-1:IL05-L07) (FA-2:IL06-IL07)
Symposium FB	(FB-1.2:IL05-L08) (FB-2:IL01-IL03)
Symposium FC	(FC-1.2:IL01-IL04) (FC-1.1:IL04-L05) (FC-1.4:L01-L02)
Symposium FD	(FD-1:IL06-L08) (FD-1:IL09-L11)
Symposium FE	(FE-1:L06-L08) (FE-1:L09-L12)
Symposium FF	(FF-1:IL05-IL07) (FF-2:IL01-IL02)
Symposium FG	(FG-1:IL07-IL09) (FG-1:IL10-IL12)
Symposium FH	(FH-1:IL05-IL07) (FH-2:IL01-IL02)
Symposium FI	(FI-1:IL05-L07) (FI-1:IL08-L09)
Symposium FJ	(FJ-1:IL06-IL08) (FJ-1:IL09-IL10)
Symposium FK	(FK-1:IL04-L08) (FK-2:IL01-L04) (FK-10.1:IL01-L03) (FK-10.1:IL04-L06)
Symposium FL	(FL-1:IL04-IL05) (FL-1:IL06-L09)
Conference FM	(FM-3:IL08-L13) (FM-3:IL14-L16)
Conference FN	(FN-1:IL07-IL10) (FN-1:IL11-L15)
Conference FO	(FO-1:IL04-L06) (FO-3:IL01-IL04)
Conference FP	(FP-1:IL06-L10) (FP-2:IL01-L03)

Afternoon: 14.30-18.30

Symposium FA	(FA-1:IL11-L13) (FA-2:IL01-IL02)
Symposium FB	(FB-1.3:IL01-L04) (FB-3:IL01-L04)
Symposium FC	(FC-2.1:IL01-L03) (FC-2.6:IL01-L02)
Symposium FD	(FD-1:IL12-IL13) (FD-1:IL14-IL15)
Symposium FE	(FE-1:L13-IL15) (FE-2:IL01-L03)
Symposium FF	(FF-1:IL08-L11) (FF-2:IL03-IL04)
Symposium FG	(FG-2:IL01-IL02) (FG-2:IL03-IL04)
Symposium FH	(FH-1:IL08-L10) (FH-2:IL03-IL04)
Symposium FI	(FI-1:IL10-IL11) (FI-1:IL12-L13)
Symposium FJ	(FJ-2:IL01-IL02) (FJ-2:L03-IL04)
Symposium FK	(FK-3:IL03-IL06) (FK-5:IL01-L03) (FK-10.2:IL01-L03) (FK-10.2:IL04-L05)
Symposium FL	(FL-1:IL10-IL11) (FL-2:IL01-IL02)
Conference FM	(FM-3:IL17-IL19) (FM-2:IL01-L04)
Conference FN	(FN-2:IL01-IL03) (FN-4:IL01-L04)
Conference FO	(FO-2:IL04-IL05) (FO-3:L06-L08)
Conference FP	(FP-1:IL11-L16) (FP-3:IL01-IL02)

Wednesday June 13**Morning: 9.00-13.00**

Symposium FA	(FA-2:IL03-IL05) (FA-1:IL08-L10)
Symposium FB	(FB-6.1:IL01-L05) (FB-6.3:IL01-IL03)
Symposium FC	(FC-2.2:IL01-L05) (FC-2.3:IL01-IL03)
Symposium FD	(FD-1:IL16-L18) (FD-1:IL19-IL21)
Symposium FE	(FE-2:IL04-IL06) (FE-2:IL07-L09)
Symposium FF	(FF-3:IL01-L04) (FF-2:IL08-IL09)
Symposium FG	(FG-2:IL05-IL08) (FG-3:IL01-IL03)
Symposium FH	(FH-2:IL05-L07) (FH-3:IL01-IL02)
Symposium FI	(FI-2:IL01-IL03) (FI-2:IL04-L05)
Symposium FJ	(FJ-2:IL06-IL08) (FJ-2:IL09-L11)
Symposium FK	(FK-5:IL04-L07) (FK-5:IL08-L10) (FK-10.3:IL01-IL03) (FK-10.4:IL01-IL03)
Symposium FL	(FL-3:IL01-L03) (FL-3:IL04-IL05)
Conference FM	(FM-2:IL05-L09) (FM-2:IL10-L14)
Conference FN	(FN-3:IL01-IL03) (FN-3:IL04-L09)
Conference FO	(FO-4:IL01-L04) (FO-3:IL09-IL12)
Conference FP	(FP-2:IL04-L08) (FP-4:IL01-IL03)

Afternoon: 14.30-18.30

Symposium FA	(FA-3:IL01-L03) (FA-3:IL04-L06)
Symposium FB	(FB-3:IL05-IL07) (FB-4:IL01-IL02) (FB-5:IL01-IL02)
Symposium FC	(FC-2.2:IL06-IL08) (FC-2.5:IL01-IL02)
Symposium FD	(FD-2:IL01-L03)
Symposium FE	(FE-2:IL10-L13)
Symposium FF	(FF-2:IL10-L13) (FF-3:IL05-L06)
Symposium FG	(FG-3:IL04-IL06) (FG-3:IL07-IL09)
Symposium FH	(FH-2:IL08-L10) (FH-2:IL11-L12)
Symposium FI	(FI-2:IL06-IL07) (FI-2:IL08-L10)
Symposium FJ	(FJ-2:IL12-L14) (FJ-2:IL15-L17)
Symposium FK	(FK-6:IL01-IL04) (FK-8:IL01-IL02)
Symposium FL	(FL-3:IL06-IL07) (FL-3:IL08-IL09)
Conference FM	(FM-2:IL15-IL19) (FM-2:IL20-L22)
Conference FN	(FN-2:IL04-L08) (FN-4:IL05-IL06)
Conference FO	(FO-4:IL05-IL07) (FO-6:IL01-L02)
Conference FP	(FP-3:IL03-L06) (FP-5:IL01-L03)

21.30-23.30
Opera Concert

Thursday June 14**Morning: 9.00-13.00**

Symposium FA	(FA-3:IL07-L09) (FA-3:IL10-IL11)
Symposium FB	(FB-6.2:IL01-L04) (FB-6.4:IL01-L02)
Symposium FC	(FC-2.4:IL01-L04) (FC-2.1-IL04-L06)
Symposium FD	(FD-2:IL04-IL05) (FD-3:IL01-IL03)
Symposium FE	(FE-3:L01-L03) (FE-3:IL04-IL05) (FE-4:IL01)
Symposium FF	(FF-2:IL05-IL07) (FF-3:IL07-L08)
Symposium FG	(FG-3:IL10-IL12) (FG-3:IL13-IL14)
Symposium FH	(FH-3:IL03-L05) (FH-3:IL06-IL07)
Symposium FI	(FI-3:IL01-L03) (FI-3:IL04-IL05)
Symposium FJ	(FJ-2:IL18-L21) (FJ-3:IL01-L03)
Symposium FK	(FK-6:IL05-L09) (FK-6:IL10-L14)
Symposium FL	(FL-3:IL10-IL11) (FL-4:IL01-L04)
Conference FM	(FM-2:IL23-IL25) (FM-1:IL01-IL06)
Conference FN	(FN-4:IL07-L11) (FN-4:IL12-L15)
Conference FO	(FO-5:IL01-IL03) (FO-5:L04-IL05)
Conference FP	(FP-4:IL04-L07) (FP-5:IL04-IL05)

Afternoon: 14.30-18.30

Symposium FB	(FB-6.5:IL01-IL03)
Symposium FC	(FC-2.7:IL01-L03)
Symposium FE	(FE-3:IL06-IL08)
Symposium FF	(FF-3:IL09-IL12)
Symposium FG	(FG-4:IL01-IL02) (FG-4:IL03-IL04)
Symposium FI	(FI-4:IL01-L04)
Symposium FJ	(FJ-3:IL04-IL05) (FJ-3:IL06-IL07)
Symposium FK	(FK-7:IL01-L03) (FK-7:IL04-IL06)
Symposium FL	(FL-4:IL05-IL08)
Conference FM	(FM-1:IL07-L12)
Conference FN	(FN-4:L16-L18) (FN-4:IL19-IL22)
Conference FO	(FO-7:IL01-IL04)
Conference FP	(FP-5:IL06-IL07)

16.30-18.30

POSTER DISCUSSION

20.30-23.00

Conference Dinner

Code Number of contributions by Presenting Author (in alphabetical order)

The Code Number XY-W:Z00 includes: XY Symposium; W Session; Z Type of presentation (PL, KL, IL, L, P)*; 00 Paper number

* PL Plenary KL Keynote Lecture IL Invited Lecture L Contributed Lecture P Poster presentation

NOTE: Due to the restructuring of some symposia, the session number included in the Code may differ from the one selected by the Presenting Author in the Abstract Submission Form.

Abate Antonio	FB-6.3:IL01	Bhattacharjee Maumita	FP-2:L07	Choy Wallace C.H.	FB-6.1:IL02
Abidian Mohammad Reza	FP-5:IL01	Bin Afif Abdulla	FJ-3:L03	Chu Paul C.W.	FO-3:IL09
Accardo Grazia	FE-1:L10	Blamire Mark	FO-1:IL04	Chueh Di-Yen	FP:P08
Acet Mehmet	FG-3:IL06	Blanchard Philippe	FB-3:IL01	Ciesielski Artur	FN-1:IL06
Ackermann Simon	FC-1.1:L05	Bloh Jonathan Z.	FH-3:IL07	Claparede Laurent	FK-5:L03
Adelhelm Philipp	FN-3:IL03	Bobnar Vid	FA-1:L09	Claramunt Sergi	FM-2:L11
Ager Joel W.	FJ-2:IL04	Boghossian Ardemis	FC-1.2:IL02	Clavier Nicolas	FK-5:L05
Ago Hiroki	FN-1:IL07	Bohner Marc	FP-1:IL12	Clemencon Daniel	FC-2.2:L04
Aktas Cenk	FL-1:IL05	Boland Tara	FE:P01	Cohen Lesley	FG-3:IL11
Alarco Jose A.	FO-1:L05	Boniecki Marek	FN-3:L08	Colbeau-Justin Christophe	FH-2:IL08
Albertini Franca	FG:P06	Borgstroem Magnus T.	FB-5:IL02	Colson Dorothee	FO-1:L06
Albrecht Joachim	FO-3:IL04	Boschini Fabio	FO-3:IL03	Conesa Jose C.	FH-1:L10
Allen Martin	FJ-2:L20	Boschker Jos	FM-2:L21	Crozier Peter	FH-2:IL01
Ambrosi Richard	FF-3:L04	Bottari Giovanni	FB-3:IL02	Cuevas Fermin	FD-1:L03
Ambrosio Luigi	FP-1:IL01	Bowman William	FE-1:L07	Cui Yuanjing	FI-1:IL03
Anderson Iain	FA-3:IL04	Bozovic Ivan	FO-1:IL01	Dacheux Nicolas	FK-5:L02
Anthopoulos Thomas	FJ-2:L03	Brahimi Salim	FP:P02	Daghero Dario	FO-2:IL04
Antusch Steffen	FK-1:IL04	Bram Martin	FE-1:IL04	Dalger Thomas	FK-5:L09
Arias Ana Claudia	FA-3:IL07	Bramini Mattia	FN-4:IL20	Dam Bernard	FC-1.1:IL03
Aricò Antonino S.	FE-1:L09	Brazovskaya Elena	FP:P06	Daniel Ramez	FM-3:IL14
Arita Ryotaro	FO-4:IL03	Brezinsek Sebastijan	FK-3:IL04	Datas Alejandro	FF-3:IL02
Ariza-Tarazona M. Camilla	FH-3:L04	Brivio Stefano	FM-3:IL19	Dauscher Anne	FF-3:IL12
Armiento Craig	FA-1:IL01	Brueck Ekkes	FG-3:IL10	David Bill	FC-2.3:IL02
Arpiainen Sanna	FN-4:IL22	Bugga Ratnakumar	FD-1:IL02	De Bona Emanuele	FK-6:L08
Augustynski Jan	FH-2:IL05	Butler James E.	FN-1:IL10	De Boor Johannes	FF-2:IL02
Bagheri Roya	FP:P10	Byun Thak Sang	FK-1:IL02	De Groot Huub	FC-1.2:IL01
Baglio Vincenzo	FE-3:L02	Carpenter Cody	FA-3:L09	De Julian Fernandez Cesar	FG-1:IL09
Bahl Christian	FG-4:IL03	Carter C.Barry	FD-1:L11	De Stefano Luca	FP-4:IL05
Bahnemann Detlef	FH-2:IL02	Case Chris	FB-6.5:IL03	Deckers Jan	FK-10.1:IL05
Bakkers Erik	FB-2:IL03	Casoli Francesca	FG-3:IL14	Dekel Dario R.	FE-2:L12
Baldi Andrea	FC-2.1:IL02	Caspary Toroker Maytal	FC-2.6:IL01	Delmas Claude	FD-1:IL10
Balducci Andrea	FD-2:IL05	Castan Teresa	FG-3:IL02	Dematteis Erika Michela	FC-2.2:L05
Barisic Neven	FO-3:IL11	Cau Dit Coumes Celine	FK-10.1:IL01	Demirci Umüt	FC-2.3:IL01
Barnaby Hugh	FM-2:IL05	Cedillo-Gonzalez Erika I.	FH:P03	Dempsey Nora	FG-4:IL01
Barpanda Prabeer	FD-1:IL14	Celia Regina	FP:P09	Denzer Ralf	FA-3:L03
Barsotti Jonathan	FA-1:L12	Chantana Jakapan	FB-1.2:IL03	Deschanel Xaviera	FK-6:L09
Bartholome Kilian	FG-4:IL04	Chaput Laurent	FF-1:IL08	Dey Koushik	FG:P08
Basso Vittorio	FG-3:IL09	Chaudhry Mujeeb	FI-3:IL05	Di Bartolomeo Elisabetta	FE-1:IL03
Bauer Ernst	FF-2:IL07	Cheik Njifon Ibrahim	FK-6:L14	Di Stasio Stefano	FJ-1:L05
Bea Helene	FM-1:IL07	Chen Chao-Yu	FB:P05	Diamond Dermot	FL-4:IL07
Belamri Zehira	FG:P07	Chen Guoping	FP-2:IL05	Dias Catarina	FM-2:L20
Bellet Daniel	FJ-2:IL08	Chen Kuei-Hsien	FN-1:IL02	Dideikin Artur	FN-4:IL12
Bellucci Alessandro	FF-3:L08	Chen Li-Chyong	FN-3:IL05	Dils Christian	FA-1:L10
Berezovska Nataliya	FB:P04	Chen Peilin	FP-4:IL01	Ding Shi-Jin	FM-3:L07
Berggren Magnus	FL-2:IL01	Chen Xiaodong	FA-1:IL03	Dirè Sandra	FH-1:IL08
Bergonzo Philippe	FN-4:IL01	Chen Zhong	FH-2:IL03	Djurado Elisabeth	FE-1:IL02
Bernardi Johannes	FO-5:IL02	Cherevko Serhiy	FE-2:IL11	Don Lopez David	FP-2:L06
Bernasconi Marco	FM-2:IL17	Cherng J.S.	FM:P05	Dornheim Martin	FC-2.7:IL01
Bernhard Christian	FO-2:IL03	Chernov Viacheslav M.	FK-8:IL01	Drozd Ewa	FE:P04
Bertacco Riccardo	FM-1:L04	Chiu Wilson	FK-10.3:IL03	Dudarev Sergei	FK-6:IL01
Bespalko Yulia	FC-1.3:L03	Chizhik Alexander	FG-2:L06	Edman Ludwig	FI-3:IL01
Bethencourt Loengrid	FB:P03	Choi Hyoung-Seuk	FF:P05	Eguchi Koichi	FE-1:L06
Bhaskaran Harish	FM-3:IL02	Chorkendorff Ib	FH-3:IL02	El Filali Brahim	FJ:P05

Elia Giuseppe A.	FD-1:IL06	Greenbaum Steve G.	FD-1:IL17	Janaky Csaba	FH-1:IL03
Endo Kazuhiro	FO-6:L02	Gregory Duncan	FD-1:IL04	Jang Jinsung	FK-1:L08
Endo Morinobu	FN-4:IL03	Grijpma Dirk	FP-1:IL04	Janietz Silvia	FE:P06
Enoki Toshiaki	FN-3:IL02	Grilli Marco	FO-4:IL06	Janot Raphael	FC-2.2:L03
Entel Peter	FG-3:IL05	Grin Yuri	FF-1:IL09	Jena Puru	FC-2.2:IL01
Ersen Ovidiu	FN-2:IL03	Gruber Petra	FL-1:L07	Jensen Torben René	FC-2.2:IL06
Es-Souni Mohammed	FL-1:L08	Gu Lin	FP-1:L10	Jeong Jung Hyun	FB:P06
Estevenon Paul	FK-10.2:L05	Gueorguiev Gueorgui	FN-1:L14	Ji Sang Hyun	FA-3:L06
Evans Joe	FM-3:L13	Guilmeau Emmanuel	FF-2:IL11	Jia Junjun	FJ-3:IL01
Fabbrici Simone	FG-3:L07	Gurovich Boris	FK:P04	Jiang Yuanzhang	FL:P01
Felser Claudia	FG-1:IL04	Gutfleisch Oliver	FG-3:IL01	Johnson J. Karl	FC-2.5:IL01
Fernandez-Gubieda M.L.	FG-2:IL08	Hadjipanayis George C.	FG-1:IL01	Jonsson Hannes	FB-1.1:IL01
Ferrari Andrea C.	FN-1:IL01	Haenen Ken	FN-2:IL05	Jou Jwo-Huei	FI-2:L10
Filinchuk Yaroslav	FC-2.2:IL08	Haiber Diane	FH-2:L10	Jourdani Mohammed	FE-2:L09
Filippetti Alessio	FB-6.2:L03	Han Kai	FH-1:L09	Jung Jin-Seung	FH:P01
Filippi Jonathan	FC:P04	Hardtdegen Hilde	FI-4:L04	Kalterbrunner Martin	FA-3:IL01
Fiori Gianluca	FN-4:IL10	Haussener Sophia	FH-3:IL06	Kang Jinfeng	FM-3:IL03
Flahaut Emmanuel	FN-2:IL06	Haviar Stanislav	FC-2.7:L03	Kang Sangwoo	FA:P04
Folliero Maria Gelsomina	FC:P03	Hayase Shuzi	FB-6.4:IL01	Kang Seok Hun	FA:P01
Fornari Marco	FF-1:IL07	Heath Paul	FK-10.4:IL02	Kanno Tsutomu	FF-2:IL03
Fornari Roberto	FJ-2:IL18	Henager, Jr. Charles H.	FK-3:IL01	Karppinen Maarit	FF-2:IL09
Fraboni Beatrice	FA-2:IL07	Henderson James	FP-1:IL13	Kascheev Vladimir	FK-2:L04
Francis Laurent A.	FL-4:IL05	Herreros-Lucas Carlos	FD:P02	Katoh Yutai	FK-5:IL04
Freunberger Stefan	FD-1:IL15	Heske Clemens	FB-1.2:IL07	Katz Eugene	FB-6.3:L02
Friedrich K. Andreas	FE-2:IL06	Hintzen H.T.(Bert)	FI-1:IL10	Kauppinen Esko	FN-3:IL01
Frolov Alex	FK-6:L13	Hirayama Yusuke	FG-1:IL05	Kavan Ladislav	FH-2:L06
Fu Engang	FK-6:IL06	Hirschler Michael	FC-2.4:IL03	Kemerink Martijn	FA-2:IL06
Fujioka Hiroshi	FI-1:IL06	Hoelscher Hendrik	FL-3:IL09	Kessels Erwin	FB-1.1:IL02
Fujita Yuki	FJ:P03	Hoelzer David	FK-1:L07	Khawaja Imtiaz U.	FP:P03
Fukagawa Hirohiko	FI-1:IL05	Hoffmann Jan	FK-2:IL02	Khovaylo Vladimir V.	FG:P05
Fukami Shunsuke	FM-3:IL09	Hoffmann Michael R.	FH-1:IL01	Kiani Mahdi	FM-2:L08
Fuks David	FF-1:IL06	Holdcroft Steve	FE-2:IL01	Kim Daejong	FK-1:L06
Funahashi Ryoji	FF-3:IL11	Hou Yanglong	FP-4:L06	Kim In Gyoo	FD:P03
Furukawa Seiichi	FB-3:L06	Hsu Julia	FJ-3:L02	Kim Kee Hoon	FJ-2:IL13
Furuzono Tsutomu	FP-1:IL06	Hu Tony Y.	FP-5:IL07	Kim Kwang Bum	FD:P04
Gaganidze Ermile	FK-7:IL06	Huang Bo Tong	FM:P09	Kim Sung-Soo	FG:P02
Gambardella Pietro	FM-1:IL06	Huang Hefei	FK-6:IL03	Kim Taek-Soo	FA-2:IL02
Gao Changyou	FP-2:IL04	Humar Matjaz	FL-3:IL08	Kim TaeYoung	FN-4:IL08
Garcia-Anton Jose	FH:P02	Huo Qiang	FM:P08	Kim Woochul	FF-3:IL05
Garcia-Rosales Carmen	FK-3:IL03	Huot Jacques	FC-2.1:L05	King Paul	FC-1.2:IL03
Gather Malte C.	FL-3:IL04	Hussey Nigel	FO-1:IL02	Kishida Akio	FP-2:L08
Gautam Sandeep Kumar	FE-2:L03	Hwang Cheol Seong	FM-1:IL10	Klass Larissa	FK-10.2:L03
Gheeraert Etienne	FN-4:IL07	Iannotta Salvatore	FM-3:IL15	Klein Andreas	FJ-1:IL01
Gilioli Edmondo	FB-1.2:IL06	lavarone Maria	FO-5:IL05	Kobe Spomenka	FG-1:IL10
Gimenez Lopez M. Carmen	FN-4:L15	Iida Kazumasa	FO-5:IL03	Kohl Manfred	FG-4:IL02
Ginley David S.	FF-3:L03	Iida Tsutomu	FF:P01	Kolezynski Andrzej	FF-1:L10
Ginley David S.	FJ-2:IL09	Imura Soshi	FO-2:IL05	Kolle Mathias	FL-3:IL02
Giordani Silvia	FN-4:IL05	Ikeda Shigeru	FB-1.3:IL03	Kolobov Alexander V.	FM-2:IL19
Giovinazzo Cecilia	FM-2:L04	Inal Sahika	FL-4:IL06	Kolosov Vladimir	FM:P01
Glowacki Eric Daniel	FL-4:IL01	Indra Ankita	FG:P09	Konashi Kenji	FK-5:IL01
Gogotsi Yury	FN-4:L11	Inganas Olle	FL-1:IL01	Kondo Sosuke	FK-6:IL10
Goldobin Edward	FO-7:IL04	Ion-Ebrasu Daniela	FC-1.4:L02	Kondratyuk Ekaterina	FM:P03
Golodnitsky Diana	FD-1:IL16	Ishida Yasuhiro	FL-3:IL01	Konstantinovic Zorica	FM-1:L12
Golubeva Olga	FP-1:L15	Ishikawa Kunio	FP-1:L14	Koo Ja Hoon	FA-3:IL10
Gomez-Polo Cristina	FG-2:IL02	Ismailova Esmat	FA-1:IL04	Koutsogeorgis D.	FJ-2:IL15
Gonzalez-Torres Veronica	FP:P05	Ito Yoshihiro	FP-1:IL08	Kozicki Michael	FM-2:IL01
Gracias David	FP-5:IL05	Iwaya Motoaki	FI-2:IL02	Krah Benjamin	FM:P04
Graetzel Michael	F:PL3	Jabbari Esmail	FP-1:IL11	Kramm Ulrike	FE-2:IL02
Grambow Bernd	FK-10.4:IL03	Jackman Richard	FN-4:IL06	Kresin Vitaly	FO-1:IL03
Greco Francesco	FA-3:IL08	Jaegermann Wolfram	FH-3:IL01	Kroeher Oliver	FC-1.3:IL01
Green Rylie	FA-1:IL02	Jalowiecki-Duhamel Louise	FC-1.3:IL02	Krutovtsev Sergey	FJ:P04

Kuhn Bernd	FK-1:IL03	Major Jon	FB-1.3:IL02	Narendran S.	FO:P03
Kuleshova Evgenia	FK:P03	Maniadaki Andreas	FC-2.6:L02	Nascimento Rizia Keila	FN-4:L18
Kunowsky Mirko	FC-2.4:IL02	Manini Paola	FL-1:IL10	Nasibulin Albert	FN-1:IL11
Kunze-Liebhaeuser Julia	FE-3:IL06	Manosa Lluis	FG-3:IL04	Natali Marco	FI-3:L02
Kuo Chiung Wen	FP:P07	Manthiram Arumugam	FD-1:L07	Navarra Maria Assunta	FE-2:IL07
Kurt Hasan	FJ-2:IL06	Mao Zhengwei	FP-4:IL03	Navarro Gabriele	FM-2:IL16
Kuznetsov Victor I.	FF-3:IL01	Marcucci Andrea	FE:P02	Neu Rudolf	FK-3:IL02
Kyratsi Theodora	FF-2:IL05	Marder Seth	FJ-2:IL16	Neumaier Daniel	FJ-2:IL10
Lacz Agnieszka	FE:P03	Marian Jaime	FK-7:IL01	Ngene Peter	FC-2.2:IL07
Lai Chih-Huang	FB:P07	Markeev Andrey	FM-2:L03	Nicolaou Christiana	FB-1.2:L08
Langa Fernando	FB-3:L04	Marti Antonio	FB-4:IL02	Nicotera Isabella	FE-3:IL05
Latroche Michel	FC-2.1:IL04	Martin Nazario	FB-6.1:IL01	Nizamoglu Sedat	FL-3:IL11
Laurand Nicolas	FI-3:IL04	Martinaiou Ioanna	FE-3:L03	Noh Yong-Young	FA-1:IL05
Laurencin Cato	FP-1:L09	Martinez De La Fuente J.	FL-4:IL08	Noll Dennis	FN-4:L17
Lawrence Ethan	FE-1:L05	Martinez-Huerta M.Victoria	FE-3:IL04	Noorduyn Wim	FL-1:IL11
Leardini Fabrice	FC-2.3:IL03	Martin-Palma Raul J.	FL-3:L03	Nose Yoshitaro	FB-1.3:IL01
Lebedev Vasily	FN-2:IL04	Marzouki Amal	FG-3:L08	Oberkofler Martin	FK-2:IL03
Lebedev Vyacheslav	FN-2:L08	Masini Alessandra	FE-1:L13	Ohta Michihiro	FF-3:IL09
Leblanc Saniya	FF-3:IL07	Mather Patrick T.	FP-1:IL02	Ohtani Bunsho	FH-1:IL04
Leblebici Yusuf	FM-3:IL05	Mathur Lakshya	FE:P07	Ojovan Michael	FK-10.4:IL01
Lee Ho Keun	FO:P01	Matsukawa Yoshitaka	FK-1:IL05	Oka Nobuto	FJ-1:IL08
Lee Jae-Shin	FA:P02	Matsumoto Akira	FP-3:IL04	Okada Shigeto	FD-1:IL09
Lee Jang Yong	FD:P01	Matveyev Yuri	FM-1:L03	Omenetto Fiorenzo	FL:KL
Lee Jin Ho	FP-2:IL02	Maute Markus	FJ-3:IL06	Opris Dorina M.	FA-1:L13
Lee Jinho	FO-3:IL10	May Christian	FI-4:IL01	Ozoemena Kenneth	FE-3:IL07
Lee Kyu Seung	FB-3:L05	Mazzio Katherine	FF:P04	Pagano Sergio	FO-7:IL03
Lee Mark	FF-3:L06	McHenry Michael E.	FC-2:IL01	Pagliari Maria Vincenza	FC:P02
Lee Wan-Jin	FN:P04	Mei Bastian	FC:P01	Palacios Pablo	FB:P01
Lefebvre Pierre	FI-2:IL04	Melot Brent	FD-1:IL20	Palumbo Oriele	FC-2.1:L06
Lemmens Karel	FK-10.3:IL02	Mendis Budhika	FB-1.2:IL05	Pantaler Martina	FB-6.4:L02
Lendlein Andreas	FP-1:IL07	Menzel Stephan	FM-2:L06	Paolucci Francesco	FH-1:IL07
Lenoir Bertrand	FF-2:IL06	Merino Cesar	FN-4:IL19	Pardekhorrarn Raheleh	FP:P01
Lestriez Bernard	FD-1:IL19	Mertin Wolfgang	FN-2:IL07	Parisini Emilio	FL-1:IL04
Lewis Laura H.	FG-1:IL03	Mesbah Adel	FK-10.1:L06	Park Hyunwoong	FH-1:IL02
Lex-Balducci Alexandra	FD-1:L18	Messersmith Phillip B.	FL-1:IL03	Park Jongwook	FI-1:IL08
Li Hezhang	FF-2:L12	Michalsky Ronald	FC-1.1:IL04	Parrino Francesco	FH-2:L07
Li Jun	FP-3:IL02	Michel Adrien	FK-6:L12	Pascon Aline Maria	FN:P05
Li Qiang	FF-2:IL04	Mikheev Vitalii	FM:P02	Pasquini Luca	FC-2.1:IL01
Li Qing Feng	FE-2:IL05	Mikolajick Thomas	FM-1:IL01	Passerini Stefano	FD-1:IL21
Liao Changzhong	FK-10.2:IL01	Mikulics Martin	FA:P03	Paul Sumana	FH:P04
Lin Tsung-Tse	FI-2:IL09	Milano Gianluca	FM-2:L12	Paz Yaron	FH-3:IL03
Linke Heiner	FB-5:IL01	Miller Hamish	FE-2:IL04	Pedro Marta	FM-3:L16
Linsmeier Christian	FK-3:IL06	Millet Pierre	FE-2:L13	Pellicer Eva	FG-2:IL05
Lipomi Darren J.	FA-2:IL01	Miu Lucica	FO-5:L04	Perez Eduardo	FM-2:L02
Lisenkov Sergey	FN-4:L16	Miyake Hideto	FI-2:IL07	Peserico Nicola	FP-5:L03
Liu Dandan	FM:P06	Miyamoto Hajime	FJ:P02	Pettinger Karl-Heinz	FD-1:IL13
Liu J. Ping	FG-1:IL07	Moewius Stefan	FG:P01	Petzold Stefan	FM-2:L07
Liu Qianlang	FH-2:L09	Mohite Aditya D.	FB-6.3:IL03	Peuget Sylvain	FK-10.3:IL01
Liu Tian	FJ:P01	Molina Ontoria Agustin	FB-6.1:IL03	Pimblott Simon	FK-6:L07
Lo Faro Massimiliano	FC-1.4:L01	Molkov Vladimir	FC-2.7:IL02	Piros Eszter	FM-2:L24
Logvenov Gennady	FO-6:IL01	Monnier Julien	FK-5:L07	Podleschny Pit Yannick	FN-4:IL09
Lugauer Hans	FI-2:IL03	Mori Takao	FF-2:IL08	Polupan Georgiy	FI:P03
Lukasiewicz Mikolaj	FI-2:L06	Mori Tatsuya	FA-1:L06	Porro Samuele	FM-2:L14
Lyu Rongwen	FN-1:L13	Morimoto Yu	FE-2:IL08	Povey Ian	FJ-1:IL04
Macha Prathyushakrishna	FL-1:L09	Moros Maria	FL-4:L03	Prato Maurizio	FN-4:IL02
Machluf Marcelle	FP-2:L03	Moya Xavier	FG-3:IL03	Prejbeanu Lucian	FM-1:IL05
Macyk Wojciech	FH-1:IL05	Mul Guido	FC-1.1:IL01	Presser Volker	FD-1:IL12
Madern Nicolas	FC-2.1:L03	Munetoh Shinji	FF-1:IL05	Prikhna Tatiana	FO-3:L08
Madsen Georg	FF-1:IL04	Myung Jae-Ha	FE:P05	Promarak Vinich	FB-3:IL07
Maher Robert	FE-1:L08	Nanishi Yasushi	FI-1:L07	Prosa Mario	FI-2:L05
Majd Sheereen	FP-3:IL05	Narducci Dario	FF-3:IL10	Puglisi Francesco Maria	FM-2:IL23

Qin Danwen	FK-10.1:L03	Shim Jaeho	FN:P03	Tress Wolfgang	FB-6.2:IL01
Querlioz Damien	FM-3:IL08	Shimada Masashi	FK-6:IL02	Trimarchi Giancarlo	FJ-1:IL10
Rabchinskii Maxim	FN-1:L15	Shin Byungcha	FB-6.1:L04	Trindade Antonio J.	FI-4:IL03
Radovic Zoran	FO-4:IL05	Shin Tae Ho	FE-1:L14	Trivellin Nicola	FI-4:IL02
Radtke Mariusz	FN-4:IL21	Shin Won Suk	FB-3:L03	Trocino Stefano	FE-1:L12
Radwan Mohamed	FI-1:L09	Shirai Hajime	FB-1.3:L04	Trotta Massimo	FL-1:IL06
Ragni Roberta	FL-1:IL02	Shtepliuk Ivan	FN-4:L04	Trucchi Daniele Maria	FN-4:L14
Raja Thulasimani Monika	FF:P03	Sirivisoot Sirinrath	FN:P06	Tsetseris Leonidas	FJ-1:IL06
Rajendran Bipin	FM-3:IL01	Sivak Alexander	FK-6:L11	Tybrandt Klas	FA-3:IL11
Ramirez Julian	FA-3:L05	Sivula Kevin	FC-1.1:IL02	Uchino Takashi	FO-4:L04
Rana Dhan-Sham	FK-5:L10	Skinner Stephen	FE-1:IL01	Uher Citrad	FF-2:IL01
Rand Barry	FI-2:IL01	Skokov Konstantin	FG-1:IL02	Ustinov Alexei	FO-7:IL02
Rather Sami ullah	FC-2.4:L04	Slesazek Stefan	FM-3:L11	Valov Ilia	FM-2:IL10
Rayapati Venkata Rao	FM-2:L13	Song Jizhou	FA-2:IL03	Van De Walle Chris G.	FJ-1:IL09
Reeder Jonathan	FA-2:IL04	Spitsyn Alexander	FK-2:IL01	Varghese Tony	FF:P06
Rezek Jiri	FJ-2:L17	Stampfer Christoph	FN-1:IL09	Varzi Alberto	FD-2:IL02
Riedl Thomas	FJ-3:IL05	Stanton Julie	FG-3:IL13	Vasudev Milana	FP-3:L06
Rigby Maxwell	FK:P01	Stavrinidou Eleni	FL-2:IL02	Vazquez Ester	FN-1:IL03
Riminucci Alberto	FM-3:L10	Stefanovsky Sergey	FK-10.1:IL02	Venk Sridharan	FI-1:IL02
Rodionov Vladimir	FG:P04	Sterpetti Edoardo	FO-3:L06	Vermang Bart	FB-1.2:IL02
Rodionova Valeria	FG-2:IL04	Stingelin Natalie	FA-1:IL08	Vianello Elisa	FM-3:IL18
Rodriguez Varela Javier	FE-3:L01	Storchak Vyacheslag	FM-1:IL11	Vignolini Silvia	FL-3:IL10
Rodriquez Daniel	FA-3:L02	Storey James	FO-4:IL07	Vinnichenko Mykola	FA-1:L07
Rohrer Gregory S.	FH-1:IL06	Strunk Jennifer	FH-2:IL04	Vinu Ajayan	FN-2:IL01
Rojo Teofilo	FD-1:IL01	Styring Stenbjorn	FC-1.2:IL04	Von Mueller Alexander	FK-7:IL04
Romanyuk Yaroslav	FJ-2:IL07	Suess Dieter	FG-1:IL12	Von Wenckstern Holger	FJ-1:IL07
Roozeboom Fred	FD-3:IL01	Sugimoto Wataru	FD-2:IL04	Vul Alexander	FN-3:L09
Rosenman Gil	FL-3:IL06	Sugiyama Masakazu	FB-2:IL02	Wager John F.	FJ-2:IL01
Rossmesl Jan	FE-2:IL10	Sumption Mike	FO-3:L07	Wahnon Perla	FB-6.2:L04
Rovelli Iacopo	FK-6:IL05	Sunko Denis	FO-3:IL02	Wang Min	FP-2:IL01
Rubel Marek	FK-3:IL05	Szilagyi Petra	FC-2.4:IL01	Wang Qing	FN:P01
Rumyantseva Marina	FJ-2:IL19	Taguchi Tetsushi	FP-1:IL03	Wang Xiaojun	FI-1:IL11
Ruotolo Antonio	FM-2:L22	Takagiwa Yoshiki	FF:P02	Was Gary	FK-8:IL02
Rupp Jennifer L.M.	FM-2:IL25	Tallon Jeffery	FO-7:IL01	Watkinson Emily Jane	FK-5:L06
Sabir Fediu Kedir	FB:P02	Tamegai Tsuyoshi	FO-5:IL01	Watson Trystan	FB-6.5:IL01
Saffar Shamshirgar Ali	FJ-2:L21	Tamura Atsushi	FP-3:IL01	Weber William J.	FK-6:IL04
Saito Akira	FL-3:IL05	Tamura Motonori	FC:P05	Webster Thomas J.	FP-5:IL04
Sakaguchi Hiroshi	FN-1:IL08	Tanaka Hiromi	FO:P02	Wee Andrew	FN-3:IL06
Salinga Martin	FM-2:IL15	Tao Xia	FH-2:L12	Wei John	FO-3:IL01
Sand Andrea	FK-7:IL02	Tarnopolskiy Vasily	FD-1:L08	Wei Yuezhou	FK-10.2:IL04
Sandeman Karl	FG-3:IL12	Tartaj Salvador Jesus	FE-1:L11	Weidenkaff Anke	FF-2:IL10
Santarelli Massimo	FE-1:IL15	Tasco Vittorianna	FB-4:IL01	Weil Marcel	FD-3:IL03
Scherf Ullrich	FI-1:IL12	Terasaki Ichiro	FF-1:IL01	Weir Kenny	FL-3:IL07
Schiavone Giuseppe	FA-2:IL05	Termentzidis Konstantinos	FF-1:IL03	Weitz Iris	FP-1:L16
Schleife Andre	FJ-1:IL02	Terrasi Antonio	FJ-2:L14	Wenger Christian	FM-3:L06
Schmidt Heidemarie	FM-3:L12	Terreni Jasmin	FH-3:L05	Westervelt Robert M.	F:PL1
Schmidt-Mende Lukas	FB-6.5:IL02	Terrones Mauricio	FN-1:IL04	Williams Oliver A.	FN-3:IL04
Schreffl Thomas	FG-1:IL08	Thanh Tung Tran	FN-4:L13	Wong Ken-Tsung	FI-1:IL01
Schuller Sophie	FK-10.1:IL04	Tiberto Paola	FG-2:IL07	Wong Man Hoi	FJ-3:IL07
Sebastian Abu	FM-3:IL17	Tillie Luc	FM-1:L08	Worsley Marcus	FD-2:L03
Sebastian David	FE-3:IL08	Timo Gianluca	FB-2:IL01	Wu Maw-Kuen	FO-3:IL12
Seeger Stefan	FJ-2:IL12	Tiwari Ayodhya	FB-1.2:IL01	Wu Nae-Lih	FD-2:IL01
Sekitani Tsuyoshi	F:PL2	Tobola Janusz	FF-1:IL02	Xia Qiangfei	FM-3:IL04
Shah Wiqar Hussain	FF-2:L13	Toffanin Stefano	FI-2:IL08	Xia Qixun	FD:P05
Shahmiri Reza	FP:P04	Tommasini Matteo	FN-2:IL02	Xiao Jianliang	FA-1:IL11
Shao Yan	FA:P05	Torchilin Vladimir P.	FP-3:IL03	Xie Yujun	FM-2:L18
Sharath Sankaramangalam	FM-2:L09	Torchynska Tetyana	FI-3:L03	Yakimova Rositsa	FN-1:IL12
Sharp Ian	FH-2:IL11	Torrisi Giacomo	FJ-2:L11	Yamada Naoomi	FJ-1:IL03
Shi Haibin	FP-4:IL04	Tortiglione Claudia	FL-4:L02	Yamamoto Akiyasu	FO-2:IL01
Shi Hao	FK:P02	Toto Elisa	FN:P02	Yamamoto Tetsuya	FJ-3:IL04
Shi Weiqun	FK-10.2:IL02	Trabesinger Sigita	FD-3:IL02	Yamashita Koichi	FB-6.2:IL02

Yamawaki Michio	FK-4:L01	Yoon Jonghwan	FM:P07	Zhang Hongbin	FG-1:IL06
Yang Heena	FC-2.2:IL02	Yoshimura Masahiro	FN-1:IL05	Zhang Kuo	FK-7:L03
Yang Jinbo	FG-1:IL11	Yoshino Kenji	FB-1.2:IL04	Zhao Jijun	FK-7:IL05
Yang Shuo-Wang	FF-1:L11	You Jeong-ha	FK-1:IL01	Zhao Weisheng	FM-1:IL09
Yarovsky Irene	FP-4:L07	Yuan Baohong	FP-4:IL02	Zhao Yun	FN-3:L07
Yasuda Kazuhiro	FK-5:IL08	Yuan Huiqiu	FO-4:IL02	Zheng Yan-Zhen	FB-6.1:L05
Yasuda Takuma	FI-1:IL04	Yui Nobuhiko	FP-1:IL05	Zhou Xingjiang	FO-2:IL02
Yen Pham Duc Huyen	FG:P03	Zaanen Johannes	FO-4:IL01	Zhukov Arcady	FG-2:IL03
Yersin Hartmut	FI-1:L13	Zakutayev Andriy	FJ-2:IL02	Zuettel Andreas	FC-2.5:IL02
Yeshchenko Oleg	FI:P02	Zenkevich Andrei	FM-1:L02	Zukalova Marketa	FD-1:L05
Yin Ken-Ming	FE:P08	Zhang Guigen	FP-5:IL06	Zurita Mendez Nancy Nelly	FL-4:L04

SCIENTIFIC PROGRAMME

8th FORUM ON NEW MATERIALS

OPENING SESSION

WELCOME ADDRESSES

Plenary Lectures

F:PL1 Integrated Quantum Materials and Devices

R.M. WESTERVELT, Center for Integrated Quantum Materials, Harvard University, Cambridge, MA, USA

F:PL2 Ultraflexible and Stretchable Electronics for Microvolt Biosignal Monitoring Systems

TSUYOSHI SEKITANI, The Institute of Scientific and Industrial Research, Osaka University, Ibaraki, Osaka, Japan

F:PL3 Mesoscopic Photosystems for the Generation of Electricity and Fuels from Sunlight

M. GRAETZEL, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

SYMPOSIUM FA

MATERIALS ISSUES IN FLEXIBLE AND STRETCHABLE ELECTRONICS

Session FA-1

Materials and Fabrication Processes

FA-1:IL01 Material Challenges for Printed Electronics in the Microwave Domain

C. ARMIENTO, Alkim Akyurtlu University of Massachusetts, Lowell, MA, USA

FA-1:IL02 Soft and Flexible Bioelectronics

R.A. GREEN, J.A. GODING, Imperial College London, London, UK

FA-1:IL03 Mechanomaterials for Stretchable and Conformable Electronic Devices

XIAODONG CHEN, Innovative Centre for Flexible Devices (iFLEX), School of Materials Science and Engineering, Nanyang Technological University, Singapore

FA-1:IL04 Organic Bioelectronic Textiles in Health Monitoring Devices

E. ISMAILOVA, Department of Bioelectronics, Ecole Nationale Supérieure des Mines de Saint Etienne, CMP-EMSE, MOC, Gardanne, France

FA-1:IL05 Polymeric Solid-state Ionic Gate Dielectrics for Low-voltage Field-effect Transistors

YONG-YOUNG NOH, Department of Energy and Materials Engineering, Dongguk University, Seoul, South Korea; **YOONSEUK CHOI**, Department of Electronics, Hanbat National University, Daejeon, South Korea

FA-1:IL06 Self-organization of pi-extended Heteroacenes for Solution-processable Organic Field-effect Transistors

TATSUYA MORI, T. YASUDA, Kyushu University, Fukuoka, Japan

FA-1:IL07 Realizing Flexible High-performance Silver Interconnects on Thin and Ultrathin Substrates by Inkjet-printing and Innovative Laser Treatment

M. VINNICHENKO¹, D. MAKAROV², M. FRITSCH¹, T. VOITSEKHIVSKA², V. SAUCHUK¹, M. KUSNEZOFF¹, ¹Fraunhofer IKTS, Dresden, Germany; ²Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

FA-1:IL08 Semiconducting: Insulating Polymer Blends: Towards Flexible, Robust Organic Optoelectronic Devices

N. STINGELIN, Georgia Institute of Technology, Atlanta, GA, USA

FA-1:LO9 Designing Novel Polymer Systems with Enhanced Dielectric Response

V. BOBNAR, Condensed Matter Physics Department, Jozef Stefan Institute, Ljubljana, Slovenia; Y. BEERAN, S. THOMAS, Mahatma Gandhi University, International University Centre for Nanoscience and Nanotechnology, Kottayam, Kerala, India; Y. GROHENS, Université de Bretagne, Sud LIMATB Laboratory, Lorient, France; V. KOKOL, University of Maribor, Institute for Engineering Materials and Design, Maribor, Slovenia; Y. THAKUR, Q. ZHANG, Electrical Engineering Department and Materials Research Institute, The Pennsylvania State University, University Park, PA, USA

FA-1:L10 Highly Robust Textile Circuit Boards for Dynamic Applications

C. DILS, L. GERHOLD, M. HAUBENREISSER, M. VON KRSHIWOBLOZKI, C. KALLMAYER, Fraunhofer IZM, Berlin, Germany; R. VIEROTH, M. SCHNEIDER-RAMELOW, K.-D. LANG, Technical University, Berlin, Germany

FA-1:IL11 Rehealable and Recyclable Artificial e-skin

JIANLIANG XIAO, Department of Mechanical Engineering, University of Colorado Boulder, CO, USA

FA-1:L12 Freestanding Ultrathin and Ultraconformable PVF Capacitors

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FA-1:L13 Thin Functional Dielectric Elastomer for Stretchable Devices

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Session FA-2

Device Physics, Mechanics and Design

FA-2:IL01 Mechanical Properties of Organic Semiconductors for Stretchable and Mechanically Robust Electronics

D.J. LIPOMI, Department of NanoEngineering, University of California, San Diego, La Jolla, CA, USA

FA-2:IL02 Mechanical Reliability of Advanced Thin Films

TAEK-SOO KIM, Department of Mechanical Engineering, KAIST, Daejeon, South Korea

FA-2:IL03 Design of Substrate with Spatially Distributed Stiffness for Stretchable Electronics

JIZHOU SONG, Department of Engineering Mechanics, Zhejiang University, Hangzhou, Zhejiang, China

FA-2:IL04 A Highly Sensitive Flexible Sensor Analog to Human Skin Via Air-assembled Motile Electronic Whiskers

J. REEDER, T. KANG, S. RAINS, W. VOIT, University of Texas at Dallas, Richardson, TX, USA

FA-2:IL05 Soft Platinum-silicone Coating for the Epidural Stimulation of the Spinal Cord

G. SCHIAVONE, S.P. LACOUR, LSBI, EPFL Campus Biotech, Laboratory for Soft Bioelectronic Interfaces, School of Engineering, Geneva, Switzerland

FA-2:IL06 Electronic and Thermoelectric Properties of High-performance Polymer Semiconductors and Conductors

M. KEMERINK, Complex Materials and Devices, Department of Physics, Chemistry and Biology (IFM), Linköping University, Sweden

FA-2:IL07 Organic Semiconducting Crystals as Flexible, Ultra-low Voltage, Ionizing Radiation Detectors

B. FRABONI, Department of Physics and Astronomy, University of Bologna, Bologna, Italy

Session FA-3

Applications of Flexible/Stretchable Electronics

FA-3:IL01 Ultrathin, Imperceptible Electronics

M. KALTENBRUNNER, Soft Electronics Laboratory, Linz Institute of Technology, Johannes Kepler University Linz, Austria

FA-3:L02 Stretchable, Organic Electrotactile Materials for Wearable Haptic Feedback Devices

D. RODRIGUEZ, C. CARPENTER, J. RAMIREZ, SIEW TING M. TAN, S.E. ROOT, M.D. RUSSELL, L.V. KAYSER, D.J. LIPOMI, Department of NanoEngineering, University of California, San Diego, La Jolla, CA, USA

FA-3:L03 Finite Element Models of Soft Energy Harvesters based on Piezoelectric Polymers

R. DENZER, Division of Solid Mechanics, Lund University, Lund, Sweden

FA-3:IL04 Wearable Strain Sensors and Power Generators

I.A. ANDERSON, Biomimetics Lab, Auckland Bioengineering Institute, University of Auckland and StretchSense Ltd., Rockfield Road, Penrose, Auckland, New Zealand

FA-3:L05 Metallic Nanoislands on Graphene and Machine Learning for Monitoring Swallowing Activity in Head and Neck Cancer Patients

J. RAMIREZ¹, D. RODRIGUEZ¹, FANG QIAO³, J. WARCHALL², B.C. MARIN¹, J. RYE¹, E. AKLILE¹, A.S.-C. CHIANG¹, P.P. MERCIER², CK CHENG³, K.A. HUTCHESON⁴, E. SHINN⁴, D.J. LIPOMI¹, ¹Dept. of NanoEngineering, University of California, San Diego, La Jolla, CA, USA; Dept. of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA, USA; Dept. of Computer Science and Engineering, University of California, San Diego, La Jolla, CA, USA; ⁴Dept. of Behavioral Sciences, The University of Texas M.D. Anderson Cancer Center, Unit 1330, Houston, TX, USA

FA-3:L06 Development of Lead-free Piezoelectric Ceramic Nanofiber Modules for Flexible Structural Health Monitoring Sensor Application

SANG HYUN JI, JI SUN YUN, Electronic Convergence Materials Division, Korea Institute of Ceramic Engineering and Technology, Jinju, South Korea

FA-3:IL07 System Design for Flexible All-organic Reflectance Oximeter

Y. KHAN, DONGGEON HAN, A. PIERRE, J. TING, XINGCHUN WANG, C.M. LOCHNER, **A.C. ARIAS**, Dept. of Electrical Engineering and Computer Sciences, University of California, Berkeley, CA, USA

FA-3:IL08 Temporary Tattoo Ink-jet Printed Multi-Electrode Array for Electrophysiology Applications

F. GRECO, Institute of Solid State Physics, Graz University of Technology, Austria

FA-3:L09 The Glass Transition Temperature as a Means of Kinesthetic Feedback

C.W. CARPENTER, SIEW TING M. TAN, D. RODRIGUEZ, K. SKELIL, D.J. LIPOMI, University of California, San Diego, Dept. of Nanoengineering, South Pasadena, CA, USA

FA-3:IL10 Wearable Electronic System Based on Stretchable Carbon Nanotube Electronics and Ultrathin Organic Light Emitting Diodes

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FA-3:IL11 Soft and Inert Composites and Devices for Neural Interfaces

K. TYBRANDT, Laboratory of Organic Electronics, Linköping University, Norrköping, Sweden

SYMPOSIUM FB

TOWARDS NEXT GENERATION SOLAR CELLS: EMERGING MATERIALS, PHENOMENA AND DEVICE ARCHITECTURES

Session FB-1

Thin-film photovoltaics

FB-1.1 Silicon thin films and multi-junction Si solar cells**FB-1.1:IL01 Optimal Atomic Structure of Amorphous Silicon Obtained from Density Functional Theory Calculations**

P. PEDERSEN¹, L. PIZZAGALLI², **H. JONSSON**¹, ¹Faculty of Physical Sciences and Science Institute, University of Iceland, Reykjavik, Iceland ²Dept. of Physics and Mechanics of Materials, Institut P¹, CNRS-Université de Poitiers UPR 3346, SP2MI, Futuroscope Chasseneuil Cedex, France

FB-1.1:IL02 Atomic Layer Deposited Nanolayers to Enhance Silicon Photovoltaics

E. KESSELS, Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands

FB-1.2 CIGS (and related compounds) and CdTe solar cells**FB-1.2:IL01 CIGS Thin Film Solar Cells: Advancements and Opportunities for Flexible and Tandem Photovoltaic Devices with Perovskite**

S. PISONI, FAN FU, T. FEURER, E. AVANCINI, J. LOECKINGER, SHIRO NISHIWAKI, T. WEISS, R. CARRON, S. BUCHELER, **A.N. TIWARI**, Empa - Swiss Federal Laboratories for Materials Science and Technology, Duebendorf, Switzerland

FB-1.2:IL02 New Disruptive Design of CIGS(e) Solar Cells Based on Advanced Surface Techniques Structures and Layers used in Silicon Solar Technology

B. VERMANG et al., University of Hasselt and Imec, Diepenbeek, Belgium

FB-1.2:IL03 Combination of Heat-light Soaking and Light Soaking for Performance Improvement of Cu(In,Ga)(S,Se)₂ Solar Cell

JAKAPAN CHANTANA¹, TAKUYA KATO², HIROKI SUGIMOTO³, TAKASHI MINEMOTO¹, ¹Department of Electrical and Electronic Engineering, Ritsumeikan University, Shiga, Japan; ²Atsugi Research Center, Solar Frontier K. K., Atsugi, Kanagawa, Japan

FB-1.2:IL04 Sprayed Non-doped and Ga-doped ZnO Films for CuInGaSe₂ Solar Cells

KENJI YOSHINO, University of Miyazaki, Miyazaki, Japan

FB-1.2:IL05 Interfaces in CdTe Thin-film Solar Cells

B.G. MENDIS, A.A. TAYLOR, Durham University, Durham, UK; J.D. MAJOR, K. DUROSE, University of Liverpool, UK

FB-1.2:IL06 Low-cost Thin Film Solar Cells for BIPV Applications

E. GILIOLI, IMEM-CNR, Parma, Italy

FB-1.2:IL07 Electronic and Chemical Structure of Interfaces in CIGS and CdTe Thin-film Solar Cells

C. HESKE, Institute for Photon Science and Synchrotron Radiation (IPS) and Institute for Chemical Technology and Polymer Chemistry (ITCP), Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen, Germany; Department of Chemistry and Biochemistry, University of Nevada, Las Vegas (UNLV), Las Vegas, NV, USA

FB-1.2:L08 Optimization of Pulsed Laser Deposition Parameters for the Growth of High-quality CuIn_{1-x}Ga_xSe₂ Thin Films

CH. NICOLAOU¹, A. ZACHARIA², G. ITSOS², J. GIAPINTZAKIS¹, ¹Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus; ²Experimental Condensed Matter Physics Lab, Department of Physics, University of Cyprus, Nicosia, Cyprus

FB-1.3 Kesterite and other novel materials/concepts for inorganic thin film PV

FB-1.3:IL01 Development of ZnSnP2 Solar Cells: A Novel Absorber Material

YOSHITARO NOSE, SHIGERU NAKATSUKA, Kyoto University, Kyoto, Japan, SHUNSUKE AKARI, JAKAPAN CHANTANA, TAKASHI MINEMOTO, Ritsumeikan University, Japan

FB-1.3:IL02 Development of Antimony Selenide Solar Cells by a Scalable Deposition Route

L.J. PHILLIPS¹, P.J. YATES¹, H. SHIEL¹, O.S. HUTTER¹, M. BIRKETT¹, S. MARIOTTI¹, C. SAVORY², K. DUROSE¹, D.O. SCANLON², T.D. VEAL¹, **J.D. MAJOR**¹, ¹Department of Physics, University of Liverpool, UK; ²Department of Chemistry, University College London, UK

FB-1.3:IL03 Kesterite Thin Film Solar Cells Prepared by Chemical Route
SHIGERU IKEDA¹, THI HIEP NGUYEN², TAKASHI HARADA², ¹Department of Chemistry, Konan University, Kobe, Japan, ²Research Center of Solar Energy Chemistry, Osaka University, Toyonaka, Japan

FB-1.3:IL04 Silicon Heterojunction with Organic Thin Layer (HOT) Solar Cells

HAJIME SHIRAI, RYO ISHIKAWA, TAKUYA MIURA, Saitama University, Saitama, Japan

Session FB-2 III-V Solar Cells

FB-2:IL01 High Efficiency Multi-junction Solar Cells for Concentrator Photovoltaics

G. TIMO¹, N. ARMANI, G. ABAGNALE, RSE, Piacenza, Italy

FB-2:IL02 III-V Compound Semiconductor Nano-epitaxial Structures for High-efficiency Multi-junction Solar Cells

MASAKAZU SUGIYAMA, Research Center for Advanced Science and Technology (RCAST), The University of Tokyo, Japan

FB-2:IL03 Efficient Solar Cells and Water Reduction with Nanowires
D. VAN DAM, YINGCHAO CUI, A. STANDING, S. ASSALI, LU GAO, M.A. VERHEIJEN, P.H.L. NOTTEN, J.E.M. HAVERKORT, E. HENSEN, **E.P.A.M. BAKKERS**, Eindhoven University of Technology, Eindhoven, The Netherlands

Session FB-3 Organic, Dye Sensitised and Nanoparticle Photovoltaics

FB-3:IL01 Design of Molecular Donor and Acceptor Materials for Organic Solar Cells

P. BLANCHARD, MOLTECH-Anjou, UMR CNRS 6200, University of Angers, Angers, France

FB-3:IL02 Phthalocyanine- and Subphthalocyanine-based Donor-Acceptor Ensembles: Synthesis, Structure, and Physicochemical Properties

G. BOTTARI, T. TORRES, Departamento de Química Orgánica, Universidad Autónoma de Madrid, Madrid, Spain & IMDEA Nanociencia, Madrid, Spain & Institute for Advanced Research in Chemical Sciences (IAChem), Madrid, Spain; **G. LAVARDA**, J. GUILLEME, B. BALLESTEROS, Departamento de Química Orgánica, Universidad Autónoma de Madrid, Madrid, Spain

FB-3:IL03 Improve the Photo-stability by Controlling the Chemical Structures of Photoactive Materials for Polymer Solar Cells

VU VAN DOAN^{1,2}, QUOC VIET HOANG^{1,2}, RASOOL SHAFKET^{1,2}, CHANG EUN SONG^{1,2}, **WON SUK SHIN**^{1,2}, ¹Energy Materials Research Center, Advanced Materials Division, Korea Research Institute of Chemical Technology (KRICT), Daejeon, South Korea; ²Department of Advanced Materials and Chemical Engineering, University of Science and Technology (UST), Daejeon, South Korea

FB-3:IL04 BHJ Solar Cell based on Porphyrins with low Energy Loss (< 0.6 eV) and high efficiency (> 9%)

M. VARTANIAN¹, R. SINGHAL², P. DE LA CRUZ¹, G.D. SHARMA³, **F. LANGA**¹, ¹Universidad de Castilla-La Mancha, Institute of Nanoscience, Nanotechnology and Molecular Materials (INAMOL), Toledo, Spain; ²Department of Physics, Malviya National Institute of Technology (MNIT) Jaipur (Raj.), India; ³Department of Physics, The LNM Institute of Information Technology (Deemed University), Rupa ki Nagal, Jamdoli, Jaipur (Raj.), India

FB-3:IL05 Enhanced Photovoltaic Performance of Polymer Solar Cells using Multi-functional Quantum-dots Monolayer

KYU SEUNG LEE, J.H. SHIM, H.I. LIM, C.H. LEE, D.I. SON, B. LIM, Institute of Advanced Composite Materials, Applied Quantum Composites Research Center, Korea Institute of Science and Technology (KIST), Jeonbuk, South Korea; School of Advanced Materials Science and Engineering, Sungkyunkwan University (SKKU), Suwon, South Korea

FB-3:IL06 Development of New Narrow Bandgap π -Conjugated Small Molecules for Organic Solar Cells

SEIICHI FURUKAWA, H. KOMIYAMA, T. YASUDA, Kyushu University, Fukuoka, Japan

FB-3:IL07 Design and Implementation of Metal-free Organic Dyes as Highly Efficient Sensitizers for DSSCs

V. PROMARAK, A. THANGTHONG, T. SUDYOADSUK, P. CHASING, T. CHAWANPUNYAWAT, Department of Materials Science and Engineering, School of Molecular Science and Engineering, Vidyasirimedhi Institute of Science and Technology (VISTEC), Payupnai, Wangchan, Rayong, Thailand

Session FB-4 Multiple Energy Level Devices

FB-4:IL01 Two Step Photon Absorption in III-V Solar Cells

V. TASCO, A. PASSASEO, CNR-Nanotec, Nanotechnology Institute, Campus Ecotekne, Lecce, Italy; A. CRET¹, M. LOMASCOLO, IMM-CNR Institute for Microelectronic and Microsystems, Campus Ecotekne, Lecce, Italy

FB-4:IL02 Recent Advances in Intermediate Band Solar Cells

A. MARTI¹, J. VILLA, E. ANTOLÍN, P.G. LINARES, C. TABLERO, A. LUQUE, Instituto de Energía Solar, Universidad Politécnica de Madrid, Madrid, Spain; I. RAMIRO, ICFO-Institut de Ciències Fotòniques, Barcelona, Spain; E. LOPEZ, Fraunhofer-Institut für Solare Energiesysteme ISE Freiburg, Germany

Session FB-5 Excited State Enhanced Solar Cells

FB-5:IL01 Photothermoelectric Energy Harvesting and Light Detection in Heterostructure Nanowires

H. LINKE, NanoLund, Lund University, Lund, Sweden

FB-5:IL02 Nanowires for Tandem Junction Solar Cells

M.T. BORGSTRÖM, Solid State Physics, Lund University, Lund, Sweden

Focused Session FB-6 PEROVSKITE PHOTOVOLTAICS

Session FB-6.1 Material Synthesis and Processing

FB-6.1:IL01 Efficient Sulfur-based Hole Transporting Materials for Perovskite Solar Cells

N. MARTIN, Departamento de Química Orgánica, Facultad de Química, Universidad Complutense, Madrid, Spain; IMDEA-Nanoscience, Madrid, Spain

FB-6.1:IL02 Room-temperature Solution-processed High-quality Perovskite through the Formation of Nanostructured Intermediate

WALLACE C.H. CHOY, Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China

FB-6.1:IL03 Molecular Engineering of Hole-transporting Materials for Perovskite Solar Cells

A. MOLINA-ONTORIA¹, I. ZIMMERMANN², J. URIETA³, J. ARAGO⁴, E. ORTI⁴, M.K. NAZEERUDDIN², N. MARTÍN^{1,3}, ¹IMDEA-Nanoscience, Campus de Cantoblanco, Madrid, Spain; ²Ecole Polytechnique Fédérale de Lausanne, Sion, Switzerland; ³Department of Organic Chemistry, Faculty of Chemistry, University Complutense, Madrid, Spain; ⁴Instituto de Ciencia Molecular, Universidad de Valencia, Paterna, Spain

FB-6.1:L04 Understanding the Effect of Precursor Solution Aging in Triple-cation Lead Perovskite

P. BOONMONGKOLRAS, DAEHAN KIM, **BYUNGHAN SHIN**, Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon, South Korea

FB-6.1:L05 High-efficiency Near-infrared Enabled Planar Perovskite Solar Cells by Embedding Upconversion Nanocrystals

YAN-ZHEN ZHENG, XITAO LI, FANLI MENG, State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing, China

Session FB-6.2

Theoretical Modelling of Materials and Devices

FB-6.2:IL01 Device Physics of Perovskite Solar Cells

W. TRESS, EPFL, Lausanne, Switzerland

FB-6.2:IL02 Charge Carrier Diffusion and Trapping Models in Lead Halide Perovskites

HIROKI URATANI, **KOICHI YAMASHITA**, Department of Chemical System Engineering, Graduate School of Engineering, The University of Tokyo, Tokyo, Japan

FB-6.2:L03 The Outstanding Performance of Hybrid Perovskites Explained by Ab-initio Calculations

A. FILIPPETTI, Dipartimento di Fisica, Università di Cagliari, and CNR-IOM Cagliari, Monserrato, Italy

FB-6.2:L04 Influence of Point Defect on the Electronic Structure of CH₃NH₃PbI₃ Perovskite

G. GARCIA¹, P. PALACIOS², A. MONTERO-ALEJO³, E. MENENDEZ-PROUPIN³, J. C. CONESA⁴, **P. WAHNON**¹, ¹Instituto de Energía Solar and Dept. TFO, E.T.S.I. Telecomunicación, Universidad Politécnica de Madrid, Spain; ²Instituto de Energía Solar and Dept. FAIAN, E.T.S.I. Aeronáutica y del Espacio, Universidad Politécnica de Madrid, Spain; ³Departamento de Física, Facultad de Ciencias, Universidad de Chile, Santiago, Chile; ⁴Instituto de Catálisis y Petroleoquímica, CSIC, Madrid, Spain

Session FB-6.3

Material and Device Stability

FB-6.3:IL01 Novel Materials for Stable Perovskite Solar Cells

A. ABATE, Helmholtz-Zentrum Berlin, Berlin, Germany

FB-6.3:L02 How to Assess Operational Stability of Perovskite Solar Cells with Reversible Degradation?

M.V. KHENKIN¹, K.M. ANOOP¹, I. VISOLY-FISHER^{1,2}, Y. GALAGAN³, F. DI GIACOMO³, B. RAMESH PATIL⁴, G. SHERAFATIPOUR⁴, V. TURKOVIC⁴, M. MADSEN⁴, T. MERCKX⁵, G. UYTTERHOEVEN⁵, J.P. A. BASTOS^{5,6}, T. AERNOUITS⁵, F. BRUNETTI⁷, M. LIRA-CANTU⁸, **E.A. KATZ**^{1,2}, ¹Dept. of Solar Energy and Environmental Physics, Swiss Inst. for Dryland Environmental and Energy Research, J. Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Midreshet Ben-Gurion, Israel; ²Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beersheva, Israel; ³Holst Centre - Solliance, Eindhoven, the Netherlands; ⁴SDU NanoSYD, Mads Clausen Institute, University of Southern Denmark, Sønderborg, Denmark; ⁵IMEC - a partner in Solliance, Leuven, Belgium; ⁶Department Electrical Engineering, KU Leuven, Leuven, Belgium; ⁷CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome Tor Vergata, Rome, Italy; ⁸Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and The Barcelona Institute of Science and Technology, Campus UAB, Bellaterra, Barcelona, Spain

FB-6.3:IL03 The Emergence of Layered 2D Perovskites for Stable and High-efficiency Optoelectronic Devices

A.D. MOHITE, Los Alamos National Laboratory, Los Alamos, NM, USA

Session FB-6.4

Design of Lead-free New Materials

FB-6.4:IL01 Enhancement of Sn-perovskite Solar Cells from View Point of Hetero-interface Design and Crystal Defect Density

SHUZI HAYASE, Kyushu National Institute of Technology, Kitakyushu, Japan

FB-6.4:L02 Bismuth and Antimony-based Lead Free Double Perovskites in Solar Cells

M. PANTALER, C. FETTKENHAUER, I. ANUSCA, D.C. LUPASCU, Institute for Materials Science, University of Duisburg-Essen, Essen, Germany

Session FB-6.5

Scale up, Module Development and Measurement Protocols

FB-6.5:IL01 Carbon Perovskite Solar Cells from Laboratory to Factory

T. WATSON, SPECIFIC Swansea University, Swansea, UK

FB-6.5:IL02 Towards a Reliable Measurement Protocol for Perovskite Solar Cells

L. SCHMIDT-MENDE, University of Konstanz, Constance, Germany

FB-6.5:IL03 Lab to Fab: Technical, Manufacturing, Environmental and Cost Challenges for Commercial Scaling of Silicon Perovskite Tandem Solar Cells

C. CASE, E. CROSSLAND, L. MIRANDA, S. HOOPER, Oxford PV, Centre for Innovation and Enterprise, Oxford, UK

SYMPOSIUM FC

HYDROGEN PRODUCTION AND STORAGE

Session FC-1

Hydrogen Production

FC-1.1 Photoelectrochemical and thermochemical H₂ production**FC-1.1:IL01 New Materials and Concepts for Photocatalytic and Photoelectrochemical H₂ Production**

G. MUL, KAI HAN, YUXI GUO, K. WENDERICH, A. BELTRAM*, I. SIRETANU*, B. MEI, F. MUGELE, University of Twente, Faculty of Science and Technology PCS & PCF* groups, Enschede, The Netherlands

FC-1.1:IL02 Solution-processed Photocathode for Direct Solar Water Reduction

K. SIVULA, Institute of Chemical Sciences and Engineering Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

FC-1.1:IL03 Photoelectrochemical Water Splitting Devices

W.A. SMITH, D. VERMAAS, **B. DAM**, TU Delft, Netherlands

FC-1.1:IL04 Solar Redox Cycles for Splitting H₂O and CO₂: Status & Perspectives

R. MICHALSKY, A. STEINFELD, ETH Zürich, Department of Mechanical and Process Engineering, Zürich, Switzerland

FC-1.1:L05 3D-printed Porous Ceria Structures for Solar Thermochemical Redox Splitting of H₂O and CO₂

S. ACKERMANN, M. HOES, D. THEILER, P. FURLER, A. STEINFELD, ETH Zurich, Department of Mechanical and Process Engineering, Zurich, Switzerland

FC-1.2 Photobiological and photo-bio-mimetic H₂ production**FC-1.2:IL01 Bio Solar Cells for Solar Energy Conversion with High Yield**

H.J.M. DE GROOT, Leiden Institute of Chemistry, Leiden University, Leiden, The Netherlands

FC-1.2:IL02 Hybrid Materials for Photobiological Hydrogen Production

A. ANTONUCCI, N. SCHUERGERS, **A.A. BOGHOSSIAN**, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

FC-1.2:IL03 Photochemical Production of Hydrogen by Enzyme Biohybrids

P.W. KING, K.A. BROWN, D.W. MULDER, M.W. RATZLOFF, C.E. LUBNER, National Renewable Energy Laboratory, Golden, CO USA; M. WILKER, J. UTTERBACK, H. HAMBY, G. DUKOVIC, University of Colorado, Boulder, CO, USA

FC-1.2:IL04 Water Oxidation Catalysts and a Turned Hydrogenase for Solar Hydrogen Production

S. STYRING, Molecular Biomimetics, Department of Chemistry, Angström, Uppsala University, Uppsala, Sweden

FC-1.3 Biomass/waste reforming

FC-1.3:IL01 Catalytic Power-to-Gas Technologies for Storing Hydrogen with Biomass

O. KROECHER, F. VOGEL, T. SCHILDHAUER, Paul Scherrer Institute, Villigen PSI, Switzerland

FC-1.3:IL02 Hydrogen Production from Biobased Compounds on Smart Ni Based Catalysts

L. JALOWIECKI-DUHAMEL, Univ. Lille, CNRS, Centrale Lille, ENSC, Univ. Artois, UMR 8181-UCCS-Unité de Catalyse et Chimie du Solide, Lille, France

FC-1.3:IL03 Mixed electronic- and Protonic-conducting Composites for Hydrogen Separation Ceramic Membranes

Y.N. BESPALKO, V.A. SADYKOV, P.I. SKRYABIN, A.V. KRASNOV, E.M. SADOVSKAYA, N.F. EREMEEV, Boreskov Institute of Catalysis, Novosibirsk, Russia; N.F. UVAROV, A.S. ULIHIN, Institute of Solid State Chemistry and Mechanochemistry, Novosibirsk, Russia

FC-1.4 Electrolysis from renewable energy

FC-1.4:IL01 Methane Enriched Gas Produced via Co-electrolysis of H₂O and CO₂ with a Solid Oxide Cell Operating at Intermediate Temperatures

M. LO FARO, S. TROCINO, S.C. ZIGNANI, A.S. ARICO', Institute of Advanced Energy Technologies (ITAE) of the Italian National Research Council (CNR), Messina, Italy

FC-1.4:IL02 CVD Graphene Growth for Alkaline Electrolysis Application

D. ION-EBRASU¹, S. ENACHE¹, A. ENACHE¹, E. CARCADEA¹, A. SOARE¹, JIE SUN², K. PETROV³, ¹National Institute for Cyogenics and Isotopic Technologies ICSI-Rm. Valcea, Romania; ²Department of Microtechnology and Nanoscience Chalmers University of Technology, Sweden; ³Acad. Evgeni Budevski Institute of Electrochemistry and Energy Systems, Bulgarian Academy of Sciences, Sofia, Bulgaria

Session FC-2

Hydrogen Storage

FC-2.1 Metal hydrides

FC-2.1:IL01 Metallic Nanoparticles in Hydrogen Storage and Conversion
N. PATELLI, M. CALIZZI¹, **L. PASQUINI**, Department of Physics and Astronomy, University of Bologna, Bologna, Italy; ¹Present address: Institut des Sciences et Ingénierie Chimiques, EPFL, Lausanne, Switzerland

FC-2.1:IL02 Hydrogen Storage in Individual Nanoparticles

A. BALDI, DIFFER - Dutch Institute for Fundamental Energy Research, Eindhoven, Netherlands

FC-2.1:IL03 Hydrogen Sorption Properties and Aqueous Corrosion Mechanisms of Sm₂Ni₇-yMny Intermetallics

N. MADERN, V. CHARBONNIER, J. MONNIER, J. ZHANG, M. LATROCHE Université Paris-Est, ICMPE (UMR 7182) CNRS-UPEC, Thiais, France

FC-2.1:IL04 Influence of Composition and Stoichiometry on the Hydrogenation Properties of Phase Intergrowth Alloys

M. LATROCHE, N. MADERN, J. MONNIER, JUNXIAN ZHANG, Université Paris Est, ICMPE, CNRS-UPEC, Thiais, France

FC-2.1:IL05 Microstructure and Hydrogen Storage Properties of Ti₁V_{0.9}Cr_{1.1} alloy with addition of x wt.% Zr (x = 0, 2, 4, 8 and 12)

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FC-2.1:IL06 Mg₂FeH₆ for Hydrogen Storage and Lithium Batteries

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FC-2.2 Complex hydrides

FC-2.2:IL01 Borohydrides-beyond Hydrogen Storage

P. JENA, Physics Department, Virginia Commonwealth University, Richmond, VA, USA

FC-2.2:IL02 Stability of Complex Hydrides

HEENA YANG, A. ZUETTEL, LMER, ISIC, SB, École polytechnique fédérale de Lausanne (EPFL) Valais/Wallis, Energypolis, Sion, Switzerland; Empa Materials Science and Technology, Dübendorf, Switzerland

FC-2.2:IL03 Mesoporous Carbons for the Nano-confinement of Hydrogen Storage Materials

R. JANOT, Laboratoire de Réactivité et Chimie des Solides (LRCS), UMR 7314 CNRS, Amiens, France

FC-2.2:IL04 Mg(BH₄)₂ : Synthesis, Nano-confinement and Catalysis

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FC-2.2:IL05 Thermodynamic Stability of Multi-cation Complex Hydrides

E.M. DEMATTEIS, M.G. POLETTI, M. BARICCO, University of Turin & NIS, Torino, Italy; A. SANTORU, C. PISTIDDA, M. DORNHEIM, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany

FC-2.2:IL06 Metal Borohydrides and Derivatives - Synthesis, Structure and Properties

T.R. JENSEN, iNANO and Chemistry Department, Aarhus University, Aarhus, Denmark

FC-2.2:IL07 Nanoconfined Complex Metal Hydrides for Hydrogen and Ammonia Storage and Catalysis

P. NGENE, P.E. DE JONGH, Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Utrecht University, the Netherlands

FC-2.2:IL08 Physisorption in Porous Mg(BH₄)₂

Y. FILINCHUK, Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Louvain-la-neuve, Belgium

FC-2.3 Chemical hydrides

FC-2.3:IL01 Borohydride-water Based Chemical Hydrogen Carriers for On-board Hydrogen Storage

U.B. DEMIRCI, University of Montpellier IEM, UMR5635, CNRS-ENSCM-UM, Montpellier, France

FC-2.3:IL02 Ammonia - an Effective Zero-carbon Chemical Energy Store

W.I.F. DAVID^{1,2}, J.W. MAKEPEACE², T.J. WOOD¹, ¹Rutherford Appleton Laboratory, UK; ²Inorganic Chemistry Laboratory, Oxford, UK

FC-2.3:IL03 Chemical Hydrides as Precursors for the Growth of 2D Materials

F. LEARDINI, Departamento de Física de Materiales, Universidad Autónoma de Madrid, Madrid, Spain

FC-2.4 Physisorption of hydrogen on high surface area adsorbents

FC-2.4:IL01 H₂ Sorption in Composite Materials Based on Metal-organic Hybrid Frameworks

P.A. SZILAGYI, Queen Mary University of London, London, UK

FC-2.4:IL02 Carbon Monoliths for Hydrogen Storage Systems

M. KUNOWSKY, Universidad de Alicante, Alicante, Spain; AIJU, Technological Institute for Children's Products and Leisure, Ibi, Spain

FC-2.4:IL03 Gravimetric and Volumetric Hydrogen Storage Capacity in Metal-organic Frameworks

M. HIRSCHER, M. SCHLICHTENMAYER, R. BALDERAS-XICOHTÉNCATL, Max Planck Institute for Intelligent Systems, Stuttgart, Germany

FC-2.4:IL04 Composites of Multiwalled Carbon Nanotubes: Preparation, Characterization and Hydrogen Storage

S.U. RATHER, Chemical and Materials Engineering Department, King Abdulaziz University, Jeddah, Saudi Arabia

FC-2.5 CO₂ reduction with hydrogen to synthetic hydrocarbons

FC-2.5:IL01 First-principles Design of Porous Catalysts for Combined CO₂ Capture and Conversion

J.K. JOHNSON, L. LI, University of Pittsburgh, Pittsburgh, PA, USA; J. YE, University of Minnesota, Minneapolis, MN, USA

FC-2.5:IL02 Storage of Renewable Energy by Reduction of CO₂ with Hydrogen

A. ZUETTEL, HEENA YANG, LMER, ISIC, SB, Ecole Polytechnique Fédérale de Lausanne (EPFL) Valais/Wallis, Energypolis, Sion, Switzerland, Empa Materials Science and Technology, Dübendorf, Switzerland

FC-2.6 Theoretical modelling

FC-2.6:IL01 Proton Transfer through the Bulk and Near Surface Catalysis in Nickel Oxides

M. CASPARY TOROKER, Department of Materials Science and Engineering, Technion - Israel Institute of Technology, Technion City, Israel

FC-2.6:IL02 Theoretical Analysis of Alkali Metal and Magnesium Closo-Boranes

A.E. MANIADAKI, Z. LODZIANA, Institute of Nuclear Physics - PAS, Kraków, Poland

FC-2.7 Storage testing, leak detection and safety issues

FC-2.7:IL01 Scaled-up Materials Synthesis and Testing of Hydrogen Storage Tanks based on Nanostructured Hydrides

M. DORNHEIM, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany

FC-2.7:IL02 Safety Models for Hydrogen Systems

V. MOLKOV, Hydrogen Safety Engineering and Research Centre (HySAFER), Ulster University, Newtownabbey, Northern Ireland, UK

FC-2.7:IL03 Nanocluster-based Hydrogen Gas Sensors (CuO/WO₃) Prepared by Advanced Magnetron Sputtering Techniques

S. HAVIAR, J. CAPEK, University of West Bohemia, Faculty of Applied Sciences, NTIS and Department of Physics, Plzen, Czech Republic

FD-1:L07 High-nickel Layered Oxide Cathodes for Next-generation Lithium-ion Batteries

A. MANTHIRAM, Materials Science and Engineering Program and Texas Materials Institute, The University of Texas at Austin, Austin, TX, USA

FD-1:L08 High-temperature Reactivity of Li₇La₃Zr₂O₁₂-based Garnets with Cathode Active Materials

V. TARNOPOLSKIY, O. HAJNDL, S. CHOMETTE, P. AZAIS, Commissariat à l'Energie Atomique et aux Energies Alternatives, Grenoble, France; **M. CHAKIR**, Renault, France

FD-1:IL09 Electrochemical Properties of Highly Concentrated Aqueous Na-ion Battery

SHIGETO OKADA, RYO SAKAMOTO, KOSUKE NAKAMOTO, AYUKO KITAJOU, DAIKI MURAKAMI, HARUKA HIRAI, MASARU TANAKA, Institute for Materials Chemistry and Engineering, Kyushu University, Kasuga, Fukuoka, Japan

FD-1:IL10 Layered Oxide Electrode Materials for Sodium-ion Batteries

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FD-1:L11 TEM and Modeling Reactions between Li or Na and Layer Materials

C.B. CARTER, JIN WANG, S. TRIPATHI, M. JANISH, A. DONGARE, Department of Materials Science & Engineering, University of Connecticut, Storrs, CT, USA

FD-1:IL12 Enabling High Performance Energy Storage with Redox Electrolytes using Nanoporous Carbon

V. PRESSER, INM - Leibniz Institute for New Materials & Saarland University, Saarbrücken, Germany

FD-1:IL13 When does the Operation of a Battery Become Environmentally Positive?

K.-H. PETTINGER, University of Applied Sciences Landshut, Germany; WINNY DONG, Californian Polytechnical State University Pomona, USA

FD-1:IL14 New Polyanionic Electrodes for Secondary Batteries: Few Case Studies

P. BARPANDA, Indian Institute of Science, Bangalore, India

FD-1:IL15 Singlet Oxygen in Non-aqueous Battery Chemistries

N. MAHNE, L. SCHAFZAHL, E. MOURAD, Y. PETIT, B. SCHAFZAHL, C. SLUGOVIC, S. BORISOV, **S.A. FREUNBERGER**, Graz University of Technology, Graz, Austria; O. FONTAINE, University of Montpellier, France; D. KRAMER, University of Southampton, UK

FD-1:IL16 New Developments in Three-dimensional Microbatteries

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FD-1:IL17 Liquid and Solid State NMR Investigations of Low MW Polyether and Non-polyether Polymer Electrolytes for Supercapacitor and Battery Applications

M. GOBET, JING PENG, S. MUNOZ, D. MORALES, **S.G. GREENBAUM**, Hunter College of CUNY, New York, NY, USA; L. CARBONE, J. HASSOUN, University of Ferrara, Ferrara, Italy; R. RUTHER, J. NANDA, Oak Ridge National Laboratory, Oak Ridge, TN, USA; M. ZIMMERMAN, R. LEISING, Ionic Materials, Inc. Woburn, MA, USA

FD-1:L18 Polymeric Electrode Materials for Organic Batteries

A. LEX-BALDUCCI, S. MÜNCH, C. FRIEBE, R. BURGESS, M.D. HAGER, U.S. SCHUBERT, Laboratory of Organic and Macromolecular Chemistry (IOMC), Friedrich Schiller University Jena, Jena, Germany; Center for Energy and Environmental Chemistry Jena (CEEC Jena), Friedrich Schiller University Jena, Jena, Germany

FD-1:IL19 Challenging the Fabrication of Ultra-thick Electrodes for Higher Energy Density Batteries

L. ZOLIN, W. PORCHER, CEA Grenoble - Liten, Grenoble, France; J. GAUBICHER, D. GUYOMARD, **B. LESTRIEZ**, IMN CNRS/University of Nantes, Nantes, France

FD-1:IL20 Ions, Electrons, and Phonons: On the Movement of Charge through Solids

B.C. MELOT, Department of Chemistry, University of Southern California, Los Angeles, CA, USA

FD-1:IL21 Ionic Liquid-based Electrolytes for Safe Lithium-ion Batteries

A. MORETTI, **S. PASSERINI**, Helmholtz Institute Ulm, Karlsruhe Institute of Technology, Ulm, Germany

SYMPOSIUM FD

**MATERIALS DEMANDS TOWARDS NEW
GENERATION ELECTROCHEMICAL
ENERGY STORAGE SYSTEMS**

Session FD-1
Batteries

FD-1:IL01 Advances in Na-ion Batteries

T. ROJO, Department of Inorganic Chemistry, Faculty of Science and Technology, University of the Basque Country (UPV/EHU), Bilbao, Spain; and CIC energiGUNE, Parque Tecnológico de Álava, Miñano, Spain

FD-1:IL02 Materials for Advanced Lithium and Lithium-ion Batteries for NASA's Future Missions

R. BUGGA, M. SMART, W. WEST, E. BRANDON, R. EWELL, R. SURAMPUDI, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA

FD-1:L03 MgH₂-TiH₂ Nanocomposites as a Conversion Material for Conventional or Solid State Li-ion Battery Anodes

F. CUEVAS, J. ZHANG, M. LATROCHE, Université Paris Est, ICMPE, CNRS-UPEC, Thiais, France

FD-1:IL04 Complex Hydrides as Electrolytes for Lithium-ion Batteries

D. GREGORY, WestCHEM, School of Chemistry, University of Glasgow, Glasgow, UK

FD-1:L05 Li Insertion into Li₄Ti₅O₁₂ Spinel Prepared by Low Temperature Solid State Route: Charge Capability vs Surface Area

M. ZUKALOVA, L. KAVAN, J. HEYROVSKY Institute of Physical Chemistry, CAS, Prague, Czech Republic; M. FABIAN, Institute of Geotechnics, SAS, Košice, Slovak Republic; M. KLEMENTOVA, Institute of Physics of CAS, Prague, Czech Republic; M. SENNA, Faculty of Science and Technology, Keio University, Yokohama, Japan

FD-1:IL06 Aluminum Batteries: Sustainable Alternative to Lithium-ion Systems

G.A. ELIA, Technische Universität Berlin, Research Center of Microperipheric Technologies, Berlin, Germany

Session FD-2 Supercapacitors

FD-2:IL01 Cost-effective and High-capacity Spinel Pseudocapacitive Oxides

NAE-LIH WU, M. ABDOLLAHIFAR, Y.C. LIN, Department of Chemical Engineering, National Taiwan University, Taipei, Taiwan

FD-2:IL02 Environmentally Friendly Materials for Supercapacitors

A. VARZI, S. PASSERINI, Karlsruhe Institute of Technology (KIT) - Helmholtz Institute Ulm (HIU), Ulm, Germany

FD-2:IL03 3D-printing Electrodes for Electrical Energy Storage

M. WORSLEY, Lawrence Livermore National Laboratory, Livermore, CA, USA

FD-2:IL04 Buffered Solutions as New Electrolytes for Aqueous Supercapacitors

WATARU SUGIMOTO, SHO MAKINO, DAI MOCHIZUKI, Shinshu University, Faculty of Textile Science and Technology, Ueda, Japan

FD-2:IL05 Novel Electrolytes for Supercapacitors

A. BALDUCCI, L. HENNING HESS, C. SCHÜTTER, J. KRUMMACHER, Friedrich-Schiller-University Jena, Institute for Technical Chemistry and Environmental Chemistry, Center for Energy and Environmental Chemistry, Jena (CEEC Jena), Jena, Germany

Session FD-3 Application Engineering

FD-3:IL01 Atmospheric Pressure Spatial Atomic Layer Deposition of Thin Films for All-solid-state Batteries

E. BALDER, Y. CREYGHTON, L. HAVERKATE, D. HERMES, **F. ROOZEBOOM**, M. TULODZIECKI, S. UNNIKRISSHANN, TNO-Holst Centre, Eindhoven, The Netherlands

FD-3:IL02 Materials Engineering Challenges for Viable Li-S Battery Electrodes and Cells

S. TRABESINGER, Electrochemistry Laboratory, Paul Scherrer Institute, Villigen PSI, Switzerland

FD-3:IL03 Economic and Ecological Sustainability Analysis of Batteries for Stationary Applications

M. WEIL, M. BAUMANN, KIT/ITAS, Karlsruhe, Germany; J. PETERS, KIT/ HIU, Ulm, Germany

SYMPOSIUM FE FUEL CELLS: MATERIALS AND TECHNOLOGY CHALLENGES

Session FE-1 Solid Oxide Fuel Cells (SOFCs)

FE-1:IL01 Development and In-situ Characterization of Fast Ion Conductors for SOFCs

S. SKINNER, Imperial College London, London, UK

FE-1:IL02 Architecturally Designed La₂-xPr_xNiO₄+δ Cathodes for SOFCs

E. DJURADO, N.I. KHAMIDY, R.K. SHARMA, Institute of Engineering Univ. Grenoble Alpes, LEPMI, Grenoble, France

FE-1:IL03 Perovskite Electrodes for SOFCs Powered by Biogas

E. DI BARTOLOMEO, University of Rome Tor Vergata, Department of Chemical Science and Technologies, Rome, Italy

FE-1:IL04 Metal Supported Fuel Cells: Improved Electrochemical Performance by Improved Processing

M. BRAM^{1,2}, F. THALER^{1,2}, D.UDOMSILP^{1,2}, C. BISCHOF¹, A.K. OPITZ^{1,3}, ¹Christian Doppler Laboratory for Interfaces in Electrochemical Energy Converters; ²Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research - Materials Synthesis and Processing (IEK-1), Jülich, Germany; ³Vienna University of Technology, Institute of Chemical Technologies and Analytics, Vienna, Austria

FE-1:L05 In situ Imaging & Spectroscopy of Oxygen Exchange Reactions on Ceria-based Catalysts

E.L. LAWRENCE, P.A. CROZIER, Arizona State University, Tempe, AZ, USA

FE-1:L06 Analysis of Microstructural Change of Electrodes during Discharge Operation of Solid Oxide Fuel Cells

KOICHI EGUCHI, HIROKI MUROYAMA, TOSHIKI MATSUI, Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University, Kyoto, Japan

FE-1:L07 Elucidating the Grain Boundary Conductivity Distribution by Correlating Local Composition and Character

W.J. BOWMAN, Laboratory for Electrochemical Interfaces, MIT, Cambridge, MA, USA; A.D. DARBAL, AppFive LLC, Tempe, AZ, USA; P.A. CROZIER, School for Engineering of Matter, Transport and Energy, Arizona State University, Tempe, AZ, USA

FE-1:L08 Investigating the Redox Properties of Novel Material Structures for Solid Oxide Fuel Cell Electrodes Using Raman Spectroscopy

R.C. MAHER, L.F. COHEN, The Blackett Laboratory, Imperial College London, London, UK; G. KERHERVE, D.J. PAYNE, Department of Materials, Imperial College London, London, UK; X. YUE, P.A. CONNOR, J. IRVINE, University of St Andrews, School of Chemistry, St Andrews, Fife, Scotland; R.I. TOMOV, R.V. KUMAR, B.A. GLOWACKI, Department of Materials Science & Metallurgy, University of Cambridge, Cambridge, UK

FE-1:L09 Direct Utilisation of Dry Ethanol in Solid Oxide Fuel Cells Using a Perovskite Anode Modified with Ni-alloy @ FeO_x Core-shell Nanoparticles

M. LO FARO, S.C. ZIGNANI, S. TROCINO, S. MAISANO, **A.S. ARICO**¹, Institute of Advanced Energy Technologies (ITAE) - Italian National Research Council (CNR), Messina, Italy; R.M. REIS, G.G.A. SAGLIETTI, V. OLIVEIRA, E.A. TICIANELLI, Instituto de Quimica de São Carlos - USP, Brazil; N. HODNIK, F. RUIZ-ZEPEDA, National Institute of Chemistry - Ljubljana, Slovenia

FE-1:L10 Direct addition of Lithium and Cobalt Oxide to Ce_{0.8}Gd_{0.2}O_{1.95} Electrolytes to Improve Microstructural an Electrochemical Properties in IT-SOFC at Lower Sintering Temperature

G. ACCARDO¹, D. FRATTINI², H.C. HAMC¹, S.P. YOON¹, ¹Fuel Cell Research Center, Korea Institute of Science and Technology, Seoul, South Korea; ²Graduate school of Energy and Environment, Seoul National University of Science and Technology, South Korea

FE-1:L11 Study of Materials Based on La_{0.6}Sr_{0.4}Fe_{1-y}CoyO_{3-x} for Cathodes of Intermediate Temperature Solid Oxide Fuel Cells, (IT-SOFCs)

J. TARTAJ SALVADOR, Instituto de Cerámica y Vidrio (CSIC), Madrid, Spain

FE-1:L12 Bioethanol Fed Directly to Commercial Solid Oxide Fuel Cells
S. TROCINO¹, S.C. ZIGNANI¹, R.M. REIS², G.G.A. SAGLIETTI², V. OLIVEIRA², E.A. TICIANELLI², A.S. ARICO¹, M. LO FARO¹, ¹Institute of Advanced Energy Technologies (ITAE) of the Italian National Research Council (CNR), Messina, Italy; ²Instituto de Quimica de São Carlos - USP, Brazil

FE-1:L13 Strength of Multi-Layered Ceramic Systems for SOCs

A. MASINI, Z. CHLUP, I. DLOUHY, Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno, Czech Republic

FE-1:L14 Robust Nano-particles on Active Perovskite Oxide Anode for Solid Oxide Electrochemical Cells

TAE HO SHIN, HANBIT KIM, Korea Institute of Ceramic Engineering & Technology, Jinju-si, South Korea

FE-1:IL15 Industrial-size Biogas-fed SOFC

M. SANTARELLI, M. GANDIGLIO, A. LANZINI, Politecnico di Torino, Torino, Italy; M. ACRI, U. FAUSONE, E. LORENZI, SMAT, Italy; E. FONTELLI, T. HAKALA, CONVION, Finland; S. GIAROLA, A. HAWKES, Imperial College, UK; J. KIVIAHO, M. RAUTANEN, VTT, Finland

Session FE-2

Proton-conducting (PEFCs) and Alkaline (AFCs) Polymer Electrolyte Fuel Cells

FE-2:IL01 Anion Exchange Membranes, Stable in Hot Caustic Solutions

S. HOLDCROFT, Department of Chemistry, Simon Fraser University, Burnaby, Greater Vancouver, BC, Canada

FE-2:IL02 Mößbauer Spectroscopy in Fuel Cell Electrocatalysis of Non-precious Metal Catalysts

U.I. KRAMM, TU Darmstadt, Catalysts and Electrocatalysts, Darmstadt, Germany

FE-2:IL03 Investigations on Thermal Stability and Ionic Conductivity of Doped CeP2O7-ZrP2O7 Solid Solutions for Application as Electrolyte in Intermediate Temperature Fuel Cells

S.K. GAUTAM, L. MATHUR, A.K. JAISWAL, D. KUMAR, B. SINGH, Department of Ceramic Engineering, Indian Institute of Technology, Banaras Hindu University, Varanasi, India

FE-2:IL04 Nano-structured Hydrogen Oxidation Electrocatalysts for Anion Exchange Membrane Fuel Cells

H.A. MILLER, A. LAVACCHI, F. VIZZA, M. BELLINI, M. FOLLIERO, M. PAGLIARO, J. FILPI, A. MARCHIONNI, M. MARELLI, F. DI BENEDETTO, F. D'ACAPITO, D.R. DEKEL, CNR-ICCOM, Sesto Fiorentino, Italy

FE-2:IL05 Proton Conductivity in Intermediate Temperature Electrolyte Membranes - New Insights and Perspectives

QINGFENG LI, D. AILI, H. BECKER, L.N. CLEEMANN, J.O. JENSEN, Section of Proton Conductors, Department of Energy Conversion and Storage, Technical University of Denmark, Lyngby, Denmark

FE-2:IL06 State-of-the-art polymer Electrolyte Fuel Cells (PEFC): The Remaining Research Challenges

K.A. FRIEDRICH, P. GAZDZICKI, J. MITZEL, M. SCHULZE, German Aerospace Center (DLR), Institute of Engineering Thermodynamics, Stuttgart, Germany; R. HIESGEN, University of Applied Sciences Esslingen, Department of Basic Science, Esslingen, Germany

FE-2:IL07 Ti-based Perovskite Materials as Co-catalysts and Membrane Additives in Proton-conducting Polymer Electrolyte Fuel Cells

M.A. NAVARRA, L. MAZZAPIODA, S. PANERO, Department of Chemistry, Sapienza University of Rome, Rome, Italy

FE-2:IL08 Cobalt Platinum Bronze as a Catalyst for Polymer Electrolyte Fuel Cells

YUJI KAMITAKA, **YU MORIMOTO**, Toyota Central R&D Labs., Inc., Nagakute, Aichi, Japan

FE-2:IL09 Recent Materials in Proton Exchange Membrane Fuel Cell (PEMFC)

M. JOURDANI, H. MOUNIR, A. EL MARJANI, Department of Mechanical Engineering, Mohammadia School of Engineering, University Mohamed V, Rabat, Morocco

FE-2:IL10 Electro-catalysis for Electro-chemicals

J. ROSSMEISL, University of Copenhagen, Kobenhavn, Denmark

FE-2:IL11 Platinum Dissolution: From Model Surfaces to Applied Fuel Cell Catalysts

S. CHEREVKO, Forschungszentrum Jülich GmbH, Helmholtz-Institute Erlangen-Nürnberg for Renewable Energy (IEK-11), Erlangen, Germany

FE-2:L12 Remaining Challenges in Anion Exchange Membrane Fuel Cells

D.R. DEKEL, Technion - Israel Institute of Technology, Haifa, Israel

FE-2:L13 PEM H₂/O₂ batteries: Performances and Limitations

P. MILLET, Université Paris-Sud, Orsay, France

Session FE-3

Direct Alcohol Fuel Cells (DAFCs)

FE-3:L01 Ru-modified Carbons by Organometallic Functionalization as Support for Nanostructured Pt: High Performance Pt-Ru Catalysts for the Oxidation of Methanol and Ethanol in Alkaline Media

E. CANDIA-GARCIA¹, **J.A. DIAZ-GUILLEN**¹, **J.C. MARTINEZ-LOYOLA**², **A.A. SILLER-CENICEROS**³, **M.E. SANCHEZ-CASTRO**³, **M. SANCHEZ-VAZQUEZ**⁴, **B. ESCOBAR-MORALES**⁵, **I.L. ALONSO-LEMUS**⁶, **F.J. RODRIGUEZ-VARELA**³, ¹Instituto Tecnológico de Saltillo, Saltillo, Coahuila, México; ²Universidad Tecnológica de Coahuila, Ramos Arizpe, Coahuila, México; ³Sustentabilidad de los Recursos Naturales y Energía, Cinvestav Unidad Saltillo, Ramos Arizpe, Coahuila, México; ⁴Centro de Investigación en Materiales Avanzados, PIIT, Apodaca, NL, México; ⁵CONACYT, Centro de Investigación Científica de Yucatán, Mérida, Yucatán, México; ⁶CONACYT, Sustentabilidad de los Recursos Naturales y Energía, Cinvestav Unidad Saltillo, México

FE-3:L02 Synthesis and Characterization of Co-N-C and Fe-N-C for Application as Methanol Tolerant Catalysts in DMFCs

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FE-3:L03 Activity and Degradation Study of a Fe-N-C Catalyst for ORR in Direct Methanol Fuel Cell (DMFC)

I. MARTINAIOU^{1,2}, **A.H.A. MONTEVERDE VIDELA**³, **S. SPECCHIA**³, **U.I. KRAMM**^{1,2}, ¹TU Darmstadt, Catalysts and Electrocatalysts, Dept. of Materials- and Earth Science and Dept. of Chemistry, Darmstadt, Germany; ²Graduate School of Excellence Energy Science and Engineering, Darmstadt, Germany; ³Politecnico di Torino, Dip. Scienza Applicata e Tecnologia, Torino, Italy

FE-3:IL04 Electrocatalyst Supports for Direct Methanol Fuel Cells

M.V. MARTINEZ-HUERTA, Institute of Catalysis and Petrochemistry, CSIC, Madrid, Spain

FE-3:IL05 Understanding Water and Methanol Transport Properties in Ionomers and Composite Membranes Based on Non-fluorinated Polymers for Fuel Cell Applications

I. NICOTERA, C. SIMARI, Dept. of Chemistry and Chemical Technology, University of Calabria, Rende (CS), Italy; A. ENOTIADIS, National Center for Scientific Research "Demokritos", Athens, Greece

FE-3:IL06 Catalysts with Low Noble Metal Content for Ethanol Electro-oxidation

N. SHAKIBI NIA, **C. RÜDIGER**, **A. PADUANO**, **G. GARCÍA**, **A. MARTUCCI**, **E. PASTOR**, **J. KUNZE-LIEBHÄUSER**, Institut für Physikalische Chemie, Leopold-Franzens-Universität Innsbruck, Innsbruck, Austria; Department of Industrial Engineering, University of Padova, Padua, Italy; Instituto de Materiales y Nanotecnología, Universidad de La Laguna, La Laguna, Spain

FE-3:IL07 Nano-sized Platinum-free Electrocatalysts in Alkaline Direct Alcohol Fuel Cells: Catalyst Design and Principles

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FE-3:IL08 Electro-catalysts for Direct Methanol Fuel Cells

D. SEBASTIAN, **C. ALEGRE**, **M.J. LAZARO**, Instituto de Carboquímica, CSIC, Zaragoza, Spain; **V. BAGLIO**, **A.S. ARICO**, Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano", CNR, Messina, Italy

SYMPOSIUM FF

PROGRESS IN MATERIALS AND DEVICES FOR DIRECT THERMAL-TO-ELECTRIC ENERGY CONVERSION

Session FF-1

Theoretical Concepts and Basic Approaches for High Efficiency Thermal-to-electrical Energy Conversion

FF-1:IL01 Thermoelectrics in Strongly Correlated Electron Systems

ICHIRO TERASAKI, Department of Physics, Nagoya University, Nagoya, Japan

FF-1:IL02 Electronic Structure Calculations of Energy Converting Alloys by KKR-CPA Method

J. TOBOLA, **S. KAPRZYK**, **M. RYBSKI**, **B. WIENDLOCHA**, AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow, Poland

FF-1:IL03 Optimization of Nanostructured Thermoelectrics through Computer Simulations

K. TERMENTZIDIS, CETHIL UMR 5008, CNRS, INSA of Lyon, Villeurbanne, France

FF-1:IL04 High Throughput DFT Calculations - Screening for New TE Compounds

G.K.H. MADSEN, Institut für Materialchemie, TU Wien, Vienna, Austria

FF-1:IL05 Electric Power Generation from Waste Heat without Temperature Gradient

SHINJI MUNETOH, **YUKI OSAKABE**, **OSAMU FURUKIMI**, Kyushu University, Fukuoka, Japan

FF-1:IL06 Ab Initio Calculations as a Guiding Tool for the Study of Phase Stability of Thermoelectric Materials

D. FUKS, **Y. GELBSTEIN**, Materials Engineering Department, Ben Gurion University of the Negev, Beer Sheva, Israel

FF-1:IL07 Structuring Intuition with Theory: The High-throughput Way

M. FORNARI, Department of Physics and Science of Advanced Materials Program, Central Michigan University, Mount Pleasant, MI, USA

FF-1:IL08 Ab Initio Calculations of the Thermal Conductivity, Discovery of New Materials, and Multi-scale Modeling

L. CHAPUT, LEMTA, CNRS UMR-7563, Univ. Lorraine, Vandoeuvre les Nancy, France

FF-1:IL09 Thermal Transport and Chemical Bonding in Clathrates

Y. GRIN, Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany

FF-1:L10 Advanced Protective Layers for Improved Chemical Stability and Corrosion Resistance in CoSb₃ and Mg₂Si Based Materials - Experimental and Theoretical Aspects

A. KOLEZYNSKI, J. LESZCZYNSKI, P. NIERODA, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Krakow, Poland

FF-1:L11 The Mechanism of Conductivity Enhancement in PEDOT:PSS through Solvent Treatment

YILDIRIM EROL¹, XUE YONG¹, GANG WU¹, JIAN-SHENG WANG², **SHUO-WANG YANG¹**, ¹Institute of High Performance Computing, Agency for Science, Technology and Research, Singapore, ²Department of Physics, National University of Singapore, Singapore

Session FF-2

Novel Materials for high Efficiency Thermal-to-electrical Energy Conversion

FF-2:IL01 Thermoelectricity of Liquid-like Cu₂X (X = S, Se, Te)

C. UHER, University of Michigan, Ann Arbor, MI, USA

FF-2:IL02 Towards a Magnesium-silicide Based Thermoelectric Generator: Material and Contact Development for n- and p-type Magnesium Silicide Based Solid Solutions

J. DE BOOR¹, H. KAMILA¹, P. PONNUSAMY¹, M. YASSERI^{1,2}, A. SANKHLA¹, N.H. PHAM¹, N. FARAHI¹, E. MÜLLER^{1,2}, ¹Institute of Materials Research, German Aerospace Center, Koeln, Germany, ²Institute of Inorganic and Analytical Chemistry, Justus Liebig University Giessen, Giessen, Germany

FF-2:IL03 High Electron Mobility and Stability of n-type Mg₃(Sb,Bi)₂ TSUTOMU KANNO, H. TAMAKI, H.K. SATO, Panasonic Corporation, Seika, Kyoto, Japan; Y. MIYAZAKI, Tohoku University, Sendai, Miyagi, Japan

FF-2:IL04 Thermoelectric Properties in Dirac/Weyl Semimetals

QIANG LI, Condensed Matter Physics & Materials Science Department, Brookhaven National Laboratory, Upton, New York, USA

FF-2:IL05 Highly Efficient Silicides Based Thermoelectric Materials

T. KYRATSI, Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus

FF-2:IL06 Transport Properties of Homologous Compounds (PbSe)₅(Bi₂Se₃)_{3m} (m = 1, 2 and 3)

S. SASSI, C. CANDOLFI, A. DAUSCHER, **B. LENOIR**, Institut Jean Lamour, UMR 7198 CNRS, Université de Lorraine, Campus Artem, Nancy Cedex, France

FF-2:IL07 Renewed Interest for Heusler and Half-Heusler Alloys for Thermoelectric Applications

E. BAUER, B. HINTERLEITNER, I. KNAPP, A. GRYSIV, Technische Universität Wien, Institute of Solid State Physics, Vienna, Austria; P. ROGL, G. ROGL, University of Vienna, Institute of Material Chemistry; A. TAVASSOLI, University of Vienna, Institute of Material Chemistry and C. Doppler Laboratory for Thermoelectricity, Vienna, Austria

FF-2:IL08 Development of Thermoelectric Borides toward Topping Cycles

TAKAO MORI, National Institute for Materials Science (NIMS), Tsukuba, Japan

FF-2:IL09 Thermal Conductivity over Engineered Inorganic-organic Interfaces

M. KARPPINEN, Aalto University, Department of Chemistry and Materials Science, Espoo, Finland

FF-2:IL10 Solar Thermoelectric Materials Development

A. WEIDENKAFF, WENJIE XIE, XINGXING XIAO, University of Stuttgart, Stuttgart, Germany

FF-2:IL11 Structural Features and Transport Properties in Ternary and Quaternary Thermoelectric Sulfides

E. GUILMEAU¹, C. BOURGES¹, V. PAVAN KUMAR¹, L. PARADIS-FORTIN^{1,2}, P. LEMOINE², O.I. LEBEDEV¹, T. BARBIER¹, B. RAVEAU¹, B. MALAMAN³, G. LE CAER⁴, M. OHTA⁵, K. SUEKUNI⁶, A.R. SUPKA⁷, R. AL RAHAL AL ORABI⁷, M. FORNARI⁷, ¹Lab. CRISMAT, Caen, France; ²Institut des Sciences Chimiques de Rennes (ISCR), Rennes, France; ³Institut Jean Lamour, Vandœuvre-lès-Nancy, France; ⁴Institut de Physique de Rennes (IPR), Rennes, France; ⁵Research Institute for Energy Conservation, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; ⁶Dept. of Applied Science for Electronics and Materials, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Japan; ⁷Dept. of Physics and Science of Advanced Materials Program, Central Michigan University, USA

FF-2:IL12 Thermoelectric Properties of Mn₂V(Al_{1-x}Si_x) Full-Heusler Alloys

HEZHANG LI, KEI HAYASHI, YUZURU MIYAZAKI, Tohoku University, Sendai, Japan

FF-2:L13 Effects of Pb Doping on the Seebeck Co-efficient and Electrical Properties of Ti₈.67Pb_xSb_{1.33-x}Te₆ Chalcogenide System

W.H. SHAH, Department of Physics, International Islamic University, Islamabad, Pakistan

Session FF-3

Devices Technologies and Applications for Thermoelectrics, Thermionics, and Thermophotovoltaics

FF-3:IL01 Next Generation Thermionic Energy Conversion for Space Application

V.I. KUZNETSOV, Ioffe Institute, St. Petersburg, Russia

FF-3:IL02 Ultra High Temperature Thermophotovoltaic Technology Combined with Thermionic Energy Conversion

A. DATAS, E. ANTOLIN, P.G. LINARES, J. VILLA, A. MARTI, Instituto de Energía Solar, Universidad Politécnica de Madrid, Madrid, Spain; D.M. TRUCCHI, A. BELLUCCI, M. GIROLAMI, Istituto di Struttura della Materia - Consiglio Nazionale delle Ricerche, Monterotondo Scalo, Rome, Italy; A. VITULANO, G. SABBATELLA, Ionvac Process SRL. Colli di Enea, Rome, Italy

FF-3:LO3 STEALS a Modular Direct Conversion Thermal System with Integrated Storage

D. GINLEY¹, P. PARILLA¹, J. ALLEMAN¹, J. VIDAL¹, G. GLATZMAIER¹, J. REA², C. OSHMAN², A. SINGH², N. SIEGEL³, J. SHARP⁴, M. WHITE⁵, P. BREHM⁵, S. DRANEY⁶, G. BUCHHOLZ⁶, E. TOBERER⁷, ¹NREL, Golden, CO, USA; ²CSM, Golden, CO, USA; ³Bucknell University; ⁴Marlow, ⁵Infinia Tech Corp.

FF-3:LO4 Radioisotope Thermoelectric Generators for the European Space Nuclear Power Programme

R. AMBROSI¹, H. WILLIAMS¹, E.J. WATKINSON¹, A. BARCO¹, R. MESALAM¹, M. REECE², KAN CHEN², K. SIMPSON³, M. ROBBINS³, R. TULEY³, C. BURGESS⁴, M.-C. PERKINSON⁴, A. WALTON⁴, C. STROUD⁵, A. GODFREY⁶, S. GIBSON⁶, K. STEPHENSON⁶, T. CRAWFORD¹, C. BICKNELL¹, J. SYKES¹, M. SARFIELD⁷, T. TINSLEY⁷, C. FONGARLAND⁸, D. KRAMER⁹, ¹University of Leicester, Leicester, UK; ²Queen Mary University of London, London, UK; ³European Thermodynamics, Kibworth, Leicester, UK; ⁴Airbus Defence and Space, Stevenage, UK; ⁵Lockheed Martin, Amthill, UK; ⁶European Space Agency, ESTEC, Netherlands; ⁷National Nuclear Lab., Sellafield, UK; ⁸Ariane Group, Paris, France; ⁹University of Dayton Research Institute, Dayton, OH, USA

FF-3:IL05 Variation in Device Design for Low \$/W and Flexible System

WOCHUL KIM, Yonsei University, Seoul, South Korea

FF-3:LO6 Importance of Electrical Impedance Matching on Efficiency and Power in Integrated Thermoelectric Generator Circuits

MARK LEE, Department of Physics, The University of Texas at Dallas, Richardson, TX, USA

FF-3:IL07 Additive Manufacturing of Thermoelectric Devices

S. LeBLANC, Department of Mechanical & Aerospace Engineering, The George Washington University, Washington, Columbia, USA

FF-3:LO8 Thermionic Stages Based on CVD Diamond for High-temperature Conversion of Concentrated Solar Energy

A. BELLUCCI¹, M. GIROLAMI¹, M. MASTELLONE¹, S. ORLANDO¹, R. POLINI^{1,2}, D.M. TRUCCHI¹, ¹CNR-ISM, Rome, Italy; ²Dept. of Chemical Sciences and Technologies, Univ. di Roma "Tor Vergata", Rome, Italy

FF-3:IL09 Thermoelectric Power Generation from Nanostructured PbTe and Colusite: Materials and Modules

MICHIHIRO OHTA, P. JOOD, ATSUSHI YAMAMOTO, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; KOICHIRO SUEKUNI, Kyushu University, Kasuga, Fukuoka, Japan; M.G. KANATZIDIS, Northwestern University, Evanston, Illinois, USA, and Argonne National Laboratory, Argonne, Illinois, USA

FF-3:IL10 Enhancing Solar Energy Conversion by Hybrid Photovoltaic Thermoelectric Cells

D. NARDUCCI, Department of Materials Science, University of Milano Bicocca, Milan, Italy

FF-3:IL11 Power Generation and Durability of Oxide Based Thermoelectric Module

RYOJI FUNAHASHI¹, T. URATA¹, Y. MATSUMURA¹, M. SUZUKI¹, H. MURAKAMI¹, H. IKENISHI¹, T. TAKEUCHI¹, R.O. SUZUKI², S. SASAKI³, S. SUGIYAMA³, ¹National Institute of Advanced Industrial Science & Technology, Ikeda, Osaka, Japan; ²Graduate School of Engineering, Hokkaido University, Japan; ³Akita Industrial Technology Center, Japan

FF-3:IL12 Integration of Skutterudites in Thermoelectric Devices

D. KENFAUI, I. KOGUT, B. LENOIR, C. CANDOLFI, **A. DAUSCHER**, Institut Jean Lamour, UMR 7198 CNRS, Université de Lorraine, Campus Artem, Nancy Cedex, France; A. JACQUOT, J. KÖNIG, Fraunhofer IPM, Freiburg, Germany

SYMPOSIUM FG

MAGNETIC MATERIALS FOR ENERGY

Session FG-1

Hard Magnetic Materials

FG-1:IL01 New Research Strategies in RE-based Magnets

A.M. GABAY, G.C. HADJIPANAYIS, University of Delaware, Newark, DE, USA

FG-1:IL02 High-performance Permanent Magnets without Rare Earths: Challenges and Perspectives

K.P. SKOKOV, O. GUTFLEISCH, Technische Universität Darmstadt, Institut für Materialwissenschaft, Darmstadt, Germany

FG-1:IL03 Multidriver Processing Routes to Chemical Order in FeNi

L.H. LEWIS, Northeastern University, Boston, MA, USA

FG-1:IL04 Heusler Compounds: Towards Rare-Earth-Free Permanent Magnets

C. FELSER, A. MARKOU, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany

FG-1:IL05 Intrinsic Magnetic Properties of RFe₁₂ Based Hard Magnetic Phase

YUSUKE HIRAYAMA, Magnetic Powder Metallurgy Research Center, National Institute of Advanced Industrial Science and Technology, Nagoya, Japan

FG-1:IL06 Designing Permanent Magnets by Breaking Cubic Symmetry with Interstitials

HONGBIN ZHANG, Institute of Materials Science, TU Darmstadt, Darmstadt, Germany

FG-1:IL07 Hard Magnetic Materials based on Nanowires

J. PING LIU, Department of Physics, University of Texas at Arlington, Arlington, TX, USA

FG-1:IL08 Recent Advances in Micro-magnetic Modelling of Permanent Magnets

T. SCHREFL, A. KOVACS, J. FISCHBACHER, M. GUSENBAUER, Danube University Krems, Wiener Neustadt, Austria

FG-1:IL09 Novel Developments in Hybrid Ferrite-based Hard Nanomaterials

C. DE JULIAN FERNANDEZ, IMEM - CNR, Parma, Italy

FG-1:IL10 New Processing of RE-based Magnetic Materials

S. KOBE, Jožef Stefan Institute, Ljubljana, Slovenia

FG-1:IL11 Study of Anisotropic Bonded Permanent Magnetic Materials

JINBO YANG, JINGZHI HAN, School of Physics, Peking University, Beijing, China

FG-1:IL12 Towards the Optimized Use of Permanent Magnets: Development of 3d Printed MagnetsD. SUESS¹, C. HUBER¹, S. SCHUSCHNIGG³, M. GRÖNEFELD³, ¹Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Faculty of Physics, University of Vienna, Vienna, Austria; ²Magnetfabrik Bonn GmbH, Bonn, Germany; ³Department of Polymer Engineering and Science, Montanuniversität Leoben, Leoben, Austria

Session FG-2

Soft Magnetic Materials

FG-2:IL01 Developments in Metal Amorphous Nanocomposite (MANC) Soft Magnetic Materials (SMM) for Power Applications

M.E. MCHENRY, Carnegie Mellon University, Pittsburgh, PA, USA

FG-2:IL02 Magnetic Sensors and Actuators Based on Soft Magnetic Materials

C. GOMEZ-POLO, I. ROYO-SILVESTRE, J.M. JIMENEZ-RUIZ, J.J. BEATO-LOPEZ, Physics Department & Institute for Advanced Materials (INAMAT), Universidad Pública de Navarra, Pamplona, Spain

FG-2:IL03 Engineering of Soft Magnetic Properties of Amorphous and Nanocrystalline Magnetic Microwires for Sensor ApplicationsA. ZHUKOV^{1,2,3}, M. IPATOV^{1,2}, A. TALAAT^{1,2}, J.M. BLANCO², M. CHURYUKANOVA⁴, V. ZHUKOVA^{1,2}, ¹Dept. Phys. Mater., University of Basque Country, UPV/EHU San Sebastián, Spain; ²Dpto. de Física Aplicada, EUPDS, UPV/EHU, San Sebastian, Spain; ³IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; ⁴National University of Science and Technology «MISIS», Moscow, Russia**FG-2:IL04 Effect of Stress Components on Magnetostatic and Magnetostrictive Properties of Amorphous Microwires**V. RODIONOVA^{1,2}, K. CHICHAY¹, I. BARABAN¹, A. LITVINOVA¹, ¹STP "Fabrika" and Center for Functionalized Magnetic Materials (FunMagMa), Immanuel Kant Baltic Federal University, Kaliningrad, Russia; ²National University of Science and Technology «MISIS», Moscow, Russia**FG-2:IL05 Magnetic Properties of Electrocatalytically Active 3D Nanoporous Fe-containing Metallic Films Prepared by Micelle-assisted Electrodeposition**E. PELLICER¹, E. ISARAIN-CHÁVEZ¹, M.D. BARÓ¹, J. SORT^{1,2}, ¹Departament de Física, Universitat Autònoma de Barcelona, Bellaterra, Spain; ²Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain**FG-2:IL06 Multi-parameter Search of Optimal Properties of Soft Magnetic Microwires**A. CHIZHIK¹, J. GONZALEZ¹, A. ZHUKOV^{1,2}, A. STUPAKIEWICZ³, ¹Universidad del País Vasco, UPV/EHU, San Sebastián, Spain; ²IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; ³Laboratory of Magnetism, University of Białystok, Białystok, Poland**FG-2:IL07 Soft Magnetic Ferrites for Biomedical Applications**

P. TIBERTO, G. BARRERA, F. CELEGATO, M. COISSON, Nanoscience and Materials Division, INRIM, Torino, Italy

FG-2:IL08 Magnetite Nanoparticles Biosynthesized by Magnetotactic Bacteria for Biomedical Application

M.L. FERNANDEZ-GUBIEDA, Departamento de Electricidad y Electrónica, Universidad del País Vasco UPV/EHU, Leioa, Spain

Session FG-3

Magnetocaloric and Multifunctional Magnetic Materials

FG-3:IL01 New Concepts for Caloric Cooling

O. GUTFLEISCH, T. GOTTSCHALL, TU Darmstadt and HZDR Dresden, Germany

FG-3:IL02 Thermodynamics of Multicaloric Materials

T. CASTAN, LL. MAÑOSA, A. PLANES, Departament de Física de la Matèria Condensada, Facultat de Física, Universitat de Barcelona, Spain; A. SAXENA, Los Alamos National Laboratory, NM, USA; E. STERN, Department of Material Sciences, University of Cambridge, UK

FG-3:IL03 Tuning Magnetocaloric Materials with Stress

X. MOYA, Department of Materials Science, University of Cambridge, Cambridge, UK

FG-3:IL04 Materials with Giant Mechanocaloric Effects: Cooling by Strength

L. MANOSA, A. PLANES, Departament de Física de la Matèria Condensada, Universitat de Barcelona, Barcelona, Spain

FG-3:IL05 Structural Instabilities of Heusler Alloys

P. ENTEL, University Duisburg-Essen, Duisburg, Germany

FG-3:IL06 Shell Magnetism in Heusler CompoundsM. ACET¹, A. ÇAKIR², ¹Faculty of Physics, University of Duisburg-Essen, Duisburg, Germany; ²Department of Metallurgical and Materials Engineering, Mugla Sıtkı Kocman University, Mugla, Turkey**FG-3:IL07 Ni-Mn-In Heusler Alloys Showing both Direct and Inverse Magnetocaloric Effect for Room Temperature Magnetic Refrigeration**

S. FABBRICI, MIST E-R srl, Bologna, Italy; C. BENNATI, R. CABASSI, D. CALESTANI, F. ALBERTINI, IMEM-CNR, Parma, Italy; F. CUGINI, N. SARZI AMADE, M. SOLZI, SMFI Department, University of Parma, Parma, Italy; A. PEPICIELLO, C. VISONI, Engineering dep., University of Sannio, Benevento, Italy

FG-3:IL08 Comparison of Magnetic and Magnetocaloric Study of Polycrystalline Composites

A. MARZOUKI, Ajimi Centre de Recherche en Numérique, Sfax Technoparc, Sfax, Tunisia

FG-3:IL09 Kinetics of the Heat Flux Avalanches at the First Order Magnetic Transitions in Magnetocaloric MaterialsV. BASSO¹, M. PIAZZI^{1,2}, C. BENNATI³, ¹Istituto Nazionale di Ricerca Metrologica, Torino, Italy; ²Università degli Studi di Pavia, Pavia, Italy; ³Istituto dei Materiali per l'Elettronica ed il Magnetismo - CNR, Parma, Italy**FG-3:IL10 Efficient Energy-conversion near Room-temperature with Transition Metal Based Magnetic Materials**

E. BRUECK, N. VAN DIJK, Fundamental Aspects of Materials and Energy, Faculty of Science, TU Delft, Delft, Netherlands

FG-3:IL11 Magnetocaloric Performance of La(FeSi)₁₃ Compounds

L.E. COHEN, Imperial College London, London, UK

FG-3:IL12 Molecular Spin Crossover Crystals as Barocalorics
S. VALLONE^{1,2}, A.M. DOS SANTOS³, J. MOLAISSON³, M. HALCROW⁴, K. SANDEMAN^{1,2}, ¹The Graduate Center of The City University of New York, USA; ²Brooklyn College of The City University of New York, USA; ³Oak Ridge National Laboratory, USA; ⁴University of Leeds, USA

FG-3:IL13 Manipulating Magnetic Frustration for Caloric Effects
J.B. STAUNTON, E. MENDIVE-TAPIA, Department of Physics, University of Warwick, Coventry, UK

FG-3:IL14 Tuning Magnetism and Functional Properties in Ferromagnetic Shape Memory Films and Nanodisks

F. CASOLI, M. TAKHSHA GHAHFAROKHI, L. NASI, R. CABASSI, F. ALBERTINI, IMEM - CNR, Parma, Italy; S. FABBRICI, MIST E-R Laboratory, Bologna, Italy; F. CELEGATO, G. BARRERA, P. TIBERTO, INRIM, Torino, Italy; M. CAMPANINI, EMPA, Dübendorf, Switzerland; C. MAGEN, Instituto de Nanociencia de Aragón, Zaragoza, Spain; V. GRILLO, NANO - CNR, Modena, Italy

Session FG-4

Magnetic Devices and Components for Energy Applications

FG-4:IL01 The Use of Compositionally Graded Films as Model Systems to Study Magnetic Materials for Energy Applications

N.M. DEMPSEY¹, N.B. DOAN¹, Y. HONG^{1,2}, I. DE MORAES¹, A. DIAS¹, G. GOMEZ¹, V.M.T.S. BARTHEM^{1,3}, M. BONFIM⁴, L. RANNO¹, G. GIVORD^{1,3}, ¹Univ. Grenoble Alpes, CNRS/UGA, Grenoble INP, Institut Néel, Grenoble, France; ²School of Materials Science and Engineering, South China University of Technology, Guangzhou, China; ³Instituto de Física, Universidade Federal do Rio de Janeiro, RJ, Brazil; ⁴DELTA, Universidade Federal do Paraná, Curitiba, Brazil

FG-4:IL02 Thermomagnetic Energy Generation Based on Magnetic Shape Memory Alloy Films

M. KOHL, M. GUELTIG, H. OSSMER, Institute of Microstructure Technology (IMT), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany; H. MIKI, M. OHTSUKA, Tohoku University, Sendai, Japan

FG-4:IL03 Magnetocaloric Heat Pumps

C.R.H. BAHL, S. DALL'OLIO, D. ERIKSEN, K. ENGELBRECHT, Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde, Denmark

FG-4:IL04 Novel Concept for Caloric Cooling - The Magnetocaloric Heat Pipe

L. MAIER, T. HESS, K. BARTHOLOME, Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg, Germany

SYMPOSIUM FH

ADVANCED PHOTOCATALYTIC MATERIALS FOR ENERGY TRANSITION, SOLAR-DRIVEN CHEMISTRY AND ENVIRONMENTAL APPLICATIONS

Session FH-1

Design Elements and Advanced Concepts for Photofunctional Materials

FH-1:IL01 Tuning of Photoelectrochemical Activity by Altering Catalytic Binding Site Charge Density

M. HOFFMANN, Linde-Robinson Laboratories, California Institute of Technology, Pasadena, CA, USA

FH-1:IL02 Ultra-efficient Solar CO₂ Conversion using Oxide Semiconductor Electrodes

UNSEOCK KANG^{1,2}, SEUNG YO CHOI^{1,2}, HYE WON JEONG^{1,2}, GUANGXIA PIAO^{1,2}, DONG SUK HAN³, HYUNWOONG PARK^{1,2}, ¹School of Energy Engineering, Kyungpook National University, Daegu, South Korea; ²School of Architectural, Civil, Environmental, and Energy Engineering, Kyungpook National University, Daegu, South Korea; ³Chemical Engineering Program, Texas A&M University at Qatar, Education City, Doha, Qatar

FH-1:IL03 Nanocomposite Materials as Photoelectrodes in Solar Fuel Generation: Opportunities and Challenges

C. JANAKY, E. KECSENOVITY, B. ENDRODI, University of Szeged, Szeged, Hungary

FH-1:IL04 Role of Electron Traps in Photocatalysis: Identification and Characterization of Metal Oxide Particulate Photocatalysts

BUNSHO OHTANI, Institute for Catalysis, Hokkaido University, Sapporo, Japan

FH-1:IL05 Mechanistic Aspects of Photocatalysis - Control of Photoinduced Redox Processes

W. MACYK, M. KOBIELUSZ, M. TROCHOWSKI, M. SUROWKA, M. PACIA, J. KUNCEWICZ, Faculty of Chemistry, Jagiellonian University in Kraków, Kraków, Poland

FH-1:IL06 The Photochemical Reactivity of Polar Surface Domains on Non-polar Surfaces

G.S. ROHRER, P.A. SALVADOR, Carnegie Mellon University, Dept. of Materials Science and Engineering, Pittsburgh, PA, USA

FH-1:IL07 Nano-graphitic Templates and Hierarchical Nanostructures in Multi-functional Electrocatalysts for the Artificial Leaf

G. VALENTI, A. BONI, M. MARCACCIO, S. RAPINO, M. IURLLO, F. PAOLUCCI, University of Bologna, Bologna, Italy; P. FORNASIERO, M. PRATO, University of Trieste, Italy; M. BONCHIO, University of Padua, Italy

FH-1:IL08 Advanced Organic/Inorganic Hybrid Materials Derived from Tunable Si-based NanoBuilding Blocks

S. DIRE¹, E. CALLONE, M. D'ARIENZO, B. DI CREDICO, R. SCOTTI, F. RIBOT, University of Trento, Dept. Industrial Engineering, Trento, Italy; University of Milano-Bicocca, Dept. Materials Science, Milano, Italy; Université Pierre et Marie Curie, CMCP, UMR7574 -UPMC / CNRS / Collège de France, Paris, France

FH-1:IL09 Transient Behavior of Ni/NiO Modified Mg:SrTiO₃ in Photocatalytic Overall Water Splitting

KAI HAN, B. MEI, G. MUL, University of Twente, Enschede, The Netherlands

FH-1:IL10 Coupling Between Enzymes and a Photoactive Sulphide for Photoproduction of H₂ and O₂

C. TAPIA, J.C. CONESA, A.L. DE LACEY, M. PITA, Inst. de Catálisis y Petroleoquímica, CSIC, Madrid, Spain; S. SHLEEV, Biomed. Sci., Fac. Health & Society, Malmö University, Malmö, Sweden

Session FH-2

Understanding Fundamentals of Photoinduced Processes and Charge Transport

FH-2:IL01 Atomic Level In situ Microscopy and Spectroscopy of Photocatalyst for Water Splitting

D. HAIBER, Q. LIU, T. BOLAND, P. A. CROZIER, Arizona State University, Tempe, AZ, USA

FH-2:IL02 Role of Radical Species and Interparticle Electron Transfer in Photocatalysis

D. BAHNEMANN, Institut fuer Technische Chemie, Gottfried Wilhelm Leibniz Universitaet Hannover, Hannover, Germany

FH-2:IL03 Enhancing Photoelectrochemical Water Splitting Performance using Hematite Anode through Doping and Morphology Control

XIN ZHAO, ZHONG CHEN, School of Materials Science and Engineering, Nanyang Technological University, Singapore

FH-2:IL04 Mechanistic Aspects of Photocatalytic CO₂ Reduction

M. DILLA, A. MATEBLOWSKI, S. RISTIG, Max-Planck-Institute for Chemical Energy Conversion, Muelheim/Ruhr, Germany; N. MOUSTAKAS, T. PEPPEL, J. STRUNK, Leibniz Institute for Catalysis (LIKAT), Rostock, Germany

FH-2:IL05 Recent Advances in the Search of Effective Materials for Photo-electrochemical Water Splitting

J. AUGUSTYNSKI, Centre for New Technologies, University of Warsaw, Warsaw, Poland

FH-2:IL06 Conduction Band Engineering in TiO₂ and SnO₂: Photocatalysis, Solar Fuel and Solar Cells

L. KAVAN, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic

FH-2:IL07 Electron Transfer and Energy Transfer in Heterogenous Photocatalysis

F. PARRINO, L. PALMISANO, Dipartimento di Energia, Ingegneria dell'Informazione e Modelli Matematici (DEIM), Università degli Studi di Palermo, Palermo, Italy

FH-2:IL08 Studying Mobile Charge-Carriers in Photocatalytic Particles by Time Resolved Microwave Conductivity: Recent Developments
C. COLBEAU-JUSTIN, A. HERISSAN, A.L. LUNA BARRON, M.G. MENDEZ MEDRANO, H. REMITA, Laboratoire de Chimie Physique, CNRS UMR 8000, Université Paris-Sud, Université Paris-Saclay, Orsay, France

FH-2:L09 Probing Local Atomic Structural Variations in Bulk and on Surfaces of TiO₂ Anatase Nanoparticles
QIANLANG LIU, T. BOLAND, P.A. CROZIER, Arizona State University, Tempe, AZ, USA

FH-2:L10 A loof-beam EELS as a Non-destructive, Surface-sensitive Probe for Photocatalyst Nanostructures
D.M. HAIBER, Q. LIU, P.A. CROZIER, School for Engineering of Matter, Transport, & Energy, Arizona State University, Tempe, AZ, USA; S.C. QUILLIN, D.J. MASIELLO, Department of Chemistry, University of Washington, Seattle, WA, USA

FH-2:IL11 Photocarrier Transport and Transfer in Emerging Transition Metal Oxide Photoelectrodes
I.D. SHARP^{1,2}, J.K. COOPER², CHANG-MING JIANG², G. SEGEV², ¹Walter Schottky Institut and Physik Department, Technische Universität München, Garching, Germany; ²Joint Center for Artificial Photosynthesis and Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

FH-2:L12 A Comparative Study on Defect-rich and Defect-free O-incorporated 1T-MoS₂ Nanosheets for Visible-light Photocatalytic H₂ Evolution
XIA TAO, XIAOHONG ZHANG, NAN LI, JIAOJIAO WU, State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing, China

Session FH-3

Design Approaches for Advanced Applications

FH-3:IL01 Design Rules for Photoactive Materials for Photo Electrochemical Solar Energy Conversion
W. JAEGERMANN, Surface Science Division, TU Darmstadt Materials Science, Darmstadt Germany

FH-3:IL02 Strategies for Stable Water Splitting via Protected Photoelectrodes
I. CHORKENDORFF, SurfCat, Department of Physics, The Technical University of Denmark, Kongens Lyngby, Denmark

FH-3:IL03 Transient Phenomena in Photocatalysis, as Studied by Ultrafast FTIR Measurements
Y. PAZ, I. BENISTI, A. BEN REFAEL, Department of Chemical Engineering, Technion, Haifa, Israel

FH-3:L04 New Strategy for Micro-plastic Degradation: Green Photocatalysis Using a Protein-based Porous N-TiO₂ Semiconductor
M.C. ARIZA-TARAZONA, J.F. VILLAREAL-CHIUI, Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, San Nicolás de los Garza, N.L., Mexico; C. MUGONI, V. BARBIERI, C. SILIGARDI, Università degli Studi di Modena e Reggio Emilia, Dipartimento di Ingegneria "Enzo Ferrari", Modena, Italy; E.I. CEDILLO-GONZÁLEZ, Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, San Nicolás de los Garza, N.L., Mexico

FH-3:L05 Optical Emission from Catalytic Combustion of MeOH/air on Yb₂O₃ Supported Metal Catalysts
J. TERRENI^{1,2}, A. WENGER¹, R. HOLZNER³, A. BORGSCHELTE^{1,2}, ¹Laboratory of Advanced Analytical Technologies, Empa, Dübendorf, Switzerland; ²University Zürich, Department of Chemistry, Zürich, Switzerland; ³Econimo-Drive AG, Cham, Switzerland

FH-3:IL06 Modelling of Solar Water Splitting Devices
S. HAUSENER, Laboratory of Renewable Energy Science and Engineering, EPFL, Switzerland

FH-3:IL07 Coupling Peroxidase Enzymes with Photocatalytic Hydrogen Peroxide Production
B.O. BUREK, **J.Z. BLOH**, DECHEMA-Forschungsinstitut, Frankfurt, Germany; D.W. BAHNEMANN, Leibniz Universität Hannover, Germany

SYMPOSIUM FI

MATERIALS AND TECHNOLOGIES FOR NEXT GENERATION SOLID STATE LIGHTING

Session FI-1

Material Design and Processing

FI-1:IL01 Intramolecular or Intermolecular Charge Transfer Approaches for Highly Efficient TADF Materials and OLEDs
KEN-TSUNG WONG, Department of Chemistry, National Taiwan University, Taipei, Taiwan

FI-1:IL02 Embedded Lighting for Building Materials as Led Technology Enabler!
S. VENK, OSRAM Spa, Innovation Manager Advanced Concept and New Business Development Digital Systems, RnD, Treviso, Italy

FI-1:IL03 Dye Encapsulated Metal-organic Frameworks for Luminescence and White LED
YUANJING CUI, ZHIYU WANG, BANGLIN CHEN, Guodong Qian State Key Laboratory of Silicon Materials, Cyrus Tang Center for Sensor Materials and Applications, School of Materials Science and Engineering, Zhejiang University, Hangzhou, China

FI-1:IL04 Design of Efficient TADF Materials for OLEDs
TAKUMA YASUDA, Kyushu University, Fukuoka, Japan

FI-1:IL05 Materials and Device Design for Improving the Stability of OLEDs
HIROHIKO FUKAGAWA¹, YUKIKO IWASAKI¹, TSUBASA SASAKI¹, MUNEHIRO HASEGAWA², KATSUYUKI MORII², TAKAHISA SHIMIZU¹, ¹Japan Broadcasting Corporation (NHK), Science & Technology Research Laboratories, Setagaya-ku, Tokyo, Japan; ²Nippon Shokubai Co., Ltd., Suita, Osaka, Japan

FI-1:IL06 Feasibility of Future GaN Large Area Light Emitting Devices
HIROSHI FUJIOKA, K. UENO, A. KOBAYASHI, Institute of Industrial Science, The University of Tokyo, Meguro-ku, Tokyo, Japan; ACCEL-JST, Chiyoda-ku, Tokyo, Japan

FI-1:IL07 Recent Progress and Challenges of InN and In-rich InGaN by RF-MBE
YASUSHI NANISHI¹, TOMOHIRO YAMAGUCHI², TSUTOMU ARAKI¹, ¹Ritsumeikan University, Kusatsu, Sjiga, Japan; ²Kogakuin University, Hachioji, Tokyo, Japan

FI-1:IL08 New Blue Organic Emitters for OLED Lightings
JONGWOOK PARK, Department of Chemical Engineering, Kyung Hee University, Deogyong, Giheung, Yongin, Kyunggi, South Korea

FI-1:IL09 Transparent Spinel ceramics for White Light-Emitting Diodes Applications
M. RADWAN, J. SEDLACEK, Z. LENCES, P. SAJGALIK, Institute of Inorganic Chemistry, Slovak Academy of Sciences, Bratislava, Slovakia

FI-1:IL10 Enhanced Performance of Luminescent Powders due to Coating of Phosphor Particles by Atomic Layer Deposition in a Fluidized Bed Reactor
H.T. HINTZEN¹, O.M. TEN KATE², Y. ZHAO^{2,3}, L.J. YIN^{2,4}, Z. ZHOU^{2,5}, J.R. VAN OMMEN², ¹Luminescent Materials, Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands; ²Product & Process Engineering, Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands; ³College of Materials, Xiamen University, Xiamen, China; ⁴School of Energy Science and Engineering, University of Electronic Science and Technology of China, Chengdu, China; ⁵Science College of Hunan Agricultural University, Changsha, China

FI-1:IL11 Single-phased Eu²⁺-activated Phosphors with High Color Rendering for Near-UV LED Chips
PENGPENG DAI¹, XINTONG ZHANG¹, YICHUN LIU¹, **XIAOJUN WANG**², ¹Key Laboratory for UV Light-Emitting Materials and Technology of Ministry of Education, Northeast Normal University, Changchun, China; ²Department of Physics, Georgia Southern University, Statesboro, GA, USA

FI-1:IL12 Conjugated Oligomers and Polymers with Absorption and Emission Features in the Near Infrared
U. SCHERF, Macromolecular Chemistry Goup and Institute for Polymer Technology, Bergische Universität Wuppertal, Wuppertal, Germany

FI-1:IL13 Design Strategies for Materials Showing Thermally Activated Delayed Fluorescence and Beyond - Towards the Fourth Generation OLED Mechanism
H. YERSIN, University of Regensburg, Regensburg, Germany

Session FI-2

Optoelectronic and Photonic Processes

FI-2:IL01 Metal Halide Perovskites Light Emitting Devices and Interface Stability

B.P. RAND, Department of Electrical Engineering and Andlinger Center for Energy and the Environment, Princeton University, Princeton, NJ, USA

FI-2:IL02 Realization of High Performance UV Emitters by using AlGaN Materials

MOTOAKI IWAYA¹, TETSUYA TAKEUCHI¹, SATOSHI KAMIYAMA¹, ISAMU AKASAKI^{1,2}, ¹Faculty of Science and Technology, Meijo University, Japan; ²Akasaki Research Center, Nagoya University, Japan

FI-2:IL03 Deep UV LEDs

M.P. HOFFMANN, C. BRANDL, M. TOLLABI-MAZRAEHNO, M. JAMA, N. TILLNER, M.J. DAVIES, C. FRANKERL, G. ROSSBACH, S. ALARCON VILLASECA, **H.-J. LUGAUER**, OSRAM Opto Semiconductors GmbH, Regensburg, Germany

FI-2:IL04 Indirect Excitons in Group III-Nitride-Based Quantum Wells

P. LEFEBVRE, B. JOUAULT, T. GUILLET, C. BRIMONT, P. VALVIN, T. BRETAGNON, M. VLADIMIROVA, Laboratoire Charles Coulomb (L2C), CNRS, University of Montpellier, France; L. LAHOUCADE, N. GRANDJEAN, Institute of Condensed Matter Physics, EPFL, Lausanne, Switzerland; B. DAMILANO, CRHEA-CNRS, Valbonne, France

FI-2:IL05 Enhancing the Electroluminescence of Organic Light-emitting Transistors by Modifying the Metal/Organic Interface with Conjugated Polar Polymers

M. PROSA¹, E. BENVENUTI¹, M.C. PASINI², F. GALEOTTI², U. GIOVANELLA², M. MUCCINI¹, S. TOFFANIN¹, ¹ISMN - CNR, Bologna, Italy; ²ISMAL - CNR, Milano, Italy

FI-2:IL06 Laser Induced White Lighting of Tungsten Filament

M. LUKASZEWICZ, R. TOMALA, W. STREK, Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Poland

FI-2:IL07 Fabrication of High-quality AlN Template by High-temperature Annealing

HIDETO MIYAKE, Shiyu Xiao, Yusuke Hayashi, Kanako Shojiki, Mie University, Tsu, Japan

FI-2:IL08 Simultaneous Tenfold Brightness Enhancement and Emitted-light Spectral Tunability in Transparent Ambipolar Organic Light-emitting Transistor by Integration of High-k Photonic Crystal

S. TOFFANIN, Istituto per lo Studio dei Materiali Nanostrutturati (ISMN), Consiglio Nazionale delle Ricerche (CNR), Bologna, Italy

FI-2:IL09 THz-QCLs toward High Output Power near Liquid Nitrogen Temperature Operation

TSUNG-TSE LIN, HIDEKI HIRAYAMA, Center for Advanced Photonics, RIKEN, Sendai, Japan

FI-2:L10 Omni-friendly Low Color Temperature OLED

JWO-HUEI JOU, M. SINGH, H.-F. LIN, Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan

Session FI-3

Electro-optical-structural Characterization

FI-3:IL01 Light-emitting Electrochemical Cells: Towards Low-cost Fabrication and High-efficiency Operation

L. EDMAN, The Organic Photonics and Electronics Group, Umeå University, Umeå, Sweden

FI-3:L02 Charge Injection Investigation at the Interface between Metal Contact and Active Layer in Organic Field-effect Transistors

M. NATALI, S.D. QUIROGA, A. LONGO, E. BENVENUTI, F. MERCURI, F. PRESCIMONE, S. TOFFANIN, ISMN-CNR, Bologna, Italy; M. BUONOMO, N. LAGO, A. CESTER, UniPd, Padova, Italy

FI-3:L03 Modification of Silver Emitting Centers at Aging ZnO:Ag Nanocrystal Films

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FI-3:IL04 Inorganic Perovskite Crystals for Fast Color-conversion Applications

N. LAURAND, Institute of Photonics, Dept. of Physics, SUPA, University of Strathclyde, Glasgow, UK

FI-3:IL05 Organic Light-emitting Field-effect Transistors for Display Applications

M.U. CHAUDHRY, School of Engineering, Durham University, Durham, UK

Session FI-4

Device Architectures and System Integration

FI-4:IL01 Integration and Process Technology for Flexible OLED Lighting Systems

C. MAY, Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Dresden, Germany

FI-4:IL02 Small Area Light Module Application, Simulation Modelling and Optimization for Architectural Lighting

N. TRIVELLIN, LightCube SRL and University of Padova, Padova, Italy; S. VENK, OSRAM SPA, Treviso, Italy

FI-4:IL03 Micro-Transfer Printing for Display Applications and Interactive Solid State Lighting

A.J. TRINDADE², E. RADAUSCHER¹, S. BONAFEDE¹, D. GOMEZ¹, T. MOORE¹, C. PREVATTE¹, B. RAYMOND¹, A. FECIORU², K. GHOSAL¹, M. MEITL¹, C. BOWER¹, ¹X-Celeprint Inc., USA; ²X-Celeprint Ltd., Cork, Ireland

FI-4:L04 Nano-LEDs based on InGaN Mesoscopic Structures Integrated in a High-frequency Device Layout

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SYMPOSIUM FJ

**DEVELOPMENT AND APPLICATION
OF NEW FUNCTIONAL TRANSPARENT
CONDUCTING AND SEMICONDUCTING
INORGANIC MATERIALS**

Session FJ-1

Fundamentals

FJ-1:IL01 Interfaces and Defects in Semiconducting Oxides

A. KLEIN, Technische Universität Darmstadt, Institute of Materials Science, Darmstadt, Germany

FJ-1:IL02 Excitonic Effects and Dielectric Screening in Transparent Conducting Oxides

A. SCHLEIFE, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

FJ-1:IL03 A Non-oxide p-type Transparent Semiconductor CuI

NAOOMI YAMADA, Department of Applied Chemistry, Chubu University, Kasugai, Japan

FJ-1:IL04 Atomic Layer Deposition of Transparent Conducting and Charge Transport Layers for Photovoltaic Applications

M. MCCARTHY, L. RYAN, S. O'BRIEN, **I.M. POVEY**, Tyndall National Institute, University College Cork, Cork, Ireland

FJ-1:L05 Size Depending Electron Transport in Core-shell Zn/ZnO Nanotubes

S. DI STASIO, CNR-IM Lab Nanostructures, Light Scattering and X-ray Techniques, Napoli, Italy

FJ-1:IL06 Thio- and Seleno-cyanates: Theory and Applications for an Emerging Class of Multi-functional Materials

L. TSETSERIS, Department of Physics, National Technical University of Athens, Zografou Campus, Athens, Greece

FJ-1:IL07 Electronic Devices from Wide Bandgap Semiconductors

H. VON WENCKSTERN, Felix-Bloch-Institut für Festkörperphysik, Universität Leipzig, Leipzig, Germany

FJ-1:IL08 Thermal Transport in Transparent Conductive Oxide Films

NOBUTO OKA¹, Y. SHIGESATO², ¹Kindai University, Iizuka, Fukuoka, Japan; ²Aoyama Gakuin University, Sagami-hara, Kanagawa, Japan

FJ-1:IL09 First-principles Modeling of Complex Oxide Interfaces

C.G. VAN DE WALLE, Materials Department, University of California, Santa Barbara, CA, USA

FJ-1:IL10 Ab Initio Design of P-type Transparent Conductors: From Oxides to Oxide Chalcogenides

G. TRIMARCHI, Department of Chemistry, Northwestern University, Evanston, IL, USA

Session FJ-2**Material Design and Device Development****FJ-2:IL01 Amorphous Semiconductor Mobility Physics**

J.F. WAGER, School of EECS, Oregon State University, Corvallis, OR, USA

FJ-2:IL02 High-throughput Development of Wide Bandgap Conductive Sulfides

A. ZAKUTAYEV, National Renewable Energy Laboratory, Golden, CO, USA

FJ-2:IL03 Low-dimensional Multi-layer Metal Oxide Semiconductors for Transistor Applications

T. ANTHOPOULOS, King Abdullah University of Science and Technology (KAUST), Division of Physical Sciences and Engineering, Thuwal, Saudi Arabia

FJ-2:IL04 Charge Selective Contacts in Photovoltaic and Photoelectrochemical Devices

J.W. AGER, Joint Center for Artificial Photosynthesis and Materials Sciences Division, Lawrence Berkeley National Laboratory, and Dept. of Materials Science and Engineering, University of California, Berkeley, CA, USA

FJ-2:IL06 Investigating the Effects of Nanostructured Dielectric Lithium Fluoride and Plasmonic Gold Interlayers in Organic Photovoltaics

H. KURT, Istanbul Medipol University, Istanbul, Turkey; **CLEVA W. OW-YANG**, Sabanci University, Istanbul, Turkey

FJ-2:IL07 Alternative Transparent Conductors for Flexible CIGS Thin Film Solar Cells

Y.E. ROMANYUK, L. GREUTER, T. FEURER, R. CARRON, S. NISHIWAKI, S. BUECHELER, A.N. TIWARI, Empa - Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland

FJ-2:IL08 Flexible, Transparent and Conductive Ag Nanowire Networks

D. BELLET¹, T. SANNICOLÒ^{1,2}, S. AGHAZADEHCHORS^{1,3}, T. PAPANASTASIOU¹, H. VIET-NGUYEN^{1,4}, D. MUÑOZ-ROJAS¹, C. JIMÉNEZ¹, N.D. NGUYEN³, ¹Univ. Grenoble Alpes, LMGP, CNRS, Grenoble, France; ²Univ. Grenoble Alpes, CEA LITEN, Grenoble, France; ³Univ. of Liège, Département de Physique, Liège, Belgium; ⁴CEA-INES, LITEN, Le Bourget-du-Lac, France

FJ-2:IL09 Computational Approach to Synthesis of Functional Polymorphs

D. GINLEY¹, K. PERSSON², L. GARTEN¹, P. SELVARASU¹, J. PERKINS¹, WENHAO SUN², K. POPOV², S. DWARAKNATH², G. CEDER², J. MANGUM³, B. GORMAN³, L. SCHELHAS⁴, M. TONEY⁴, M. AYKOL², Z. CHAN⁵, D. NOCERA⁵, J. HAGGERTY⁶, O. AGIRSEVEN⁶, J. TATE⁶, D. KITCHAEV⁷, W. TUMAS¹, ¹National Renewable Energy Laboratory, Golden, CO, USA; ²Lawrence Berkeley National Laboratory, USA; ³Colorado School of Mines, USA; ⁴SLAC National Accelerator Laboratory, USA; ⁵Harvard University, USA; ⁶Oregon State University; ⁷Massachusetts Institute of Technology, USA

FJ-2:IL10 Graphene Films as Transparent Electrodes

D. NEUMAIER, AMO GmbH, Aachen, Germany

FJ-2:IL11 Response to Mechanical Bending Stress of AZO/Ag/AZO Thin Films

G. TORRISI^{1,2}, I. CRUPI³, S. MIRABELLA^{1,2}, A. TERRASI^{1,2}, ¹University of Catania, Italy; ²CNR-IMM, Catania, Italy; ³University of Palermo, Italy

FJ-2:IL12 Flash Lamp Annealing of Functional Films and Devices

S. SEEGER, M. WEISE, R. MIENTUS, K. ELLMER, Optotransmitter-Umweltschutz-Technologie e.V., Berlin, Germany

FJ-2:IL13 Physical Properties and Applications of Doped BaSnO3 Semiconductors with High Electrical Mobility and Optical Transparency

KEE HOON KIM, Center for Novel States of Complex Materials Research and Institute of Applied Physics, Department of Physics and Astronomy, Seoul National University, Seoul, South Korea

FJ-2:IL14 AZO/Ag/AZO as All-in-one Anti-reflecting and Transparent Electrode

G. TORRISI^{1,2}, R. RACITI², **A. TERRASI**^{1,2}, ¹University of Catania, Italy; ²CNR-IMM, Catania, Italy

FJ-2:IL15 Photonic Processing for Metal Oxide Thin Films

D.C. KOUTSOGEORGIS, Nottingham Trent University, Nottingham, UK

FJ-2:IL16 Interface Chemistry for Organic Electronics and Optoelectronics

S.R. MARDER, School of Chemistry and Biochemistry, School of Materials Science and Engineering, and Center for Organic Photonics and Electronics, Georgia Institute of Technology, Atlanta, GA, USA

FJ-2:L17 In-Ga-Zn-O Thin Films with Tunable Optical and Electrical Properties Prepared by Reactive High-power Impulse Magnetron Sputtering

J. REZEK, J. HOUSKA, M. PROCHAZKA, S. HAVIAR, Department of Physics and NTIS - European Centre of Excellence, University of West Bohemia, Plzen, Czech Republic

FJ-2:IL18 Growth and Properties of Ga2O3 Thin Films

R. FORNARI^{1,2}, A. BARALDI¹, V. MONTEODORO¹, A. PARISINI¹, M. PAVESI¹, M. BOSI², C. FERRARI², E. GOMBIA², D. KLIMM³, F. MEZZADRI⁴, G. CALESTANI⁴, I. CORA⁵, B. PÉCZ⁵, ¹Dept. of Mathematical, Physical and Computer Sciences, University of Parma, Parma, Italy; ²Institute of Electronic and Magnetic Materials (IMEM-CNR), Parma, Italy; ³Leibniz Institute for Crystal Growth (IKZ), Berlin, Germany; ⁴Dept. of Chemistry, Life Sciences and Environmental Sustainability, University of Parma, Parma, Italy; ⁵Centre for Energy Research, Hungarian Academy of Sciences, Institute for Technical Physics and Materials Science, Budapest, Hungary

FJ-2:IL19 Photosensitive TCO-based Hybrid Materials for Gas Sensor Applications

M.N. RUMYANTSEVA, A.F. NASRIDINOV, E.V. PAKHOVA, E.V. LUKOVSKAYA, O.A. FEDOROVA, A.M. GASKOV, Moscow State University, Moscow, Russia

FJ-2:L20 Use of Electrografted Aryl-layers to Control the Conductivity of ZnO Surfaces

A.R. MCNEILL, A.J. DOWNWARD, **M.W. ALLEN**, University of Canterbury, New Zealand

FJ-2:L21 Reactive Dip-coating of Rhombohedral Delafossite CuAlO2 Based on Mesoporous Alumina Nanofibers

A. SAFFAR SHAMSHIRGAR¹, M. AGHAYAN¹, T.S. TRIPATHI², M. KARPPINEN², M. GASIK³, I. HUSSAINOVA^{1,4}, ¹Department of Mechanical and Industrial Engineering, Tallinn University of Technology, Estonia; ²Department of Chemistry, Aalto University, Aalto, Finland; ³School of Chemistry, Material Science and Engineering, AALTO University, Aalto, Finland; ⁴TMO University, St. Petersburg, Russia

Session FJ-3**Applications****FJ-3:IL01 Phonon Engineering on In2O3- and ZnO-based Thin Films**

JUNJUN JIA, YUZO SHIGESATO, Graduate school of Science and Engineering, Aoyama Gakuin University, Sagamihara, Kanagawa, Japan

FJ-3:L02 Solution Synthesized Delafossite Nanoparticles for Hole Transport Layer in Organic and Perovskite Solar Cells

T.B. DAUNIS, JIAN WANG, BOYA ZHANG, D. BARRERA, **JULIA W. P. HSU**, University of Texas at Dallas, Richardson, TX, USA; **W. DUNLAP-SHOHL**, D. MITZI, Duke University, USA

FJ-3:L03 Study of Tungsten Oxide and Magnesium Doped Tin Oxide as Transparent Conductive Oxides for Solar PV Application

A. BIN AFIF, A. GOUGAM, Masdar Institute, Khalifa University of Science and Technology, Masdar city, Abu Dhabi, United Arab Emirates

FJ-3:IL04 Wide Band Gap ZnO Applications

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FJ-3:IL05 Transparent Materials for Perovskite (Opto-)electronics

T. RIEDL, University of Wuppertal, Wuppertal, Germany

FJ-3:IL06 Low Damage Sputtering of TCOs for LEDs

M. MAUTE, Osram Opto Semiconductors GmbH, Regensburg, Germany

FJ-3:IL07 Toward Realization of Ga2O3 Transistors for Power Electronics Applications

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SYMPOSIUM FK
MATERIALS CHALLENGES FOR
SUSTAINABLE NUCLEAR FISSION AND
FUSION TECHNOLOGIES

Session FK-1

**Structural Components for Nuclear Fission and
Fusion Applications**

**FK-1:IL01 Novel Materials and Advanced Design Concepts for DEMO
Divertor Targets**

JEONG-HA YOU, B. BÖSWIRTH, H. GREUNER, M. LI, A.V. MÜLLER, Max Planck Institute for Plasma Physics, Garching, Germany; E. VISCA, F. CRESCENZI, S. ROCCELLA, ENEA, Depart. Fusion & Technology for Nuclear Safety, Frascati, Italy; CH. VORPAHL, EUROfusion, PMU PPPT, Garching, Germany; T. BARRETT, CCFE, Culham Science Centre, Abingdon, UK; F. GALLAY, M. RICHOU, CEA, IRFM, Saint Paul Lez Durance, France; J. REISER, KIT, IAM, Eggenstein-Leopoldshafen, Germany

**FK-1:IL02 High-temperature Fracture Behaviour of High Chromium
Ferritic-martensitic and Nanostructured Ferritic Alloys**

THAK SANG BYUN, JUNG PYUNG CHOI, Pacific Northwest National Laboratory, Richland, WA, USA; D.T. HOELZER, Oak Ridge National Laboratory, Oak Ridge, TN, USA; S.A. MALOY, Los Alamos National Laboratory, Los Alamos, NM, USA

**FK-1:IL03 Challenges in the Development of Structural Materials for
Fluctuating Loading Conditions**

B. KUHN, T. FISCHER, J. LOPEZ BARRILAO, Forschungszentrum Jülich GmbH, Jülich, Germany

**FK-1:IL04 Tungsten Powder Injection Molding @ KIT: Achievements
and Trends**

S. ANTUSCH, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

**FK-1:IL05 The Theory of Precipitation Hardening Revisited: The Effect
of Crystal Structure on the Obstacle Strength**

YOSHITAKA MATSUKAWA, Tohoku University, Sendai, Japan

**FK-1:IL06 Improvement of Density and Strength of CVI-processed SiC/
SiC Composites by Applying SiC Nanowires**

DAEJONG KIM, HO WOOK LEE, SEUNGHOO LEE, HYEON-GEUN LEE, JI YEON PARK, WOEN-JU KIM, Korea Atomic Energy Research Institute, Daejeon, South Korea

**FK-1:IL07 Development of the Nanostructured Ferritic Alloy OFRAC
(Fe-12Cr-MoTiNb) for Fast Reactor Advanced Fuel Cladding**

D.T. HOELZER, C.P. MASSEY, K.A. TERRANI, Oak Ridge National Laboratory, Oak Ridge, TN, USA

**FK-1:IL08 Microstructural Evolution of Oxide Dispersion Strengthened
Alloys under Temperature and Stress**

JINSUNG JANG, TAE KYU KIM, WOO GON KIM, CHANG HEE HAN, Korea Atomic Energy Research Institute, South Korea; XIAODONG MAO, Institute of Nuclear Energy Safety Technology, CAS, China; MAN WANG, HEUNG NAM HAN, Seoul National University, South Korea

Session FK-2

**Low Activation Structural Materials for Nuclear Fusion
Systems**

**FK-2:IL01 Hydrogen Isotope Retention in Low-activation Structural
Materials**

A.V. SPITSYN, N.P. BOBYR, A.V. GOLUBEVA, NRC Kurchatov Institute, Moscow, Russia; V.M. CHERNOV, VNIINM, Moscow; Russia

**FK-2:IL02 Expanding the Operation Window of RAFM Steels by
Optimized Chemical Compositions and Heat Treatments**

J. HOFFMANN, M. RIETH, M. KLIMENKOV, S. BAUMGÄRTNER, Karlsruhe Institute of Technology, Karlsruhe, Germany

FK-2:IL03 Sputter-erosion of Low-activation Steel

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**FK-2:LO4 Treatment of Constructional Materials of Fuel Rod Cladding
and Fuel Assemblies in the Processing of Spent Nuclear Fuel of the
Reactor Facility Brest-300**

V. KASCHEEV, High-Tech Institute of Inorganic Materials, Moscow, Russia

Session FK-3

**Materials for First Wall Components of Nuclear Fusion
Systems**

**FK-3:IL01 Tungsten Materials for Plasma Facing Components - Status
and Research Directions**

CH HENAGER Jr., RJ KURTZ, BN NGUYEN, PNNL, Richland, WA, USA; GR ODETTE, UCSB, Santa Barbara, CA, USA

**FK-3:IL02 Advanced Tungsten Materials for Plasma-facing Components
of Future Fusion Devices**

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**FK-3:IL03 Tungsten Alloys for Reduced Oxidation under Accident
Conditions in Fusion**

C. GARCIA-ROSALES, A. CALVO, N. ORDÁS, I. ITURRIZA, Ceit-IK4 and Tecnun (University of Navarra), San Sebastian, Spain; K. SCHLÜTER, R. NEU, M. BALDEN, H. GREUNER, Max-Planck-Institut für Plasmaphysik, Garching, Germany; K. SCHLÜTER, R. NEU, Technische Universität München, Garching, Germany; F. KLEIN, G. PINTSUK, A. LITNOVSKY, T. WEGENER, Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung - Plasmaphysik, Jülich, Germany; E. TEJADO, J.Y. PASTOR, Polytechnic University of Madrid, Madrid, Spain

**FK-3:IL04 Conclusions drawn from Plasma Operation with Beryllium
and Tungsten Plasma-facing Components in JET and Linear Plasma
Devices**

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**FK-3:IL05 Overview of a Comprehensive First Mirror Test in the JET
Tokamak for ITER**

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**FK-3:IL06 New Materials and Composites for Fusion Reactor First
Wall Components**

Ch. LINSMEIER, J.W. COENEN, J. RIESCH*, M. BRAM, J. ENGELS, S. HEUER, A. HOUBEN, B. JASPER, F. KLEIN, A. LITNOVSKY, Y. MAO, G. PINTSUK, L. RAUMANN, M. RASINSKI, J. SCHMITZ, X. TAN, T. WEGENER, Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung - Plasmaphysik, Partner of the Trilateral Euregio Cluster, Jülich, Germany; *Max-Planck-Institut für Plasmaphysik, Garching, Germany

Session FK-4

Functional Materials

**FK-4:LO1 Uranium Intermetallic Compounds with Superb Hydrogen
Absorbability**

MICHIO YAMAWAKI, T. YAMAMOTO, Y. ARITA, T. ONITSUKA, B. TSUCHIYA, University of Fukui, Tsuruga, Fukui, Japan

Session FK-5

Nuclear Fuel Materials

**FK-5:IL01 Development of MA-Zr Hydride for Transmutation of Nuclear
Wastes by Fast Reactor**

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FK-5:L02 Study of Dissolution Mechanisms for Mixed Actinides Oxides
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FK-5:L03 Impact of PGM Particles during the Dissolution of Uranium Dioxide

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FK-5:L04 Response of Commercial MAX-phases to Neutron Irradiation to Intermediate Fluences

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FK-5:L05 Hydrothermal Precipitation of Morphology-controlled Actinide Dioxides

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FK-5:L06 High Temperature X-Ray Diffraction Studies of Surrogates for Americium Oxides

E.J. WATKINSON, R.M. AMBROSI, J. NAJORKA, Department of Physics and Astronomy, University of Leicester, Leicester, UK; Natural History Museum, London, UK

FK-5:L07 Conversion of Surrogate and Uranium Oxide by Solution Combustion Synthesis

J. MONNIER¹, X. DESCHANELS¹, C. REY¹, E. WELCOMME², ¹CEA Marcoule - Institut de Chimie Séparative de Marcoule (ICSM) - LNER, Bagnols sur Cèze, France; ²CEA Marcoule - ATALANTE - DMRC, France

FK-5:L08 Electron Irradiation Damage in Fluorite-type Oxides

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FK-5:L09 Dissolution of Uranium Thorium Mixed Oxides: The Role of Nitrous Acid

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FK-5:L10 Zirconium Carbide (ZrC) for High Temperature Nuclear Environments - Probing the Local Structure using NMR

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Session FK-6 Radiation Effects

FK-6:IL01 A Real Space Multiscale Model for the Deformation and Swelling of Components under High-energy Neutron Irradiation

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FK-6:IL02 Hydrogen Isotope Retention in Neutron-irradiated Tungsten Exposed to High Flux Plasma

MASASHI SHIMADA, Idaho National Laboratory, Idaho Falls, ID, USA

FK-6:IL03 Pancake-like Growth and Coalescence of Intergranular Helium Bubbles: In situ Observation and Analytical Modelling

HEFEI HUANG¹, JIE GAO^{1,2}, XIANG LIU³, YAN LI¹, ¹Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai, China; ²School of Physical Sciences, University of Chinese Academy of Sciences, Beijing, China; ³Department of Nuclear, Plasma, and Radiological Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

FK-6:IL04 Radiation Effects and Defect Production in SiC and SiC/SiC Composites

W.J. WEBER, S. AGARWAL, University of Tennessee, Knoxville, TN, USA; YANWEN ZHANG, Oak Ridge National Laboratory, Oak Ridge, TN, USA

FK-6:IL05 New Conceptual Advances in Diffusion-mediated Modelling of Dislocation-driven Evolution of Radiation Effects in Fission and Fusion Materials

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FK-6:IL06 In situ Ion Irradiation Induced Detwinning in Naotwinned Cu Films

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FK-6:L07 Radiolytic Damage and Hydrogen Generation at Carbide - Water Interfaces

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FK-6:L08 Behaviour of Spent Nuclear Fuel during Long-term Storage: Accelerated Radiation Damage with 238Pu-doped UO2

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FK-6:L09 Are Mesoporous Silica Radiation Tolerant?

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FK-5:IL10 Effect of Irradiation Defects on SiC Dissolution in Hot Water

SOSUKE KONDO, YUKI MAEDA, KAZUHIRO FUKAMI, SHINICHIRO MOURI, TATSUYA HINOKI, Kyoto University, Uji, Kyoto, Japan

FK-6:L11 Sink Strengths of Microstructure Elements for Radiation Defects in bcc (Fe, V) and fcc (Cu) Metals

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FK-6:L12 Helium Precipitation Study in UO2 by Transmission Electron Microscopy

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FK-6:L13 Degradation of Zr Microstructure under Operation as Part of Fuel Assemblies of VVER-type Reactors

B.A. GUROVICH, E.A. KULESHOVA, **A.S. FROLOV**, D.A. MALTSEV, D.A. ZHURKO, D.V. SAFONOV, E.V. KRIKUN, NRC KI, Moscow, Russia

FK-6:L14 Electronic Structure Calculations of Structural, Electronic, Thermodynamic and Defect Properties in Mixed Uranium-plutonium Oxides (U,Pu)O2

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Session FK-7 Materials Modelling and Database

FK-7:IL01 Modeling Microstructural Evolution in Tungsten Under Fusion Irradiation Conditions

J. MARIAN, University of California Los Angeles, CA, USA

FK-7:IL02 A Large Scale Database of Cascade Configurations: A New Paradigm in Multi-scale Modelling of Radiation Damage Effects in Nuclear Materials

A.E. SAND, University of Helsinki, Helsinki, Finland; S.L. DUDAREV, CCFE, Culham Science Centre, Abingdon, UK

FK-7:L03 EUROFER97 Ratcheting Behavior at 450 & 550°C and their Modelling

KUO ZHANG, JARIR AKTAA, Karlsruhe Institute of Technology (KIT), Institute for Applied Materials, Eggenstein-Leopoldshafen, Germany

FK-7:IL04 Modelling the Thermophysical and -mechanical Properties of Tungsten Fibre-reinforced Copper Metal Matrix Composites by means of Mean Field Homogenisation

A.VON MÜLLER, M. LI, R. NEU, J.H. YOU, Max-Planck-Institut für Plasmaphysik, Garching, Germany

FK-7:IL05 Phase Field Modeling of Irradiation-induced Void and He Bubble Formation in Metals

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FK-7:IL06 Structural Steels for DEMO and Fusion Power Plants

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Session FK-8

Crosscutting Materials Issues for Nuclear Fission and Fusion Systems

FK-8:IL01 Low Activation Structural Materials for Nuclear Fission and Fusion Reactors - the RF R&D

V.M. CHERNOV, M.V. LEONTIEVA-SMIRNOVA, A.A. BOCHVAR, High-technology Research Institute of Inorganic Materials, Moscow, Russia

FK-8:IL02 Challenges of Simulating Neutron-induced Radiation Damage Using Ion Beams

G.S. WAS, University of Michigan, Ann Arbor, MI, USA

Focused Session FK-10

MATERIALS ISSUES IN NUCLEAR WASTE TREATMENT AND DISPOSAL

Session FK-10.1

Waste Form Development

FK-10.1:IL01 Recent Advances in the Immobilization of Low- or Intermediate-level Radioactive Waste in Cementitious Materials

C. CAU DIT COUMES, J.B. CHAMPENOIS, A. POULESQUEN, D. LAMBERTIN, CEA, DEN, DE2D, SEAD, Bagnols-sur-Cèze, France

FK-10.1:IL02 Phosphate-based Glasses and Glass Ceramics for Immobilization of Lanthanides and Actinides

S.V. STEFANOVSKY, O.I. STEFANOVSKY, Frumkin Institute of Physical Chemistry and Electrochemistry RAS, Moscow, Russia; S.E. VINOKUROV, Vernadsky Institute of Geochemistry and Analytical Chemistry RAS, Russia

FK-10.1:IL03 Synthesis and Thermal Behavior of Thorium-incorporated Rhabdophane

DANWEN QIN, A. MESBAH, S. SZENKNECT, N. CLAVIER, N. DACHEUX, Institut de Chimie Séparative de Marcoule, Bagnols sur Cèze Cedex, France

FK-10.1:IL04 Immobilization of Fission Products in Glass and Glass Ceramic Matrices

S. SCHULLER, E. REGNIER, J. FOURNIER-RENAUD, H. PABLO, CEA, DEN, DE2D, SEVT, Bagnols-sur-Cèze, France

FK-10.1:IL05 Using Plasma Technology as New Proven Developments for Thermal Treatment of Problematic and Radioactive Waste

J. DECKERS, Belgoprocess, Dessel, Belgium

FK-10.1:IL06 Thorium Incorporation in the Xenotime Based Ceramic

A. MESBAH¹, N. CLAVIER¹, S. SZENKNECT¹, J. LOZANO-RODRIGUEZ², N. DACHEUX¹, ¹ICSM, UMR 5257 CNRS - CEA - ENSCM - Université de Montpellier, Site de Marcoule - Bat 426, Bagnols/Cèze, France; ²HZDR, Institute of Resource Ecology, the Rossendorf Beamline at ESRF, Grenoble, France

Session FK-10.2

Challenging Waste Constituents

FK-10.2:IL01 X-Ray Diffraction and Adsorption Spectra Reveal Zr and Ti Coordination Environment in Actinides Immobilization by Glass-Ceramics

CHANGZHONG LIAO, KAIMIN SHIH, Department of Civil Engineering, The University of Hong Kong, Hong Kong SAR, China

FK-10.2:IL02 Recovery of Actinides from Nuclear Waste Using Pyro-electrochemical Process

WEIQUN SHI, Laboratory of Nuclear Energy Chemistry, Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China

FK-10.2:IL03 Disposal of Radioactive Mercury Wastes from the Decommissioning of Nuclear Facilities

L. KLASS, P. RITZ, N. SHCHERBINA, A. WILDEN, G. MODOLO, D. BOSBACH, Forschungszentrum Jülich GmbH, Jülich, NRW, Germany; M. HIRSCH, J. KETTLER, A. HAVENITH, Aachen Institute for Nuclear Training GmbH, Stolberg, NRW, Germany

FK-10.2:IL04 Removal of Noble Metals from High Level Liquid Waste by Silica-based Anion Exchangers

YUEZHOU WEI, X. WANG, S. NING, Guangxi University, Nanning, China; Y. WU, Q. ZOU, Shanghai Jiao Tong University, Shanghai, China

FK-10.2:IL05 Study of the Hydrothermal Synthesis of ThSiO₄, USiO₄ and CeSiO₄ Aiming at Determining the Conditions of PuSiO₄ Formation
P. ESTEVENON¹, E. WELCOMME¹, S. SZENKNECT², A. MESBAH², P. MOISY³, C. POINSSOT³, N. DACHEUX², ¹CEA/DEN/DMRC/SFMA/LPCA, CEA Marcoule - Bat 399, Bagnols-sur-Cèze cedex, France; ²ICSM, UMR 5257 CEA/CNRS/UM/ENSCM, Site de Marcoule - Bat 426, Bagnols-sur-Cèze cedex, France; ³CEA/DEN/DMRC/DIR, CEA Marcoule - Bat 400, Bagnols-sur-Cèze cedex, France

Session FK-10.3

Waste Form Performance Testing, and Characterization

FK-10.3:IL01 Modern Irradiation Testing Techniques to Simulate the Irradiation Performance of Waste Forms

S. PEUGET¹, A.H. MIR¹, S. MIRO², Y. SERRUYS², I. MONNET³, C. JEGOU¹, ¹CEA, DEN, DE2D, SEVT, LMPA, Laboratoire d'Étude des Matériaux et Procédés Actif, Bagnols-sur-Cèze, France; ²CIMAP-GANIL (CEA-CNRS-ENSICAEN-Univ. Caen), Caen Cedex, France; ³CEA, DEN, Service de Recherches de Métallurgie Physique, Laboratoire JANNUS, Gif-sur-Yvette, France

FK-10.3:IL02 Impact of Near Field Evolution on the Stability of Vitrified Waste and Spent Nuclear Fuel

K. LEMMENS, C. CACHOIR, K. FERRAND, T. MENNECART, S. CAES, E. VALCKE, Belgian Nuclear Research Centre, Mol, Belgium

FK-10.3:IL03 Synchrotron-based Three-dimensional X-ray Imaging of Crystalline Ceramic Waste Form Materials

WILSON K.S. CHIU, Department of Mechanical Engineering, University of Connecticut, Storrs, CT, USA

Session FK-10.4

Waste Immobilization Facilities and Repository Design

FK-10.4:IL01 International Experience in Radioactive Waste Vitrification
M.I. OJOVAN, R.A. ROBBINS, International Atomic Energy Agency (IAEA), Vienna, Austria

FK-10.4:IL02 Toward the Design and Operation of a Full Scale Hot Isostatic Pressing Facility for Radioactive Waste Conditioning
P.G. HEATH, S. MORICCA, M.W.A. STEWART, S. CHUNG, GRI Inc, Lewes, DE, USA

FK-10.4:IL03 Towards a Safety Case for the French Repository
B. GRAMBOW, SUBATECH (IMT Atlantique, University of Nantes, CNRS), Nantes, France

SYMPOSIUM FL

BIOLOGICAL, BIOHYBRID AND BIOINSPIRED MATERIALS: FROM ELECTRONICS AND PHOTONICS TO MEDICINE

Session FL-1

Classes of Materials and their Synthesis and Chemical Modification

FL-1:IL01 Biopolymer based Electrodes for Wooden Batteries and Super Capacitors

O. INGANAS, Biomolecular and organic electronics, Dept. Physics, Chemistry and Biology, Linköpings Universitet, Linköping, Sweden

FL-1:IL02 Biosilica from Diatoms: Smart Materials from Biomedicine to Photonics

R. RAGNI, Dipartimento di Chimica, Università degli Studi di Bari "Aldo Moro", Bari, Italy

FL-1:IL03 Mussel and Plant Polyphenol Inspired Materials: From Molecular Phenomena to Applications

P.B. MESSERSMITH, University of California, Berkeley, CA, USA

FL-1:IL04 Molecular Bases of Cadherin-mediated Cell-cell Adhesion

E. PARISINI, Center for Nano Science and Technology @Polimi, Istituto Italiano di Tecnologia, Milano, Italy

FL-1:IL05 Synthesis and Characterization of Micro- and Nanostructured Surfaces for Controlling Selective Cell Response

C. AKTAS, AYMAN HAIDAR, MICHAEL VEITH, FRANZ FAUPEL, HASHIM ABDUL-KHALIQ, Kiel, Germany

FL-1:IL06 Photosynthetic Enzymes as Photoactive Soft Materials

F. MILANO, S. LA GATTA, A. AGOSTIANO, M. DELL'EDERA, R. RAGNI, G.M. FARINOLA, **M. TROTTA**, Istituto per i Processi Chimico Fisici - CNR - Bari; Dipartimento di Chimica, Università di Bari, Bari, Italy

FL-1:IL07 Investigation of Leaf Shape and Edge Design for Faster Evaporation in Biomimetic Heat Dissipation Systems

P. GRUBER, A. RUPP, University of Akron, Biomimicry Research and Innovation Center BRIC, Akron, OH, USA

FL-1:IL08 Polymer Brushes Grafted into Supported Porous Oxide Films Generating 3-D Non-fouling Surfaces

M. ES-SOUNI, Institute for Materials & Surface Technology, Kiel University of Applied Sciences, Kiel, Germany

FL-1:IL09 Biophotonic Sensors Based on the Comb Structure in the Ctenophora Species

P. MACHA, J. MOLINSKI, Y. HAMEDANI, M.C. VASUDEV, University of Massachusetts Dartmouth, MA, USA

FL-1:IL10 From Melanins to OLED Devices: Designing Electroluminescent Materials Inspired to Human Pigments

P. MANINI, C.T. PRONTERA, V. CRISCUOLO, A. PEZZELLA, O. CRESCENZI, M. PAVONE, M. D'ISCHIA, Department of Chemical Science, University of Naples Federico II, Napoli, Italy; M.G. MAGLIONE, P. TASSINI, C. MINARINI, Lab. Nanomaterials and Devices, ENEA C.R. Portici, Portici, Italy

FL-1:IL11 Bioinspired Self-organization of Functional Materials

L. HELMBRECHT, H.C. HENDRIKSE, A. VAN DER WEIJDEN, **W.L. NOORDUIN**, AMOLF, Amsterdam, The Netherlands

Session FL-2

Electronic Devices with Biological and Bio-inspired Materials

FL-2:IL01 Self-organized and Self-assembled Organic Bioelectronics for Applications in Medicine and Plant Biology

M. BERGGREN, Laboratory of Organic Electronics, Linköping University, Norrköping, Sweden

FL-2:IL02 Electronic Interface with Plants

E. STAVRINIDOU, Linköping University, Norrköping, Sweden

Session FL-3

Photonic Devices with Biological and Bio-inspired Materials

FL-3:IL01 Photonic Crystals Composed of 99% Water and 1% Inorganic Nanosheet

YASUHIRO ISHIDA, RIKEN Center for Emergent Matter Science, Japan

FL-3:IL02 Biologically Inspired Soft and Fluid Optical Materials

M. KOLLE, S. NAGELBERG, J. SANDT, Massachusetts Institute of Technology, Cambridge, MA, USA

FL-3:IL03 Light Emission from Speleothems and Biospeleothems

R.J. MARTIN-PALMA¹, H. CABRERA^{2,3}, C. BREWER-CARIÁS⁴, ¹Departamento de Física Aplicada, Universidad Autónoma de Madrid, Madrid, Spain; ²Centro Multidisciplinario de Ciencias, Instituto Venezolano de Investigaciones Científicas, Mérida, Venezuela; ³SPIE-ICTP Anchor Research in Optics Program Laboratory, International Centre for Theoretical Physics, Trieste, Italy; ⁴Sociedad Venezolana de Ciencias Naturales, Caracas, Venezuela

FL-3:IL04 Fluorescent Proteins and Carbon Nanotubes: Unconventional Materials for Strong Light-matter Interaction and Solid-state Lasers

C. DIETRICH^{1,2}, A. GRAF^{1,3}, L. TROPF¹, M. KARL¹, A. KÄMPF¹, M. SCHUBERT¹, N.M. KRONENBERG¹, Y. ZAKHARKO³, S. HÖFLING^{1,2}, J. ZAUMSEIL³, **M.C. GATHER**¹, ¹School of Physics and Astronomy, University of St Andrews, St Andrews, UK; ²Technische Physik, Universität Würzburg, Würzburg, Germany; ³Institute for Physical Chemistry, Universität Heidelberg, Heidelberg, Germany

FL-3:IL05 Morpho-colored Materials having High Reflectance in Wide Angle without Color-change: Large-area Duplication using Flexible Mold

AKIRA SAITO, KOSEI ISHIBASHI, JUNPEI OHGA, MIDORI FUKIHARA, YUJI KUWAHARA, Osaka Univ. and Riken Harima Institute (SPRING-8), Suita-Si, Osaka, Japan

FL-3:IL06 Peptide Integrated Optics: From Optical Waveguides To Implantable BioChips

G. ROSENMAN, N. LAPSHINA, School of Electrical Engineering, Faculty of Engineering, Tel Aviv University, Israel; B. APTER, A. HANDEMAN, Faculty of Engineering, Holon Institute of Technology, Holon, Israel

FL-3:IL07 Circular Polarization Reflections from Beetles - What do they tell us?

K. WEIR, Blackett Laboratory, Department of Physics, Imperial College London, London, UK

FL-3:IL08 Lasers and Optical Cavities Made out of Biological Materials

M. HUMAR, J. Stefan Institute, Ljubljana, Slovenia; and Faculty of Mathematics and Physics, University of Ljubljana, Ljubljana, Slovenia

FL-3:IL09 Up-scaling of Bio-inspired Polymer Films for Optical Applications

F. VÜLLERS, S. SCHAUER, J. SYURIK, M. KAVALENKA, **H. HÖLSCHER**, Karlsruhe Institute of Technology, Karlsruhe, Germany

FL-3:IL10 Structural Colours in Plants: Mechanisms and Functions

S. VIGNOLINI, Department of Chemistry, University of Cambridge, Cambridge, UK

FL-3:IL11 Bioabsorbable Polymer Optical Waveguides for Deep-tissue Photomedicine

S. NIZAMOGLU, Koc University, Istanbul, Turkey

Session FL-4

Bio-medical Devices with Biological and Bio-inspired Materials

FL-4:IL01 Optoelectronic Cellular Interfaces with Nanocrystalline Organic Semiconductors

E.D. GLOWACKI, Laboratory of Organic Electronics, Physics and Electronics Division, Linköping University, Norrköping, Sweden

FL-4:IL02 Phostimulation of Semiconducting Nanoparticles to Control Physiological Functions In Vivo

M. MOROS¹, M.R. ANTOGNAZZA², C. BOSSIO², G. ONORATO¹, A. BAUDUIN³, V. MARCHESANO¹, M. ZANGOLI³, A. TINO¹, G. LANZANI², **C. TORTIGLIONE**¹, ¹Istituto di Scienze Applicate e Sistemi Intelligenti "E. Caianiello", CNR, Pozzuoli, Italy; ²Center for Nano Science and Technology@PoliMi, Istituto Italiano di Tecnologia, Italy; ³Istituto per la Sintesi Organica e la Fotoreattività, CNR, Italy

FL-4:IL03 Bioengineering Fluorescent Conductive Microfibrils in Vivo

M. MOROS^{1,2}, F. DI MARIA³, P. DARDANO⁴, M. ZANGOLI³, G. ONORATO², A. BAUDUIN², A. TINO², L. DESTEFANO⁴, G. BARBARELLA³, C. TORTIGLIONE², ¹Aragon Materials Science Institute, CSIC, Zaragoza, Spain; ²Istituto di Scienze Applicate e Sistemi Intelligenti "E. Caianiello", CNR, Napoli, Italy; ³Istituto per la Sintesi Organica e la Fotoreattività, CNR, Bologna, Italy; ⁴Istituto di Microelettronica e Microsistemi, CNR, Napoli, Italy

FL-4:IL04 Hematite Particles Covered by Porous Alumina for Magnetic Induced Hyperthermia and Cancer Drug Release

N.N. ZURITA MENDEZ, M.A. ESPINOSA-MEDINA, G. CARBAJAL-DE LA TORRE, Programa de Doctorado en Ciencias en Ingeniería Mecánica, FIM-UMSNH, Morelia, Michoacán, México; Laboratorio de Materiales, Facultad de Ingeniería Mecánica, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México

FL-4:IL05 Bio-inspired Electronic and Photonic Devices in Biomedical Sensing

L.A. FRANCIS, Université catholique de Louvain, ICTEAM Institute, Electrical Engineering Department, Louvain-la-Neuve, Belgium

FL-4:IL06 Tailoring Conducting Polymer Scaffolds for Bioelectronics

S. INAL, Biological and Environmental Science and Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

FL-4:IL07 Biomimetic Microfluidics based on Stimuli-responsive Soft Polymers

D. DIAMOND, A. DUNNE, D. BRUEN, C. DELANEY, P. MCCLUSKEY, M. MCCAUL, L. FLOREA, INSIGHT Centre for Data Analytics, National Centre for Sensor Research, Dublin City University, Dublin, Ireland

FL-4:IL08 Heat Effect of Nanoparticles for Biotechnological Applications

J.M. DE LA FUENTE, Institute of Materials Science of Aragón, Zaragoza, Spain

FM - 3rd International Conference
EMERGING MATERIALS,
TECHNOLOGIES AND APPLICATIONS
FOR NON-VOLATILE MEMORY DEVICES

Session FM-1

Magnetic, Ferroelectric and Multiferroic Materials for Memory Devices

FM-1:IL01 NVM Technologies Based on Ferroelectric Hafnium Oxide
T. MIKOLAJICK^{1,2}, T. SCHENK¹, T. MITTMANN¹, M. HOFFMANN¹, B. MAX², C. RICHTER¹, M. PESIC¹, F. FENGLER¹, H. MULAOSMANOVIC¹, M.-H. PARK¹, S. SLESAZECK¹, U. SCHROEDER¹, J. MÜLLER³, P. POLAKOWSKI³, S. MÜLLER⁴, R. MATERLIK⁵, A. KERSCH⁵, ¹NaMLab gGmbH, Dresden, Germany; ²Chair of Nanoelectronic Materials, TU Dresden, Dresden, Germany; ³Fraunhofer IPMS-CNT, Dresden; ⁴FMC GmbH, Dresden, Germany; ⁵Munich University of Applied Sciences, Munich, Germany

FM-1:L02 Magnetolectric Coupling at Ferromagnet/Ferroelectric-HfO₂ Interface
A. ZENKEVICH¹, Y. MATVEYEV¹, V. MIKHEEV¹, R. MANTOVAN², A.I. CHUMAKOV³, ¹Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russia; ²CNR-IMM Laboratorio MDM, Agrate Brianza (MB), Italy; ³ESRF-The European Synchrotron CS40220, Grenoble Cedex, France

FM-1:L03 Effect of Polarization Reversal on the Potential Distribution Across Ferroelectric HfO₂ based Capacitors Revealed in Operando by Hard x-ray Photoemission Spectroscopy
Y. MATVEYEV, D. NEGROV, V. MIKHEEV, A. CHERNIKOVA, A. ZENKEVICH, Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russia; A. GLOSKOVSKII, Deutsches Elektronen-Synchrotron, Hamburg, Germany

FM-1:L04 Ferroelectric Tunnelling Junctions for Memcomputing
M. ASA, C. RINALDI, S. VAROTTO, M. CANTONI, **R. BERTACCO**, Department of Physics, Politecnico di Milano, Milano, Italy

FM-1:IL05 Ultrafast MRAM Strategies for Cache Applications and Beyond
I.L. PREJBEANU¹, A. TIMOPHEEV¹, M. MIRON¹, G. GAUDIN¹, B. LACOSTE¹, T. DEVOLDER², M. MARINS DE CASTRO¹, R.C. SOUSA¹, L.D. BUDA-PREJBEANU¹, S. AUFFRET¹, U. EBELS¹, B. RODMACQ¹, B. DIENY¹, ¹Univ. Grenoble Alpes, CEA, CNRS, INAC-Spintec, Grenoble, France; ²Univ. Paris-Sud, Orsay, France

FM-1:IL06 Sub-ns Current-induced Magnetization Switching Driven by Spin-orbit Torques
P. GAMBARELLA, Department of Materials, ETH Zürich, Switzerland

FM-1:IL07 Electric-field Controlled Nucleation of Magnetic Skyrmions at Room Temperature
T. SRIVASTAVA, M. SCHOTT, A. HALLAL, M. CHSHIEV, S. AUFFRET, C. BARADUC, **H. BEA**, Univ. Grenoble Alpes, CEA, CNRS, Grenoble INPi, INAC, SPIINTEC, Grenoble, France; M. SCHOTT, A. BERNAND-MANTEL, L. RANNO, V. KRIZAKOVA, S. PIZZINI, D. GIVORD, Institut NEEL/CNRS/UGA-Grenoble/ Grenoble-INP, France

FM-1:L08 Role of Curie Temperature on Thermal Stability Limits of Perpendicular STT-MRAM
L. TILLIE^{1,2}, R.C. SOUSA², J. CHATTERJEE², S. AUFFRET², N. LAMARD², J. GUELFUCCI², E. NOWAK¹, B. DIENY², I-L. PREJBEANU², ¹CEA-LETI, Minatex Campus, Grenoble, France; ²SPIINTEC, Univ. Grenoble Alpes/CEA/CNRS, Grenoble, France

FM-1:IL09 Field-free spin Hall Switching of Perpendicular Magnetization through Voltage Modulation
SHOUZHONG PENG^{1,2}, WANG KANG¹, SAI LI¹, XIANG LI², JIAQI ZHOU¹, NA LEI¹, YOUGUANG ZHANG¹, HONGXIN YANG³, PEDRAM KHALILI AMIRI², KANG L. WANG², **WEISHENG ZHAO**¹, ¹Fert Beijing Institute, BDBC, School of Electronic and Information Engineering, Beihang University, Beijing, China; ²Department of Electrical Engineering, University of California, Los Angeles, CA, USA; ³Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China

FM-1:IL10 Negative Capacitance: Theory, Practice and Limitations
Y.J. KIM, M.H. PARK, **CHEOL SEONG HWANG**, Department of Material Science & Engineering and Inter-University Semiconductor Research Center, Seoul National University, Seoul, South Korea

FM-1:IL11 Magnetic Polarons in Strongly Correlated Materials for Spintronic Applications

V.G. STORCHAK, National Research Center "Kurchatov Institute", Moscow, Russia

FM-1:L12 Self-assembled Network of Nanostructures in BiFeO₃ Thin Films

B. COLSON, V. FUENTES, C.FRONTERA, F. SANDIUMENGE, LL. BALCELLS, B. MARTINEZ, A. POMAR, ICMAB-CSIC, Campus UAB, Bellaterra, Spain; D. COLSON, M. VIRET, A. FORGET, SPEC/IRASMIS/ DSM, CEA-Saclay, Gif-sur Yvette, France; J. SANTISO, ICN2, CSIC, BIST, Campus UAB, Bellaterra, Spain; **Z. KONSTANTINOVIC**, N. LAZAREVIC, M. SCEPANOVIC, Z.V. POPOVIC, CSSPNM, Institute of Physics Belgrade, University of Belgrade, Serbia

Session FM-2

Resistance Switching (RRAM) and Phase Change (PCM) Memories

FM-2:IL01 Simplified Resistive Memory for CMOS Integration

M.N. KOZICKI, School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ, USA

FM-2:L02 Impact of the Transistor Current Control on the Multiple Resistive Switching Properties in 1T1R RRAM Devices

E. PEREZ, M.K. MAHADEVAIAH, Ch. WENGER, IHP, Frankfurt (Oder), Germany; C. ZAMBELLI, P. OLIVO, Università degli Studi di Ferrara, Ferrara, Italy

FM-2:L03 Atomic Layer Deposition of Oxygen Deficient TaOx Dielectrics for Resistive Switching Memory Applications

A.M. MARKEEV¹, K.V. EGOROV¹, D.S. KUZMICHEV¹, D.I. MYKOTA¹, V.A. GRITSENKO², T.V. PEREVALOV², C.S. HWANG^{1,3}, ¹Moscow Institute of Physics and Technology, Dolgoprudny, Moscow region, Russia; ²Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia; ³Department of Materials Science and Engineering and Inter-University Semiconductor Research Center, Seoul National University, Seoul, South Korea

FM-2:L04 Tuning the Switching Properties of ZnO Thin Film Memristors by Al Doping via ALD

C. GIOVINAZZO, C. RICCIARDI, S. PORRO, Politecnico di Torino, Department of Applied Science and Technology, Torino, Italy

FM-2:IL05 Resistive Memory Technology and Applications

H.J. BARNABY, School of Electrical, Computer and Energy Engineering Arizona State University, Tempe, AZ, USA

FM-2:L06 Dynamics of the Electroforming Process of Valence Change Memory Cells

S. MENZEL¹, A. MARCHEWKA², T. HEISIG¹, C. BÄUMER¹, R. DITTMANN¹, R. WASER^{1,2}, ¹Forschungszentrum Jülich, Peter Grünberg Institut (PGI-7), Jülich, Germany; ²RWTH Aachen, Institut für Werkstoffe der Elektrotechnik (IWE 2), Aachen, Germany

FM-2:L07 Effect of Heavy Ion Radiation on Resistive Switching in HfOx based RRAM Devices Grown by MBE

S. PETZOLD¹, S.U. SHARATH¹, J. LEMKE¹, E. HILDEBRANDT¹, C. TRAUTMANN², L. ALFF¹, ¹Institute of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany; ²Materials Research Department, Gesellschaft für Schwerionenforschung (GSI), Darmstadt, Germany

FM-2:L08 Nonvolatile Impedance Switching in Electroforming-free BFO Memristors

M. KIANI^{1,4}, NAN DU^{1,4}, N. MANJUNATH¹, D. BÜRGER^{1,4}, I. SKORUPA^{1,3}, S.E. SCHULZ^{2,6}, O.G. SCHMIDT^{1,2}, H. SCHMIDT^{1,4,5}, ¹Materials systems for Nanoelectronics, Chemnitz University of Technology, Chemnitz, Germany; ²Institute for Integrative Nanosciences, IFW Dresden, Dresden, Germany; ³Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Dresden, Germany; ⁴Fraunhofer-Institut für Elektronische Nanosysteme, Abteilung Back-End of Line, Chemnitz, Germany; ⁵Leibniz-Institut für Photonische Technologien e.V., Jena, Germany; ⁶Chemnitz University of Technology, Center for Microtechnologies, Chemnitz, Germany

FM-2:L09 Resistive Switching Modes and Dynamics in Defect Engineered Polycrystalline HfOx based RRAM Devices

S.U. SHARATH¹, S. PETZOLD¹, E. HILDEBRANDT¹, J. KURIAN¹, P. KOMISSINSKIY¹, C. WENGER², T. SCHROEDER^{2,3}, L. ALFF¹, ¹Institute of Materials Science, TU Darmstadt, Darmstadt, Germany; ²IHP, Frankfurt (Oder), Germany; ³Brandenburgische Technische Universität, Cottbus, Germany

FM-2:IL10 Mechanisms and Nanoscale Processes in Resistive Switching Memories

I. VALOV, Research Centre Juelich, Electronic Materials (PGI-7), Juelich, Germany

FM-2:L11 MIS Structures with Interfacial Graphene for RRAM Applications: A Nanoscale and Device Level Characterization
S. CLARAMUNT, QIAN WU, M. PORTI, M. NAFRIA, X. AYMERICH, Electronic Engineering Dept., Universitat Autònoma de Barcelona, Bellaterra, Spain

FM-2:L12 An Electrochemical Metallization Memory Cell Based on a Single ZnO Nanowire
G. MILANO^{1,2}, S. PORRO¹, C. RICCIARDI¹, ¹Politecnico di Torino, Department of Applied Science and Technology, Torino, Italy, ²Istituto Italiano di Tecnologia, Center for Sustainable Future Technologies, Torino, Italy

FM-2:L13 Non-volatile Resistive Switching in Yttrium Manganite Thin Films
V.R. RAYAPATI¹, NAN DU¹, D. BÜRGER¹, R. PATRA¹, I. SKORUPA², H. STÖCKER³, R. ECKE¹, S.E. SCHULZ^{1,4}, H. SCHMIDT^{1,5}, ¹Fraunhofer-Institut für Elektronische Nanosysteme, Dept. Back-End of Line, Chemnitz, Germany; ²Institut für Ionenstrahlphysik und Materialforschung, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; ³Institut für Experimentelle Physik, TU Bergakademie Freiberg, Freiberg, Germany; ⁴Germany Zentrum für Mikrotechnologien (ZfM), Technische Universität Chemnitz, Chemnitz, Germany; ⁵Leibniz-Institut für Photonische Technologien e.V., (IPHT), Jena, Germany

FM-2:L14 Multi-level Resistive Switching in Core-Shell ZnO Nanowires Exhibiting Tunable Surface States
S. PORRO, F. RISPLENDI, G. MILANO, G. CICERO, C. RICCIARDI, Politecnico di Torino, Department of Applied Science and Technology, Torino, Italy

FM-2:IL15 Exploiting Nanoscale Effects in Phase Change Memories
M. SALINGA, RWTH Aachen University, Aachen, Germany

FM-2:IL16 Ovonic Threshold Switching Selector: From Material Engineering to Device Performance Improvement
G. NAVARRO, A. VERDY, V. SOUSA, M. BERNARD, G. BOURGEOIS, F. FILLOT, N. CASTELLANI, C. SABBIONE, P. NOE, J. GARRIONE, L. FELLOUH, G. MOLAS, M.C. CYRILLE, E. NOWAK, CEA-LETI, Grenoble, France

FM-2:IL17 Atomistic Simulations of Crystallization and Aging of GeTe Nanowires
S. GABARDI, E. BALDI, E. BOSONI, D. CAMPI, S. CARAVATI, **M. BERNASCONI**, Dipartimento di Scienza dei Materiali, Università di Milano-Bicocca, Milano, Italy; G.C. SOSSO, Department of Physics and Astronomy, University College London, UK; J. BEHLER, Institut fuer Physikalische Chemie, Theoretische Chemie, Universitaet Goettingen, Germany

FM-2:L18 Self-healing of a Confined Phase Change Memory Device with a Metallic Surfactant Layer
YUJUN XIE¹, WANKI KIM², YERIN KIM³, M. BRIGHTSKY³, CHUNG LAM², YU ZHU², JUDY J CHA¹, ¹Department of Mechanical Engineering and Materials Science, Yale University, New Haven, Connecticut, USA; ²IBM T.J. Watson Research Center, Yorktown Heights, New York, USA

FM-2:IL19 Van der Waals Gap Reconfiguration and Switching Mechanism in Ge-Sb-Te Superlattices
A.V. KOLOBOV, P. FONS, Y. SAITO, J. TOMINAGA, Nanoelectronics Research Institute, National Institute of Advanced Industrial Science & Technology, Tsukuba Central 5, Tsukuba, Ibaraki, Japan

FM-2:L20 Unipolar Resistive Switching in Pt/MgO/TaOx/Ta/Ru Thin Films
C. DIAS, L.M. GUERRA, B.D. BORDALO, J. VENTURA, IFIMUP-IN and Department of Physics and Astronomy, Faculty of Sciences, Porto, Portugal; HUA LV, S. CARDOSO, P.P. FREITAS, INESC-MN and IN - Institute of Nanoscience and Nanotechnology, Lisboa, Portugal; A.M. FERRARIA, A.M. BOTELHO DO REGO, Centro de Química-Física Molecular and IN, IST, Universidade de Lisboa, Lisboa, Portugal

FM-2:L21 Epitaxial Stabilization of Single Crystalline Semiconducting and Metallic NbO₂
J.E. BOSCHKER, S. BIN ANOOZ, T. MARKURT, M. ALBRECHT, J. SCHWARZKOPF, Leibniz Institute for Crystal Growth, Berlin, Germany; S. BIN ANOOZ, Physics Department, Faculty of Science, Hadramout University, Mukalla, Yemen; P. PETRIK, B. KALAS, Institute of Technical Physics and Materials Science, Budapest, Hungary; M. RAMSTEINER, Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany

FM-2:L22 Magnetism as a Probe of the Origin of Memristive Switching in Oxide Semiconductors
X.L. WANG, **A. RUOTOLO**, Dept. of Materials Science and Engineering, City University of Hong Kong, Kowloon, Hong Kong SAR, China

FM-2:IL23 Random Telegraph Noise in Resistive Switching Memory Devices
F.M. PUGLISI, University of Modena and Reggio Emilia, Modena, Italy

FM-2:L24 Characterization of Low Frequency Noise in Oxygen Engineered Hafnium Oxide-based RRAM Devices
E. PIROS¹, M. LONSKY², S. PETZOLD¹, S.U. SHARATH¹, E. HILDEBRANDT¹, B. KRAH¹, J. MÜLLER², L. ALFF¹, ¹Technische Universität Darmstadt, Darmstadt, Germany; ²Goethe-Universität Frankfurt, Germany

FM-2:IL25 Anionic and Protonic Carriers for Oxide-based Neuromorphic Computing
J.L.M. RUPP, Electrochemical Materials, Massachusetts Institute of Technology, MIT, USA

Session FM-3

Emerging Applications for Non-volatile Memories

FM-3:IL01 Learning in Spiking Neural Networks using Phase Change Memory Synapses
B. RAJENDRAN, Department of Electrical and Computer Engineering, New Jersey Institute of Technology, Newark, NJ, USA

FM-3:IL02 Photonic Phase-change Computational Devices
ZENGGUANG CHENG¹, N. YOUNGBLOOD¹, C. RIOS¹, D. WRIGHT², W. PERNICE³, **H. BHASKARAN**¹, ¹Department of Materials, University of Oxford, Oxford, UK; ²Department of Engineering, University of Exeter, UK; ³University of Muenster, Germany

FM-3:IL03 RRAM Based New Computing Paradigms
JINFENG KANG, P. HUANG, R.Z. HAN, C. LIU, Y.N. JIANG, Z. ZHOU, Y.C. XIANG, L.F. LIU, X.Y. LIU, Peking University, Beijing, China

FM-3:IL04 Diffusive Memristor as a Building Block for a Novel True Random Number Generator
QIANGFEI XIA, HAO JIANG, University of Massachusetts Amherst, MA, USA

FM-3:IL05 Design and CMOS Co-integration of ReRAM Devices and Crossbar Arrays for Neuromorphic Applications
Y. LEBLEBICI, EPFL, Switzerland

FM-3:L06 Specific Switching Algorithms for Emerging Applications of RRAM based Memories
E. PEREZ, M.K. MAHADEVAIAH, **Ch. WENGER**, IHP, Frankfurt (Oder), Germany; C. ZAMBELLI, P. OLIVO, Università degli Studi di Ferrara, Ferrara, Italy; F.M. PUGLISI, P. PAVAN, Università di Modena e Reggio Emilia, Modena, Italy; M. ZIEGLER, H. KOHLSTEDT, Kiel University, Kiel, Germany

FM-3:L07 Evolution of a-IGZO Thin-film Transistor Memory: From Incapability of Electrical Erase to Achievement of Multi-level Cell
SHI-JIN DING, School of Microelectronics, Fudan University, Shanghai, China

FM-3:IL08 Spintronics Memories for Bio-inspired Computing
D. QUERLIOZ, A.F. VINCENT, A. MIZRAHI, D. VODENICAREVIC, T. HIRTZLIN, J.S. FRIEDMAN, N. LOCATELLI, J. GROLLIER, University Paris-Sud, Orsay, France

FM-3:IL09 Spintronic Analog Memory for Neuromorphic Computing
SHUNSUKE FUKAMI^{1,2,3,4}, W.A. BORDERS¹, A. KURENKOV¹, C. ZHANG^{1,2}, S. DUTTAGUPTA^{1,3}, H. OHNO^{1,2,3,4,5}, ¹Laboratory for Nanoelectronics and Spintronics, RIEC, Tohoku University, Japan; ²Center for Spintronics Integrated Systems, Tohoku University, Japan; ³Center for Innovative Integrated Electronic Systems, Tohoku University, Japan; ⁴Center for Spintronics Research Network, Tohoku University, Japan; ⁵WPI-Advanced Institute for Materials Research, Tohoku University, Japan

FM-3:L10 Understanding Organic Spintronic Devices and their Applications to Neuromorphic Computing
A. RIMINUCCI¹, ZHI-GANG YU², M. CALBUCCI¹, R. CECCHINI¹, P. GRAZIOSI¹, M. PREZIOSO³, I. BERGENTI¹, A. DEDIU¹, ¹Institute for the Study of Nanostructured Materials, CNR, Bologna, Italy; ²ISP/Applied Sciences Laboratory, Washington State University, Spokane, WA, USA; ³Department of Electrical and Computer Engineering, University of California at Santa Barbara, Santa Barbara, CA, USA

FM-3:L11 Prospects for Adoption of the FeFET Technology beyond Pure Memory Application
S. SLESAZECK, H. MULAOSMANOVIC, E.T. BREYER, NaMLab gGmbH, Dresden, Germany; T. MIKOLAJICK, NaMLab gGmbH and Chair of Nanoelectronic Materials, Technical University Dresden, Dresden, Germany

FM-3:L12 Emerging Applications for Electroforming-free Perovskite Memristors
H. SCHMIDT^{1,2,3,5}, NAN DU^{1,4}, D. BÜRGER^{1,4}, I. SKORUPA³, R. ECKE⁴, S.E. SCHULZ⁴, ¹Materials systems for Nanoelectronics, Chemnitz University of Technology, Chemnitz, Germany; ²Faculty of Physics, Friedrich-Schiller University of Jena, Jena, Germany; ³Leibniz-Institut für Photonische Technologien e.V. (IPHT), Jena, Germany; ⁴Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Dresden, Germany; ⁵Fraunhofer-Institut für Elektronische Nanosysteme, Abteilung Back-End of Line, Chemnitz, Germany

FM-3:L13 Ferroelectric Capacitors as Circuit Components
J.T. EVANS Jr., Radiant Technologies, Inc., Albuquerque, NM, USA

FM-3:IL14 Memory Systems in Biology Modeled by Analog Electronics
R. DANIEL, Biomedical Engineering Department, Israel Institute of Technology (Technion), Israel

FM-3:IL15 Interfacing Organic Memristors with Neurons in a Bio-hybrid Network
S. IANNOTTA, S. BATTISTONI, V. EROKHIN, CNR-IMEM, Parma, Italy

FM-3:L16 A RRAM-based Self-organizing Neural Network
M. PEDRO, J. MARTIN-MARTINEZ, R. RODRIGUEZ, M. NAFRIA, Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona (UAB), Cerdanyola del Valles, Barcelona, Spain

FM-3:IL17 Computational Memory: The First Step Towards Non-von Neumann Computing?
A. SEBASTIAN, IBM Research - Zurich, Rueschlikon, Switzerland

FM-3:IL18 Resistive Memories for Low Power Embedded Computing
E. VIANELLO, A. GROSSI, T. WERNER, E. NOWAK, CEA Leti, Grenoble, France

FM-3:IL19 Dynamics of HfO₂-based Resistive Memory for Neuromorphic Computation
S. BRIVIO, J. FRASCAROLI, E. COVI, S. SPIGA, Laboratorio MDM, IMM-CNR, Agrate Brianza, Italy

FN-1:IL09 Towards the Intrinsic Mobility Limit of CVD Grown Graphene
C. STAMPFER, JARA-FIT and 2nd Institute of Physics, RWTH Aachen University, Germany

FN-1:IL10 Controlled Growth of Boron Delta-doped Structures for High Performance Diamond Electronic Devices
J.E. BUTLER, Euclid Techlabs LLC, Solon, OH, USA

FN-1:IL11 Single-walled Carbon Nanotubes: From Synthesis to Applications
A.G. NASIBULIN, Skolkovo Institute of Science and Technology, Moscow, Russia

FN-1:IL12 Epitaxial Graphene on SiC - Status and Prospects
R. YAKIMOVA, I. SHTEPLIUK, M. VAGIN, I.G. IVANOV, T. IAKIMOV, G.R. YAZDI, J. ERIKSSON, Linköping University, IFM, Linköping, Sweden

FN-1:L13 Integrated Synthesis of Nitrogen and Sulfur Co-doped Carbon Spheres from Melamine and Biaminobenzenesulfonic Acid as Superior Catalyst for Selective Oxidation of Aromatic Alkanes
RONGWEN LYU, M.H. LIU, Dalian University of Technology, Dalian, Liaoning, China

FN-1:L14 Ultrathin Graphitic Films
R.B. DOS SANTOS^{1,2}, F. DE BRITO MOTA¹, R. RIVELINO¹, A. KAKANAKOVA-GEORGIEVA², **G.K. GUEORGUIEV²**, ¹Instituto de Física, Universidade Federal da Bahia, Salvador, Bahia, Brazil; ²Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden

FN-1:L15 New Approaches for Preparation of Graphene-based Structures with the Intended Chemical Composition from Graphene Oxide
M.K. RABCHINSKII, A.T. DIDEIKIN, M.V. BAIDAKOVA, V.V. SHNITOV, D.A. KIRILENKO, S.V. KONIAKHIN, A. YA. VUL', Ioffe Institute, St.Petersburg, Russia; F. Roth, TU Bergakademie, Freiberg, Germany

FN - 6th International Conference NOVEL FUNCTIONAL CARBON NANOMATERIALS

Session FN-1 Growth and Processing

FN-1:IL01 Light Scattering and Emission from Hetero-structures
A.C. FERRARI, Cambridge Graphene Centre, University of Cambridge, Cambridge, UK

FN-1:IL02 Highly Efficient Solar-fuel Photocatalysts for CO₂ Reduction to Selective Hydrocarbons
KUEI-HSIEN CHEN^{1,2}, Indrajit Shown¹, Li-Chyong Chen², ¹Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan; ²Centre for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan

FN-1:IL03 Preparation and Applications of Hybrid Graphene Hydrogels
E. VAZQUEZ, Instituto Regional de Investigación Científica Aplicada (IRICA), Universidad de Castilla-La Mancha, Ciudad Real, Spain

FN-1:IL04 The Nano-carbon Landscape: From Doped Graphene and Molecular Sensors to Nanotubes and their Biological Applications
M. TERRONES, Dept. of Physics, Dept. of Chemistry, Dept. of Materials Science and Engineering and Center for 2-Dimensional & Layered Materials, The Pennsylvania State University, University Park, PA, USA; Institute of Carbon Science and Technology, Shinshu University, Japan

FN-1:IL05 Soft Processing (= Green Processing) for Nano Carbons: Direct Fabrication of Functionalized Graphenes and Their Hybrids Inks via Submerged Liquid Plasma [SLP] and Electrochemical Exfoliation [ECE] under Ambient Conditions
MASAHIRO YOSHIMURA, J. SENTHILNATHAN, K. SANJEEVARAO, E. SATHEESHKUMAR, Promotion Centre for Global Materials Research (PCGMR), Dept. of Materials Science and Engineering, National Cheng Kung University, Tainan, Taiwan

FN-1:IL06 Graphene Exfoliation and Processing
A. CIESIELSKI, Institut de Science et d'Ingenierie Supramoléculaires (ISIS), Université de Strasbourg and CNRS, Strasbourg, France

FN-1:IL07 Controlled Growth of High-quality Graphene and Various 2D Materials for Enhancing their Applications
HIROKI AGO, Global Innovation Center (GIC), Kyushu University, Fukuoka, Japan and National Institute for Advanced Science and Technology (AIST), Tsukuba, Japan

FN-1:IL08 Biomimetic On-surface Growth of Graphene Nanoribbons
HIROSHI SAKAGUCHI, Institute of Advanced Energy, Kyoto University, Kyoto, Japan

Session FN-2 Structural Characterization

FN-2:IL01 Advanced Nanoporous Carbon Based Materials: Challenges and Opportunities
A. VINU, Global Innovation Chair Professor and Director, Global Innovative Center for Advanced Nanomaterials, Faculty of Natural Built Environment and Engineering, The University of Newcastle, Callaghan, Newcastle, NSW, Australia

FN-2:IL02 Vibrational Spectroscopy Characterization of Nanographenes and Polynes
M. TOMMASINI, Dipartimento di Chimica, Materiali e Ingegneria Chimica, Politecnico di Milano, Milano, Italy

FN-2:IL03 Advanced Electron Microscopy Techniques applied to Carbon Nanomaterials and Composites
O. ERSEN, G. MELINTE, Institut de Physique et Chimie des Matériaux de Strasbourg (IPCMS), UMR 7504 CNRS - Université de Strasbourg, Strasbourg Cedex, France

FN-2:IL04 Small Angle Neutron Scattering for Characterization of Carbon Nanostructures
V.T. LEBEDEV, Saint-Petersburg Nuclear Physics Institute, National Research Center "Kurchatov Institute", Saint-Petersburg, Russia

FN-2:IL05 Interface and Properties of Nanocrystalline CVD diamond on AlGaIn/GaN Heterostructures
K. HAENEN, Hasselt University, Institute for Materials Research (IMO), Diepenbeek, Belgium; IMEC vzw, IMOMECE, Diepenbeek, Belgium

FN-2:IL06 Potential Environmental Impact of Carbon Nanomaterials
E. FLAHAUT¹, L. LAGIER², L. EVARISTE², A. MOTTIER², F. MOUCHET², P. LONCHAMBON¹, G. CHIMOWA¹, B. SOULA¹, A.-M. GALIBERT¹, E. PINELLI², L. GAUTHIER², ¹CIRIMAT, Interuniversity Engineering and Research Centre on Materials UMR CNRS-UPS-INPT N°5085, Toulouse, France; ²ECOLAB, University of Toulouse, CNRS, INPT, UPS, Castanet-Tolosan, France

FN-2:IL07 Measurement of Graphene/Metal Contact Resistance using Kelvin Probe Force Microscopy
W. MERTIN, G. BACHER, Universität Duisburg-Essen, Werkstoffe der Elektrotechnik und CENIDE, Duisburg, Germany; C. ALVARADO CHAVARIN, present address: Innovations for High Performance Microelectronics IHP GmbH, Frankfurt (Oder), Germany

FN-2:L08 Laser-induced Breakdown Spectroscopy: A Perspective Method for Nanocarbon Materials Characterization
V.F. LEBEDEV, N.V. NIKONOROV, ITMO University, Saint-Petersburg, Russia; M.K. RABCHINSKII, A.V. SHVIDCHENKO, A.Ya. VUL', Ioffe Institute, St. Petersburg, Russia

Session FN-3

Properties

FN-3:IL01 Nanotube Thin Films for Transparent, Flexible and Stretchable Electronics Applications

E.I. KAUPPINEN, Department of Applied Physics, Aalto University, School of Science, Aalto, Finland

FN-3:IL02 Electronic and Magnetic Structures of 3D Disordered Network of Nanographene Sheets under Heat Treatment at High Temperatures

TOSHIKI ENOKI, Department of Chemistry, Tokyo Institute of Technology, Tokyo, Japan

FN-3:IL03 Carbon Materials for Sodium-ion Batteries – and the Intriguing Case of Reversibly Intercalating Solvated Ions into Graphite

P. ADELHELM, Jena University, Jena, Germany

FN-3:IL04 Positive Zeta Potential of Nanodiamonds

L. GINES¹, S. MANDAL¹, ASHEK-I-AHMED², CHIA-LIANG CHENG², M. SOW³, C. MAGEN⁴, **O.A. WILLIAMS¹**, ¹School of Physics and Astronomy, Cardiff University, UK; ²Department of Physics, National Dong Hwa University, Hualien, Taiwan; ³EPSRC Centre for Doctoral Training in Diamond Science and Technology, Warwick University, UK; ⁴Laboratorio de Microscopias Avanzadas (LMA), Instituto de Nanociencia de Aragon (INA), Universidad de Zaragoza, Zaragoza, Spain

FN-3:IL05 Functionalization in Graphene and Related Hybrids for Applications in Hydrogen Evolution Reaction

LI-CHYONG CHEN, Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan Kuei-Hsien Chen Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan

FN-3:IL06 The Organic-2D Transition Metal Dichalcogenide Interface

ANDREW T.S. WEE, Department of Physics, National University of Singapore, Singapore

FN-3:IL07 Preparation of Porous Graphene/CoFe₂O₄ Composites and their Microwave Absorbing Properties

HAOLIANG XUE¹, QINGZE JIAO^{1,2}, CAIHONG FENG¹, QINWU¹, HANSHENG LI¹, DAXIN SHI¹, **YUN ZHAO¹**, ¹School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Haidian District, Beijing, China; ²School of Materials and Environment, Beijing Institute of Technology, Tang Jia Wan, Zhuhai, Guangdong, China

FN-3:IL08 Oxide Ceramics Toughened by the Addition of Graphene flakes

M. BONIECKI, P. GOLEBIEWSKI, K. KASZYCA, W. WESOLOWSKI, M. WOLUNTARSKI, A. PIATKOWSKA, M. ROMANIEC, P. CIEPIELEWSKI, K. KRZYZAK, Institute of Electronic Materials Technology, Warsaw, Poland

FN-3:IL09 Detonation Nanodiamonds. Particles, Hydrosols and Gels

A.Ya. VUL, E.D. EIDELMAN, A.E. ALEKSEENSKIY, A.V.SHVIDCHENKO, A.T.DIDEIKIN, V.S.YUFEREV, Ioffe Institute, St.Petersburg, Russia; V.T. LEBEDEV, YU.V. KUL'VELIS, B.P. KONSTANTINOV, Petersburg Nuclear Physics Institute, National Research Centre "Kurchatov Institute", Gatchina, Leninskaya Region, Russia; M.V. AVDEEV, Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research, Dubna, Russia

Session FN-4

Applications

FN-4:IL01 BDD Multi-electrode e-tongue for Analytical Detection in Complex Media

B. ZRIBI, D. KAMOUNI BELGHITI, E. SCORSONE, **P. BERGONZO**, CEA-LIST, Diamond Sensors Laboratory, Gif-sur-Yvette, France

FN-4:IL02 Synthesis, Properties and Applications of Carbon Nanodots

M. PRATO, University of Trieste, Trieste, Italy

FN-4:IL03 Nanocarbons and Carbon Nanotubes -Safe Innovation and Promise for the Future-

MORINOBU ENDO, Shinshu University, Nagano, Japan

FN-4:IL04 Understanding the Kinetics of Heavy Metals on Epitaxial Graphene: Towards Monitoring the Water Quality

I. SHTEPLIUK, M. VAGIN, I. IVANOV, T. IAKIMOV, R. YAKIMOVA, Department of Physics, Chemistry and Biology, Linköping University, Linköping, Sweden

FN-4:IL05 Carbon Nano-onions as Nanoprobe for Cancer Therapy

S. GIORDANI, Department of Chemistry, Università di Torino, Turin, Italy; and Nano Carbon Materials, Istituto Italiano di Tecnologia, Turin, Italy

FN-4:IL06 Side-gated Nanoscale Diamond Transistors

A.C. PAKPOUR-TABRIZI, **R.B. JACKMAN**, London Centre for Nanotechnology and the Department of Electronic and Electrical Engineering, University College London, London, UK

FN-4:IL07 Optimization of Gate Oxide for Reliable Diamond Power Transistors

E. GHEERAERT, Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France

FN-4:IL08 Graphene-based Micro-supercapacitors by Flash Lamp Technology

TAEYOUNG KIM, Department of Bionanotechnology, Gachon University, Seongnam, South Korea

FN-4:IL09 Carbon Nanofibers as Support for Pt-Catalysts in PEM Fuel Cells

P.Y. PODLESCHNY, U. ROST, M. BRODMANN, Westphalian University of Applied Sciences, Dortmund, Germany

FN-4:IL10 Beyond CMOS Solutions Enabled by Layered Materials

G. FIORI, Dipartimento Ingegneria dell'Informazione, University of Pisa, Pisa, Italy

FN-4:IL11 Graphene-based Materials for the Fast Adsorption of Biomolecules

M. SEREDYCH¹, F. MENG¹, L. MIKHALOVSKA², S. MIKHALOVSKY², V. MOCHALIN³, **Y. GOGOTSI¹**, ¹Department of Materials Science & Engineering and A.J. Drexel Nanomaterials Institute, Drexel University, Philadelphia, PA, USA; ²Department of Chemistry, Missouri University of Science & Technology, Rolla, MO, USA; ³School of Pharmacy and Biomolecular Sciences, University of Brighton, Lewes Road, Brighton, UK

FN-4:IL12 Applications of Detonation Nanodiamonds: Today and in Future

A.T. DIDEIKIN, Ioffe Institute, St. Petersburg, Russia

FN-4:IL13 Graphene-based Polymer Composites for Electromechanical Piezoresistive Sensors: General Aspects and Practical Considerations

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FN-4:IL14 Black Diamond Technology for Solar Energy Conversion

A. BELLUCCI¹, M. GIROLAMI¹, M. MASTELLONE¹, S. ORLANDO¹, R. POLINI^{1,2}, **D.M. TRUCCHI¹**, ¹CNR-ISM, Rome, Italy; ²Dept. of Chemical Sciences and Technologies, Univ. di Roma "Tor Vergata", Roma, Italy

FN-4:IL15 Redox and Magnetically Active Nanoswitches Encapsulated in Hollow Carbon Nanotubes

M. DEL CARMEN GIMENEZ-LOPEZ, School of Chemistry, University of Nottingham, University Park, Nottingham, UK

FN-4:IL16 Elastocaloric Effect in Carbon Nanotubes and Graphene

S. LISENKOV, University of South Florida, Tampa, FL, USA

FN-4:IL17 Ammonia Sensing using Transfer-free in situ CCVD Grown Nanocrystalline Graphene

D. NOLL, U. SCHWALKE, Institute for Semiconductor Technology and Nanoelectronics, Technische Universität Darmstadt, Darmstadt, Germany

FN-4:IL18 Dye Adsorption by a Hybrid Composite for the Treatment of Wastewater in the Textile Industry

A.C. VAZ DE ARAÚJO, **R.K. NASCIMENTO**, UFRPE, Cabo de Santo Agostinho, Pernambuco, Brazil

FN-4:IL19 Aeronautical Composite Laminate Structure Containing Graphene Related Materials

C. MERINO, Grupo Antolin Ingeniería, Burgos, Spain; T. BLANCO, A. BUTRAGUEÑO, Airbus Operations, Getafe, Spain; A. REGUERO, Aernnova, Toledo, Spain; J. LÓPEZ PUENTE, University Carlos III Madrid, Leganés, Spain

FN-4:IL20 Graphene-based Neurointerfaces

M. BRAMINI, F. CESCA, F. BENFENATI, Center for Synaptic Neuroscience and Technologies & Graphene Labs, Istituto Italiano di Tecnologia, Genova, Italy

FN-4:IL21 Nanoscale Sensing using Color Centers in Diamond

M. RADTKE, R. NELZ, E. BERNARDI, A. MEYER, O. OPALUCH, M. CHALLIER, E. NEU, Saarland University, Saarbrücken, Germany

FN-4:IL22 Graphene Transistors in Biosensing Applications

S. ARPIAINEN, M. SOIKKELI, H. AROLA, T. NEVANEN, VTT Technical Research Centre of Finland Ltd, VTT, Finland

FO - 8th International Conference
**SCIENCE AND ENGINEERING OF
NOVEL SUPERCONDUCTORS**

Session FO-1

Materials, Structure, Physical Chemistry and General Properties

FO-1:IL01 Why is Tc in Cuprates so high?

I. BOZOVIC, Brookhaven National Laboratory, Upton, NY, USA; and Yale University, New Haven, CT, USA

FO-1:IL02 A Tale of Two Metals: Contrasting Criticalities in the Pnictides and Hole-doped Cuprates

N.E. HUSSEY, J. BUHOT, S. LICCIARDELLO, High Field Magnet Laboratory (HFML-EMFL), Radboud University, Nijmegen, Netherlands

FO-1:IL03 High Tc Pairing in Size-selected Metal Nanoclusters

V. KRESIN, P. EDWARDS, University of Southern California, Los Angeles, CA, USA; A. HALDER, Argonne National Laboratory, USA

FO-1:IL04 Superconductor / Ferromagnet Films and Superconducting Spintronics

M.G. BLAMIRE, Department of Materials Science, University of Cambridge, Cambridge, UK

FO-1:IL05 Phenomenological Interpretations of DFT Calculations for Superconductors

J.A. ALARCO, P.C. TALBOT, I.D.R. MACKINNON, Institute for Future Environments, and Science and Engineering Faculty, Queensland University of Technology, Brisbane, Queensland, Australia

FO-1:IL06 New Process for Growing the HgBa₂Ca₂Cu₃O_{8+δ} Superconductors with the Highest Critical Temperature at Ambient Pressure

B. LORET, A. FORGET, J.-B. MOUSSY, **D. COLSON**, SPEC, CEA, CNRS-UMR 3680, Université Paris-Saclay, Gif sur Yvette Cedex, France; S. POISSONNET, P. BONNAILLIE, SRMP, DMN, CEA, Université Paris-Saclay, Gif sur Yvette Cedex, France; G. COLLIN, LPS, C.N.R.S. UMR 8502, Université Paris-Sud, Orsay, France; P. THUÉRY, NIMBE, CEA, CNRS, Université Paris-Saclay, Gif sur Yvette Cedex, France; B. LORET, A. SACUTO, Laboratoire Matériaux et Phénomènes Quantiques, Paris Cedex, France

Session FO-2

New Superconductors of the Pnictides and Related Families

FO-2:IL01 Magnet Application of Iron-based Superconductors

AKIYASU YAMAMOTO, Department of Applied Physics, Tokyo University of Agriculture and Technology, Tokyo, Japan; J. WEISS, Department of Physics, University of Colorado, Boulder, CO, USA; M. AINSLIE, Department of Engineering, University of Cambridge, UK; A. POLYANSKII, D. LARBALESTIER, E. HELLSTROM, Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, USA

FO-2:IL02 Laser ARPES Study on High Temperature Superconductors

XINGJIANG ZHOU, National Lab for Superconductivity, Institute of Physics, Chinese Academy of Sciences, Beijing, China

FO-2:IL03 Novel Effects in Multilayer Superconductor/Magnet Films

C. BERNHARD, University of Fribourg, Department of Physics and Fribourg Center of Nanomaterials (FriMat), Fribourg, Switzerland

FO-2:IL04 Irradiation-induced Decoupling between Critical Temperature and Energy Gaps in P-doped Ba-122 Films

D. DAGHERO, M. TORTELLO, L. GOZZELINO, R.S. GONNELLI, Dipartimento di Scienza Applicata e Tecnologia, Politecnico di Torino, Torino, Italy; T. HATANO, T. KAWAGUCHI, H. IKUTA, Department of Crystalline Materials Science, Nagoya University, Nagoya, Japan

FO-2:IL05 Electronic and Magnetic Structures of H-doped 1111-type High Tc Superconductors

SOSHI IIMURA, HIDEO HOSONO, Tokyo Institute of Technology, Yokohama, Japan

Session FO-3

Properties of Superconductors

FO-3:IL01 Towards Atomic-scale Andreev Reflection

JOHN Y.T. WEI, University of Toronto & Canadian Institute for Advanced Research, Toronto, Canada

FO-3:IL02 What do we Really Understand in all Novel High-Tc Superconductors: Orbitals in Three Dimensions

D.K. SUNKO, Department of Physics, Faculty of Science, University of Zagreb, Zagreb, Croatia

FO-3:IL03 Collapse of High-Tc Superconductivity via Ultrafast Quenching of the Phase Coherence

F. BOSCHINI¹, E. RAZZOLI¹, E.H. DA SILVA NETO², M. ZONNO¹, G. LEVY¹, G.G. GU³, D.J. JONES¹, G. GIANNETTI⁴, A. DAMASCELLI¹, ¹Quantum Matter Institute, University of British Columbia, Vancouver, Canada; ²UC Davis, Davis, USA; ³Brookhaven National Laboratory, Upton, USA; ⁴Università Cattolica del Sacro Cuore, Brescia, Italy

FO-3:IL04 Analyzing Supercurrents with x-ray Eyes

J. ALBRECHT, Research Institute for Innovative Surfaces FINO, Aalen University, Germany; J. SIMMENDINGER, S. RUOSS, G. SCHÜTZ, MPI for Intelligent Systems, Stuttgart, Germany

FO-3:IL06 Comprehensive Phase Diagram of Two-dimensional Space Charge Doped Bi₂Sr₂CaCu₂O_{8+x}

E. STERPETTI¹, J. BISCARAS¹, A. ERB², A. SHUKLA¹, ¹Institut de Minéralogie, de Physique des Matériaux et de Cosmochimie, Sorbonne Université Paris 06, UMR CNRS 7590, MNHN, IRD UMR 206, Paris, France; ²Walther Meissner Institut für Tieftemperaturforschung, Bayerische Akademie der Wissenschaften, Garching Germany

FO-3:IL07 Effects of Dy₂O₃ doping on the Anisotropy and Transport of MgB₂ Wires

M.D. SUMPTION, Department of Materials Science and Engineering, The Ohio State University, Columbus, OH, USA

FO-3:IL08 Properties and Structure of MgB₂-based Superconductors

T. PRIKHNA¹, V. ROMAKA², M. EISTERER³, A. KOZYREV¹, A. SHAPOVALOV¹, A. SHATERNIK¹, ¹V. Bakul Institute for Superhard Materials of the National Academy of Sciences of Ukraine (NASU), Kiev, Ukraine; ²Lviv Polytechnic National University, Lviv, Ukraine; ³Atominstytut, TU Wien, Vienna, Austria

FO-3:IL09 A Possible Paradigm Shift in the Search for Higher Tc

PAUL C.W. CHU¹, L.Z. DENG¹, S.Y. HUYAN¹, K. ZHAO¹, B. LV², S. CHEN¹, Y. ZHU³, ¹Department of Physics and Texas Center for Superconductivity, University of Houston, Houston, TX, USA; ²University of Texas at Dallas, Richardson, TX, USA; ³Brookhaven National Laboratory, Upton, NY, USA

FO-3:IL10 Density Waves of HTSC in Atomic Scale

JINHO LEE, Dept. of Physics and Astronomy, Seoul National University, Republic of Korea CCES, Institute of Basic Science, South Korea

FO-3:IL11 A Fresh View of the Unusual Properties of the Cuprates

N. BARISIC, Institute of Solid State Physics, TU Wien, Wien, Austria; Department of Physics, Faculty of Science, University of Zagreb, Zagreb, Croatia

FO-3:IL12 Verwey-like Transition and its Correlation with Superconductivity in Fe₄Se₅

K.Y. YEH^{1,2,3}, T.S. LO¹, C.C. CHANG¹, M.J. WANG⁴, PHILLIP M. WU¹, G.S. CHANG-LIAO³, **MAW-KUEN WU**^{1,2}, ¹Institute of Physics, Academia Sinica, Taipei, Taiwan; ²Taiwan International Graduate Student Program, Academia Sinica, Taipei, Taiwan; ³Department of Engineering and System Science, National Tsing-Hua University, Hsinchu, Taiwan; ⁴Institute of Astronomy and Astrophysics, Academia Sinica, Taipei, Taiwan

Session FO-4

Theory and Mechanisms

FO-4:IL01 On Recent Progress in the Theory of high Tc Superconductivity

J. ZAAENEN, Institute Lorentz for Theoretical Physics Leiden University, Leiden, The Netherlands

FO-4:IL02 Superconductivity in Time Reversal Symmetry Breaking Compounds

HUIQIU YUAN, Center for Correlated Matter and Department of Physics, Zhejiang University, China

FO-4:IL03 Superconductivity in Topological Materials: Insights from Superconducting Density Functional Theory

RYOTARO ARITA, RIKEN Center for Emergent Matter Science, Saitama, Japan

FO-4:IL04 Macroscale Three-dimensional Proximity Effect and the Vortex States in Disordered Semiconductor/Superconductor Nanocomposites
KATSUYA UENO¹, NOBUHITO KOKUBO², SATORU OKAYASU³, TSUTOMU NOJIMA⁴, YUKIHITO NAGASHIMA⁵, YUSUKE SETO⁶, MEGUMI MATSUMOTO⁷, TAKAHIRO SAKURAI⁷, HITHOSHI OHTA⁸, KAZUYUKI TAKAHASHI¹, **TAKASHI UCHINO**¹, ¹Dept. of Chemistry, Graduate School of Science, Kobe University, Nada, Kobe, Japan; ²Dept. of Engineering Science, University of Electro-Communications, Chofu, Tokyo, Japan; ³Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan; ⁴Institute for Materials Research, Tohoku University, Sendai, Japan; ⁵Nippon Sheet Glass Co., LTD., Konoike, Itami, Japan; ⁶Dept. of Planetology, Graduate School of Science, Kobe University, Nada, Kobe, Japan; ⁷Center for Support to Research and Education Activities, Kobe University, Nada, Kobe, Japan; ⁸Molecular Photoscience Research Center, Kobe University, Nada, Kobe, Japan

FO-4:IL05 BCS and BEC Mechanism of Superconductivity in Cuprates
Z. RADOVIC, University of Belgrade, Belgrade, Serbia

FO-4:IL06 Robust Dynamical Charge Density Waves in High-Tc Superconducting Cuprates
M. GRILLI, Dipartimento di Fisica, Università di Roma "Sapienza", Rome, Italy

FO-4:IL07 Fermi Surface Reconstruction in the Pseudogap State
J. STOREY, Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand

Session FO-5 Vortex Lattice Physics

FO-5:IL01 Anomalous Enhancement of Critical Current Density in Iron-based Superconductors with Splayed Columnar Defects
Anomalous Enhancement of Critical Current Density in Iron-based Superconductors with Splayed Columnar Defects

TSUYOSHI TAMEGAI, A. PARK, N. ITOH, N. YAMAOKA, S. PYON, Department of Applied Physics, The University of Tokyo, Tokyo, Japan; T. KAMBARA, A. YOSHIDA, Nishina Center, RIKEN, Wako, Saitama, Japan; S. OKAYASU, Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan; A. ICHINOSE, Central Research Institute of Electric Power Industry, Electric Power Engineering Research Laboratory, Yokosuka, Kanagawa, Japan

FO-5:IL02 Point-like Defects for Enhanced Flux Pinning in Technical Nb3Sn Superconductors

J. BERNARDI, S. PFEIFFER, USTEM, Technische Universität Wien, Wien, Austria; T. BAUMGARTNER, M. EISTERER, Atominstytut, Technische Universität Wien, Wien, Austria; L. BOTTURA, C. SCHEUERLEIN, A. BALLARINO, CERN, Geneva, Switzerland

FO-5:IL03 Flux Pinning in Oxypnictide Thin Films

KAZUMASA IIDA^{1,2}, C. TARANTINI³, J. HÄNISCH⁴, F. KURTH⁵, J. JAROSZYNSKI⁶, T. OHMURA⁷, T. MATSUMOTO¹, T. URATA^{1,2}, T. HATANO^{1,2}, S. MEYER⁴, S. KAUFFMANN-WEISS⁴, B. HOLZAPFEL⁴, D.C. LARBALESTIER⁸, H. IKUTA^{1,2}, ¹Department of Crystalline Materials Science, Graduate School of Engineering, Nagoya University, Japan; ²Department of Materials Physics, Graduate School of Engineering, Nagoya University, Japan; ³Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, USA; ⁴Institute for Technical Physics, Karlsruhe Institute of Technology, Germany; ⁵Institute for Metallic Materials, IFW Dresden, Germany

FO-5:IL04 Nature of the Second Magnetization Peak in Superconducting Single Crystals

L. MIU, National Institute of Materials Physics, Bucharest-Magurele, Romania

FO-5:IL05 STM Studies of Vortices in FeSe Single Crystals

M. IAVARONE, Department of Physics, Temple University, Philadelphia, PA, USA

Session FO-6 Synthesis and Processing

FO-6:IL01 Growth and Properties of Novel Superconducting Materials
G. LOGVENOV, Max Planck Institute for Solid State Research, Stuttgart, Germany

FO-6:IL02 MOCVD Growth of Twin-free Non-c-axis Oriented Thin Films of Bi2Sr2CaCu2O8 Superconductor Targeting Novel Electronic Device
KAZUHIRO ENDO, Kanazawa Inst. Technol., Hakusan, Ishikawa, Japan; S. ARISAWA, Natl. Inst. Mater. Sci., Tsukuba, Ibaraki, Japan; P. BADICA, Natl. Inst. Mater.Phys., Magurele, Romania

Session FO-7

Superconductor Applications

FO-7:IL01 High Temperature Superconductors for Rotating Machinery and Power Applications

J.L. TALLON, Robinson Research Institute, Victoria University of Wellington, Lower Hutt, New Zealand

FO-7:IL02 Superconducting Thin-film Quantum Circuits: Coherence Limits

A. USTINOV, Karlsruhe Institute of Technology, Karlsruhe, Germany

FO-7:IL03 On Progress in Superconducting Electronics

S. PAGANO^{1,2}, N. MARTUCCIELLO^{2,1}, ¹Physics Department, University of Salerno, Fisciano (SA), Italy; ²C.N.R. SPIN Salerno, Fisciano (SA), Italy

FO-7:IL04 Novel Josephson Junctions with Non-zero Ground State Phase

E. GOLDOBIN, R. MENDITTO, D. KOELLE, R. KLEINER, University of Tübingen, Tübingen, Germany

FP - 12th International Conference MEDICAL APPLICATIONS OF ADVANCED BIOMATERIALS AND NANO-BIOTECHNOLOGY

Session FP-1 Advances in Biomaterials

FP-1:IL01 Advanced Bioactive Structures for Intervertebral Disc Repair/Regeneration

L. AMBROSIO, A. GLORIA, Institute of Polymers, Composites and Biomaterials, National Research Council, Naples, Italy

FP-1:IL02 Shape Memory Activated Polyelectrolyte Nano-wrinkles Improve Fibroblast Cell Attachment and Alignment

P.T. MATHER, Chemical Engineering, Bucknell University, Lewisburg, PA, USA; A. ASH-SHAKOOR, J.H. HENDERSON, Biomedical and Chemical Engineering, Syracuse University, USA

FP-1:IL03 Development of a Fish Gelatin-based Soft Tissue Adhesive for Biomedical Applications

TETSUSHI TAGUCHI, RYO MIZUTA, Biomaterials Field, Research Center for Functional Materials, National Institute for Materials Science, Japan

FP-1:IL04 Additive Manufacturing of Biodegradable Composites for Application in Tissue Engineering

D.W. GRIJPMMA, University of Twente, Enschede, The Netherlands

FP-1:IL05 Cellular and Tissue Modulation via Exploiting Molecularly Movable Polyrotaxane Surfaces

NOBUHIKO YUI, J.-H. SEO, A. TAMURA, Y. ARISAKA, Tokyo Medical and Dental University, Tokyo, Japan; T. YAMAOKA, S. KAKINOKI, National Cerebral and Cardiovascular Center Research Institute, Osaka, Japan

FP-1:IL06 Development of Novel Antibacterial Nanoparticles Suitable for Coating on Intravascular Catheters

TSUTOMU FURUZONO, Department of Biomedical Engineering, Faculty of Biology-Oriented Science and Technology, Kindai University, Kinokawa, Japan

FP-1:IL07 Implementing Multifunctionality in Polymer-based Biomaterials

A. LENDLEIN^{1,2}, ¹Institute of Biomaterial Science and Berlin-Brandenburg Centre for Regenerative Therapies, Helmholtz-Zentrum Geesthacht, Teltow, Germany; ²University of Potsdam, Potsdam, Germany

FP-1:IL08 Design of Adhesive Growth Factors

YOSHIHIRO ITO, Nano Medical Engineering Laboratory, RIKEN, Japan Emergent Bioengineering Materials Research Team, RIKEN Center for Emergent Matter Science, Japan

FP-1:IL09 Next Generation Nanofiber Structures for Regenerative Engineering

N. NAGIAH, L.S. NAIR, **C. LAURENCIN**, The Institute for Regenerative Engineering, University of Connecticut Health Center, University of Connecticut, Farmington, CT, USA

FP-1:L10 Shape Memory Polypeptide

LIN GU, YUANZHANG ZHANG, JINLIAN HU, Institute of Textiles & Clothing, The Hong Kong Polytechnic University, Hong Kong

FP-1:L11 Photocrosslinkable Keratin Hydrogels for Cell Encapsulation

E. JABBARI, University of South Carolina, Columbia, SC, USA

FP-1:L12 Calcium Phosphate Surfaces and Bone Regeneration

M. BOHNER, RMS Foundation, Bettlach, Switzerland

FP-1:L13 Programmable Biomaterials for Mechanobiology

J.H. HENDERSON, Syracuse Biomaterials Institute, Syracuse University, Syracuse, NY, USA

FP-1:L14 Fabrication and Evaluation of Beta-tricalcium Phosphate Granules Cement

KUNIO ISHIKAWA, Dept. of Biomaterials, Faculty of Dental Science, Kyushu University, Fukuoka, Japan

FP-1:L15 New Medical Sorbents on the Basis of Porous Aluminosilicates, Silver Nanoparticles and Antimicrobial Peptides

O.Yu. GOLUBEVA, N.Yu. ULYANOVA, E.Yu. BRAZOVSKAYA, Institute of Silicate Chemistry, Russian Academy of Sciences, St. Petersburg, Russia

FP-1:L16 Synthesis and Characterization of Copper Oxide Based Polymeric Nano-systems for Biomedical Imaging

I.S. WEITZ¹, O. PERLMAN², S.S. SIVAN¹, H. AZHARI², ¹Department of Biotechnology Engineering, ORT Braude College, Karmiel, Israel; ²Department of Biomedical Engineering, Technion-Israel Institute of Technology, Technion City, Haifa, Israel

Session FP-2

Tissue Engineering and Regenerative Medicine

FP-2:IL01 Multifunctional Complex Tissue Engineering Scaffolds

MIN WANG, Department of Mechanical Engineering, The University of Hong Kong, Hong Kong

FP-2:IL02 Guided Bone/Tendon Regeneration by Growth Factor-Immobilized Asymmetrically Porous Membranes

JIN HO LEE, Hannam University, Daejeon, South Korea

FP-2:L03 Electrospun Extracellular Matrix: Harnessing the Advantages of ECM in a Tailor-made Tissue-specific Scaffold

S. ZAHARAN, L. BARUCH, **M. MACHLUF**, Faculty of Biotechnology and Food Engineering, Technion-Israel Institute of Technology, Haifa, Israel

FP-2:IL04 Cell Migration Mediated by Gradient Cues in Biomaterials

CHANGYOU GAO, Zhejiang University, Hangzhou, China

FP-2:IL05 Polymeric and Biomimetic Porous Scaffolds for Tissue Engineering

GUOPING CHEN, NAOKI KAWAZOE, Research Center for Functional Materials, National Institute for Materials Science, Ibaraki, Japan

FP-2:L06 Freeze Casting Technique to Process Ceramic-polymer Composites for Bone Tissue Regeneration

D. DON LOPEZ^{1,2,3}, A.P. TOMSIA², F. GUITIÁN RIVERA¹, ¹Instituto de Cerámica de Galicia, Universidade de Santiago de Compostela, Galicia, Spain; ²Lawrence Berkeley National Laboratory, California, USA; ³Tehran University of Medical Science, Tehran, Iran

FP-2:L07 Injectable Amnion Membrane Hydrogels for Musculoskeletal Regenerative Engineering

M. BHATTACHARJEE, J.L. ESCOBAR IVIRICO, H.M. KAN, L.S. NAIR, C.T. LAURENCIN, Institute for Regenerative Engineering, University of Connecticut Health Center, Farmington, CT, USA

FP-2:L08 Preparation, Characterization and In Vivo Performance of Decellularized Cornea

AKIO KISHIDA, Y. HASHIMOTO, J. NEGISHI, K. NAM, T. KIMURA, S. SASAKI, Tokyo Medical and Dental University, Tokyo, Japan; S. SASAKI, T. HONDA, S. HATTORI, H. KOBAYASHI, NIMS, Ibaraki, Japan

Session FP-3

New Therapeutics and Intelligent Drug/Biomolecule/
Gene Delivery Systems**FP-3:IL01 Rational Design of Polyrotaxanes as a Therapeutic Agent to Metabolic Diseases**

ATSUSHI TAMURA, NOBUHIKO YUI, Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, Japan

FP-3:IL02 Novel Multifunctional Drug and Gene Delivery Systems based on Supramolecular Self-assembled Macromolecules

JUN LI, Department of Biomedical Engineering, National University of Singapore, Singapore

FP-3:IL03 Intracellular Delivery of Nanocarriers and Targeting to Subcellular Organelles

V. TORCHILIN, Center for Pharmaceutical Biotechnology and Nanomedicine, Northeastern University, Boston, MA, USA

FP-3:IL04 "Borono-lectin" Engineering as a Versatile Platform for Intelligent Drug Delivery Systems

AKIRA MATSUMOTO, Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, Japan

FP-3:IL05 Targeted and Controlled Delivery of an Anti-tumor Chelator to Brain Cancer Cells

S. MAJD, University of Houston, Houston, TX, USA

FP-3:L06 Peptide-based Nanomaterials for Delivery of Therapeutic Flavonoids

Y. HAMEDANI, K. ZHANG, P. MACHA, **M.C. VASUDEV**, University of Massachusetts Dartmouth, Dartmouth, MA, USA

Session FP-4

Nanomaterials Systems for Bio-imaging and
Theranostics**FP-4:IL01 Surface Modified Nanoparticles for Biomedical Imaging**

PEILIN CHEN, Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan

FP-4:IL02 In Vitro and in Vivo High-resolution Fluorescence Imaging in Centimeter-deep Tissue via Ultrasound Switchable Fluorescence

BAOHONG YUAN, University of Texas at Arlington, Arlington, TX, USA

FP-4:IL03 Tumour Environment Responsive Oolymeric Nanomedicine for Multimodality Theranostics

ZHENGWEI MAO, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou, China

FP-4:IL04 Light-triggered Assembly of Gold Nanoparticles for Tumour Theranostics

XIAJU CHENG, **HAIBIN SHI**, Soochow University, Suzhou, Jiangsu, China

FP-4:IL05 Nanostructured Hybrid Materials for Biomedical Applications

L. DE STEFANO, M. TERRACCIANO, R. MORETTA, P. DARDANO, I. REA, Institute for Microelectronics and Microsystems, National Research Council, Naples, Italy and University of Naples Federico II, Naples, Italy

FP-4:L06 Chemical Synthesis and Theranostic Applications of Magnetic Nanoparticles

YANGLONG HOU, HONGCHEN ZHANG, SHIYAN TONG, College of Engineering, Peking University, Beijing, China

FP-4:L07 Rational Design of the Nano Bio Interface for Optimal Performance in Nanomedicine

I. YAROVSKY, P. CHARCHAR, N. TODOROVA, RMIT University, Melbourne Victoria, Australia

Session FP-5

Clinical Translations in Diagnosis and Therapy, and in
Implantable Prostheses and Micro-nano Devices**FP-5:IL01 Advanced Nanobiomaterials for Neural Interfaces**

M.R. ABIDIAN, Biomedical Engineering, University of Houston, Houston, TX, USA

FP-5:L03 Opto-magnetic Biosensing with Silicon Photonics

N. PESERICO¹, P. PRATIM SHARMA¹, A. BELLONI¹, F. DAMIN², M. CHIARI², A. MELLONI¹, R. BERTACCO¹, ¹Politecnico di Milano, Milano, Italy; ²ICRM-CNR, Milano, Italy

FP-5:IL04 Nano-ceramics and their Use in Biomaterials, Drug Delivery, Tissue Engineering, and as Novel Antibiotic Agents

P. GHANNADIAN, **T.J. WEBSTER**, Northeastern University, Department of Chemical Engineering, Boston, MA, USA

FP-5:IL05 Wireless Biopsy by Microgrippers

D. GRACIAS, Johns Hopkins University, Baltimore, MD, USA

FP-5:IL06 Direct Molecular Interrogation Facilitated by a Nanopore Technology

GUIGEN ZHANG, S. BEARDEN, University of Kentucky, Lexington, KY, USA

FP-5:IL07 Nanoplasmonic Quantification of Tumor-derived Extracellular Vesicles in Plasma Microsamples for Diagnosis and Treatment Monitoring

K. LIANG, F. LIU, J. FAN, D. SUN, C. LIU, D.W. BERNARD, M.H. KATZ, E. J. KOAY, Z. ZHAO, **TONY Y. HU**, The Biodesign Institute, Arizona State University, Tempe, AZ, USA

Poster Presentations

FA:P01 Facile Synthesis of Flexible In-plane Graphene Micro-supercapacitor Using Flash Reduction

SEOK HUN KANG, I.G. KIM, B.N. KIM, J.H. SUL, I.K. YOU, Electronics and Telecommunications Research Institute, Daejeon, South Korea

FA:P02 Lead-free Ceramic-polymer Composites for Flexible Piezoelectric Energy Harvesting

JAE-SHIN LEE, HYOUNG-SU HAN, SEONG-HYUN KIM, School of Materials Science and Engineering, University of Ulsan, South Korea

FA:P03 Efficient Heat Dissipation in III-Nitrides based HFETs Grown on Silver Substrate

H. HARDTDEGEN¹, **M. MIKULICS**², Z. SOFER³, ¹Ernst Ruska-Centre (ER-C-2) Forschungszentrum Juelich GmbH, Germany; ²Peter Grünberg Institute (PGI 9) and JARA - Fundamentals of Future Information Technology, Forschungszentrum Juelich GmbH, Germany; ³Dept. of Inorganic Chemistry, Institute of Chemical Technology, Prague, Prague, Czech Republic

FA:P04 Low-temperature Growth of Wafer-scale Layered MoS₂ by Chemical Vapor Deposition for Flexible Devices

SANG-WOO KANG, JIHUN MUN, CHEGAL WON, Korea Research Institute of Standards and Science (KRISS), Daejeon, South Korea

FA:P05 High Performance Flexible a-IGZO TFTs with Highly Hydroxylated Dielectric Surfaces

YAN SHAO, MEI-NA ZHANG, WEN-JUN LIU, SHI-JIN DING, School of Microelectronics, Fudan University, Shanghai, China

FB:P01 Band Alignment for an Hyperdoped Material Cu₂Se₂/Cug₂:Cr/Znse Heterostructure: A Theoretical View

P. PALACIOS^{1,2}, J.E. CASTELLANOS ÁGUILA^{1,3}, J. ARRIAGA³, J.C. CONESA⁴, P. WAHNON^{1,5}, ¹Instituto de Energía Solar, Universidad Politécnica de Madrid, Madrid, Spain; ²Dpt. FAIAN, Universidad Politécnica de Madrid, ETSI Aeronáutica y del Espacio, Madrid, Spain; ³Instituto de Física, Benemérita Universidad Autónoma de Puebla, Puebla, Mexico; ⁴Instituto de Catálisis y Petroleoquímica, CSIC, Cantoblanco, Madrid, Spain; ⁵Dpt. TFB, Universidad Politécnica de Madrid, ETSI Telecomunicación, Madrid, Spain

FB:P02 Impact of Grafted Side Chain Nature on Electrons and Hole Mobility in Anthracene Containing Co-polymer

F. TINTI, M. GAZZANO, N. CAMAIONI, Istituto per la Sintesi Organica e la Fotoreattività, Consiglio Nazionale delle Ricerche, Bologna, Italy; **F.K. SABIR**, Adama Science and Technology University, Adama, Ethiopia; T. YOHANNES, Department of Chemistry, Addis Ababa University, Addis Ababa, Ethiopia; S. RIGHI, Laboratorio di Micro e Submicro Tecnologie Abilitanti per l'Emilia Romagna (MIST E-R S.C.R.L.), Bologna, Italy; Ö. USLUER, C. ULBRICHT, D.A.M. EGBE, Linz Institute for Organic Solar Cells (LIOS), Johannes Kepler University Linz, Linz, Austria

FB:P03 Study of Bismuth Triiodide Nanoparticles Synthesis and their Application in Organic-inorganic Hybrid Bulk-heterojunction Solar Cells

L. BETHENCOURT, M.E. PÉREZ, H.Y. BENTOS PEREIRA, L.R. FORNARO, Grupo de Desarrollo de Materiales y Estudios Ambientales, Departamento de Desarrollo Tecnológico, Centro Universitario Regional del Este, Universidad de la República, Rocha, Rocha, Uruguay; I.M. AGUIAR, M. MOMBRÚ, Grupo de Desarrollo de Materiales y Estudios Ambientales, Área Radioquímica, Facultad de Química, Universidad de la República, Montevideo, Montevideo, Uruguay

FB:P04 Plasmonic Coupling Effects in Metal-based Composites for Photovoltaics

N. BEREZOVSKA, I. DMITRUK, O. YESHCENKO, V. KOZACHENKO, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; M. DUSHEYKO, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine

FB:P05 2D/3D Mixed Perovskite Solar Cells by Low-pressure Vapor-assisted Solution Process

HUNG-HSIANG YEH¹, YU-HSIEN CHIANG¹, MING-HSIEN LI¹, CHUN-JEN SU², U-SER JENG², **PETER CHEN**¹, ¹Department of Photonics, National Cheng Kung University, Tainan, Taiwan; ²National Synchrotron Radiation Research Center, Hsinchu City, Taiwan

FB:P06 Effective Methods for Improving Device Performance of Organic-inorganic Hybrid Perovskite Solar Cells

YANLIANG LIU¹, YONGCHAO MA¹, SUNG HEUM PARK¹, HO SUEB LEE², KIWAN JANG², **JUNG HYUN JEONG**¹, ¹Department of Physics, Pukyong National University, Busan, South Korea; ²Department of Physics, Changwon National University, Gyeongsangnam-do, South Korea

FB:P07 One-step Sputtering Process for High-efficiency Cu(In,Ga)Se₂ Thin Film Solar Cells

CHIA-HAO HSU, WEI-HAO HO, SHIH-YUAN WEI, CHUNG-HAO CAI, WEI-CHIH HUANG, **CHIH-HUANG LAI**, Department of Materials Science and Engineering, National Tsing Hua University, HsinChu, Taiwan

FC:P01 Beyond Photoelectrochemical Water Splitting

B. MEI, G. MUL, B. SEGER, PCS Group, MESA+ Institute for Nanotechnology, University of Twente, Enschede, Netherlands; Department of Physics, Technical University of Denmark, Kgs. Lyngby, Denmark

FC:P02 Intermediate Temperature Electro-reforming (ITER)

M.V. PAGLIARO^{1,2}, M. BELLINI¹, H.A. MILLER¹, W. OBERHAUSER¹, M.G. FOLLIERO^{1,2}, A. MARCHIONNI¹, J. FILIPPI¹, F. VIZZA¹, ¹ICCOM - CNR, Sesto Fiorentino (Firenze), Italy; ²Dipartimento di Chimica, Università degli Studi di Siena, Siena, Italy

FC:P03 Palladium Alloy Catalysts for CO₂ Electroreduction

M.G. FOLLIERO¹, H.A. MILLER¹, M. BELLINI¹, J. FILIPPI¹, M.V. PAGLIARO¹, A. MARCHIONNI¹, W. OBERHAUSER¹, F. VIZZA¹, C. EVANGELISTI², ¹ICCOM - CNR, Sesto Fiorentino, Italy; ²ISTM - CNR, Milano, Italy

FC:P04 Energy Efficient Production of Fuels and Formate by CO₂ Electroreduction on Copper Nanostructures

J. FILIPPI¹, M. BEVILACQUA¹, M. BELLINI¹, M. FOLLIERO^{1,2}, A. MARCHIONNI¹, H.A. MILLER¹, M. PAGLIARO^{1,2}, F. VIZZA¹, ¹ICCOM - CNR, Sesto Fiorentino, FI, Italy; ²Department of Biotechnology, Chemistry and Pharmacy, University of Siena, Siena, Italy

FC:P05 Hydrogen Barrier Coatings for Hydrogen Production and Storage

MOTONORI TAMURA, University of Electro-Communications, Chofu, Tokyo, Japan

FD:P01 Investigating the Effect of the Hydrophobic Block Structure on Durability of Ion Exchange Membranes for Electrochemical Applications

JANG YONG LEE, Korea Research Institute of Chemical Technology, Daejeon, South Korea

FD:P02 Durable Supercapacitor Based on Nanoscale Confinement of Manganese Oxide Nanoparticles in Hollow Carbon Nanostructures

C. HERREROS-LUCAS, A.N. KHLOBYSTOV, M.C. GIMENEZ-LOPEZ, School of Chemistry University of Nottingham, UK; M.W. FAY, Nanoscale and Microscale Research Centre, University of Nottingham, UK

FD:P03 Photoreduction and Enhanced Properties of Graphene Oxide Electrode for Supercapacitor

J.H. SUL, **IN GYOO KIM**, S.H. KANG, Y.S. YANG, I.K. YOU, Electronics and Telecommunications Research Institute, Daejeon, South Korea

FD:P04 MOF-based Electrode Materials for Electrochemical Energy Storage Devices

YOUNG HWAN KIM, HUN SEOK CHOI, SONG GUE CHOI, **KWANG-BUM KIM**, Department of Materials Science and Engineering, Yonsei University, Seodaemooon-gu, Seoul, South Korea

FD:P05 Hierarchical 3D Porous Nickel Sulfate/MXene Composite as Advanced Electrode for High-performance Supercapacitor with High Volumetric Energy Density

QIXUN XIA, Henan Polytechnic University, Jiaozuo city, China

FE:P01 Impact of Dopant Concentration on the Ionic Conductivity of Grain Boundaries in Ceria

T. BOLAND¹, P. REZ², P.A. CROZIER¹, ¹School for Engineering of Matter, Transport and Energy, Arizona State University, Tempe, AZ, USA; ²Department of Physics, Arizona State University, USA

FE:P02 La_{0.6}Sr_{0.4}Fe_{1-x}Pd_xO₃ (x=0.05, 0.10) as Electrocatalyst for SOFCs

A. MARCUCCI, F. ZURLO, S. LICOCCIA, Dept. of Chemical Science and Technologies, University of Rome "Tor Vergata", Rome, Italy; I. LUISETTO, Dept. of Mechanical and Industrial Engineering, University of Rome "Roma Tre", Rome, Italy; I. NATALI SORA, Dept. of Engineering and Applied Sciences, University of Bergamo, Dalmine, Italy; E. DI BARTOLOMEO, Dept. of Chemical Science and Technologies, University of Rome "Tor Vergata", Rome, Italy

FE:P03 Synthesis of Composites in the Y-doped ABO₃ Perovskite Type Structure - V₂O₅ Systems by Impregnation Method

A. LACZ, E. DROZDZ, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Krakow, Poland

FE:P04 Synthesis and Properties of Porous Ni/SrTiO₃/YSZ Composites

E. DROZDZ, A. LACZ, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Krakow, Poland

FE:P05 Nano-catalyst Socketed Electrodes for Solid Oxide Cells

JAE-HA MYUNG, Department of Materials Science and Engineering, Incheon National University, Incheon, South Korea

FE:P06 Sulfonated Block Copolyphenylchinoxalines as Proton Exchange Membranes

S. JANIEZ, H. KRÜGER, T. BRENING, Fraunhofer Institute Applied Polymer Research, Potsdam, Germany

FE:P07 Titanium Pyrophosphate- Alkali Carbonates Composites: Material Synthesis and Ionic Conductivity

L. MATHUR, S.K. GAUTAM, A.K. JAISWAL, B. SINGH, A.K. DUBEY, Department of Ceramic Engineering, Indian Institute of Technology (BHU), Varanasi, India

FE:P08 Carbon Monoxide Poisoning Effect on Fuel Cell Performance with Consideration of Cathode Liquid Flooding

KEN-MING YIN, W.-K. XIA, Y.-L. LAI, Chemical Engineering Department, Yuan Ze University, Taoyuan, Taiwan

FF:P01 Optimization in Basic Thermoelectric Properties of n-type Mg₂Si and Improvement in Elemental Durability Issues for Industrialization

TSUTOMU IIDA, T. KODAMA, M. TOKUMURA, H. HAMBATA, T. MANBA, R. HATANAKA, D. SHIOJIRI, K. NISHIO, A. YASUMORI, Y. KOGO, Department of Materials Science and Technology, Tokyo University of Science, Tokyo, Japan

FF:P02 Non-toxic and Low-cost Thermoelectric Materials: Al-Fe-Si Ternary Compounds

YOSHIKI TAKAGIWA, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

FF:P03 Nanostructured Ag₂Te/PEDOT:PSS Hybrid Material for High Performance Thermoelectrics

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FF:P04 Metal-induced Crystallization of Si_{1-x}Gex for Thermoelectrics

K.A. MAZZIO^{1,2}, A. STEIGERT^{1,2}, M. FIEDLER^{1,2,3}, J. NIEDERHAUSEN^{1,2}, F. KRONAST⁴, M.A. MAWASS⁴, M. GORGOI^{1,2}, S. RAOUX^{1,2,5}, ¹Institut für Nanospektroskopie, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; ²Energy Materials In-Situ Laboratory, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; ³Beuth Hochschule für Technik Berlin, Berlin, Germany; ⁴Dept. Materials for Green Spintronics, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; ⁵Institute of Physics, Humboldt University Berlin, Germany

FF:P05 Life Prediction on Thermoelectric Module through Accelerated Life Test

HYOUNG-SEUK CHOI, Korea Institute of Ceramic Engineering and Technology, Jinju-si, South Korea

FF:P06 Roll to Roll Manufacturing of Flexible Thermoelectric Generators using Aerosol Jet Printing and Photonic Sintering

T.V. VARGHESE, Micron School of Material Science, Boise State University, Boise, ID, USA

FG:P01 Successful Reduction of HRE Contents as Practiced in Mass Production of Sintered TERRAMAG®1 NdFeB Permanent Magnets

N. KROPFF¹, K. RACHUT², J. D. ROSSA², **S. MÖWIUS**¹, M. VELICESCU¹, ¹BEC Gesellschaft für Produktmanagement mbH, Moers, Germany; ²Fraunhofer Project Group Materials Recycling and Resource Strategies IWKS Hanau, Germany

FG:P02 The Effect of Zn and Ni Substitution on Magnetic and Microwave Absorbing Properties of Co₂W Hexagonal Ferrites

HAN-SHIN CHO, **TIAN LIU**, **SUNG-SOO KIM**, Department of Advanced Materials Engineering, Chungbuk National University, Cheongju, South Korea

FG:P03 Influence of Pr Doping on Structure and Magnetocaloric Effect of La_{0.7}Sr_{0.3}MnO₃

P.D.H. YEN¹, A. GAMZATOV¹, A. ALIEV², T.D. THANH³, N.T. DUNG³, S.C. YU¹, ¹Department of Physics, Chungbuk University, Cheongju, South Korea; ²Amirkhanov Institute of Physics, DSC of RAS, Makhachkala, Russia; ³Institute of Materials Science, VAST, Hanoi, Vietnam

FG:P04 Stress-coupling Mechanism on Multicaloric FeRh-based Composite

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FG:P05 Magnetic and Transport Properties of Superelastic Fe_{43.5}Mn₃₄Al₁₅Ni_{7.5} Heusler Alloys

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FG:P06 FRIMAG Project: Development of a Prototype of Magnetocaloric Refrigerator

S. FABBRICI, MIST E-R srl, Bologna, Italy; **C. BENNATI**, **F. ALBERTINI**, IMEM-CNR, Parma, Italy; **M. SOLZI**, SMFI Department, University of Parma, Parma, Italy; **F. MELINO**, DIN - Alma Mater Studiorum University of Bologna, Bologna, Italy; **A. FARINA**, Industrial Engineering Department, University of Parma, Parma, Italy; **V. MUSSI**, MUSP Consortium, Piacenza, Italy; **M. ARDOINO**, Democenter-Sipe, Modena, Italy; **L. FERRARA**, SPIN Applicazioni Magnetiche srl, Piacenza, Italy; **E. FORLIN**, MBN Nanomaterialia S.p.A., Vascon di Carbonera (TV), Italy; **F. POLETTI**, Jonix Srl, Bologna, Italy

FG:P07 Comparative Study of the Order-disorder Transition in Different Iron based Alloys with Different Cr Addition

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FG:P08 Magnetocaloric Effect in Multiferroic Spinel MnCr₂O₄

K. DEY, A. INDRA, S. GIRI, Department of Solid State Physics, Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India

FG:P09 Low Temperature Magnetocaloric Effect in RVO₄ (R= Gd, Yb, Er)

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FH:P01 Synthesis and Characterization of Regenerable Fe₃O₄@TiO₂- Noble Metal Photocatalyst Nanoparticles

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FH:P02 Optimization of Tungsten Anodization in the Presence of H₂O₂ to Obtain Nanostructured WO₃ Photoanodes

R.M. FERNÁNDEZ-DOMENE, **R. SÁNCHEZ-TOVAR**, **B. LUCAS-GRANADOS**, **J. GARCÍA-ANTÓN**, Ingeniería Electroquímica y Corrosión (IEC), Departamento de Ingeniería Química y Nuclear, Universitat Politècnica de València, Spain

FH:P03 Plastics and Photocatalysis: A Winner Combination for the Prevention of the Incoming of Plastic Wastes to the Environment

M.C. ARIZA-TARAZONA¹, **A. ALVAREZ-MÉNDEZ**¹, **J.J. RUIZ-VALDÉS**¹, **C. MUGONI**², **V. BARBIERI**², **C. SILIGARDI**², **E.I. CEDILLO-GONZÁLEZ**¹, ¹Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, San Nicolás de los Garza, N.L., Mexico; ²Università degli Studi di Modena e Reggio Emilia, Dipartimento di Ingegneria "Enzo Ferrari", Modena, Italy

FH:P04 Maximization of Photocatalytic Activity of Bi₂S₃/TiO₂/Au Ternary Heterostructures by Proper Epitaxy Formation and Plasmonic Sensitization

S. PAUL, S.K. DE, Department of Materials Science, Indian Association for the Cultivation of Science, Kolkata, India

FI:P02 Photoluminescence of Fullerene C₆₀ Thin Film in Plasmon Coupled "Monolayer of Au Nanoparticles - C₆₀ Film - Al Film" Nanostructure

O. YESHCENKO, V.V. KOZACHENKO, N.I. BEREZOVSKA, Y.F. LIAKHOV, Physics Dept., Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

FI:P03 Emission Comparison of InAs Quantum Dots Embedded in Quantum Well with Different AlGaInAs Capping Layers

G. POLUPAN¹, **R. CISNEROS TAMAYO**¹, **T.V. TORCHYNSKA**², **A. ESCOBOSA-ECHAVARRIA**³, ¹Instituto Politécnico Nacional, ESIME, U.P.A.L.M. México D.F., México; ²Instituto Politécnico Nacional, ESFM, U.P.A.L.M. México D.F., México; ³CINVESTAV del IPN, Elect. Engin. Department-SEES, México D.F., México

FJ:P01 Microstructure and Electric Properties of Transparent Indium Oxide Thin Films Prepared by RF Magnetron Sputtering

TIAN LIU, **YONG-SOO JUN**, **MIN-SUNG KIM**, **SUNG-SOO KIM**, Department of Advanced Materials Engineering, Chungbuk National University, Cheongju, South Korea

FF:P02 Air-electrode Catalyst containing Conductive Vanadate Glass developed for Metal-air Rechargeable Battery

HAJIME MIYAMOTO, Y. FUJITA, S. MASUDA, T. NISHIDA, M. YUASA, N. OKA, Kindai University, Iizuka, Fukuoka, Japan

FF:P03 Mössbauer Study on the Substitution of Tin Oxide for Iron Oxide in Conductive Barium Iron Vanadate Glass

YUKI FUJITA¹, H. MIYAMOTO¹, T. IZUMI¹, S. MASUDA¹, S. KUBUKI², T. NISHIDA¹, N. OKA¹, ¹Kindai University, Iizuka, Fukuoka, Japan; ²Tokyo Metropolitan University, Hachi-Oji, Tokyo, Japan

FF:P04 Films of Transparent Conductive Oxides for Nitric Oxide Detection at Low Level

M.V. CHUPRIN, O.M. IVANOVA, **S.A. KRUTOVERTSEV**, L.S. KRUTOVERTSEVA, A.E. TARASOVA, CJSC "Ecological sensors and systems", Zelenograd, Moscow, Russia

FF:P05 Optical and Structural Analysis of ZnO:Al Nanocrystal Films Obtained by Ultrasound Spray Pyrolysis Method

B. EL FILALI¹, T.V. TORCHYNska², L.G. VEGA MACOTELA³, L. SHCHERBYNA⁴, ¹Instituto Politécnico Nacional, UPIITA, México City, DF, México; ²Instituto Politécnico Nacional, ESFM, México City, DF, México; ³Instituto Politécnico Nacional, ESIME, México City, DF, México; ⁴V. Lashkaryov Institute of Semiconductor Physics at NASU, Ukraine

FK:P01 MAX Phases for Future Fission and Fusion Environments

M.T. RIGBY, D.J. BOWDEN, J.H. WARD, M. PREUSS, University of Manchester, Manchester, UK

FK:P02 Corrosion Behaviour and Microstructural Stability of Alumina-forming Austenitic Model Alloys Exposed to Oxygen-containing Molten Lead

HAO SHI, A. JIANU, A. WEISENBURGER, S. MIRAN, A. HEINZEL, R. FETZER, L. FABIAN, G. MUELLER, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

FK:P03 Structural State Features of the Base Metal after Recovery Annealing and Long-term Operation within VVER-440 RPV

E.A. KULESHOVA, A.S. FROLOV, D.A. MALTSEV, G.M. ZHUCHKOV, S.A. BUBYAKIN, D.Yu. ERAK, D.A. ZHURKO, S.V. FEDOTOVA, NRC KI, Moscow, Russia

FK:P04 Structural Features of Hydride Phase Formation in E110 Zr-alloy under the Influence of Various Factors

B.A. GUROVICH, E.A. KULESHOVA, A.S. FROLOV, D.A. MALTSEV, O.O. ZABUSOV, D.V. SAFONOV, E.V. KRIKUN, A.S. BRAGIN, NRC KI, Moscow, Russia

FL:P01 Structure Design and Property Study of Biomimetic Water Sensitive Shape-memory Polymer Materials

YUANZHANG JIANG, HU JINLIAN, Institute of Textiles and Clothing, the Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China

FM:P01 TEM of Transrotational Crystals in PZT Films with 10% La

V.Yu. KOLOSOV¹, O.M. ZHIGALINA², D.N. KHMELNIN², A.O. BOKUNIAEVA¹, ¹Ural Federal University, Ekaterinburg, Russia; ²FSRC Crystallography & Photonics RAS, Moscow, Russia

FM:P02 Effect of Polarization Reversal on Current Transport across Thin Ferroelectric HfxZr1-xO2 Layer

V. MIKHEEV, A. CHOUPRIK, A. CHERNIKOVA, D. NEGROV, A. ZENKEVICH Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russia

FM:P03 Deep Level Transient Spectroscopy of Ferroelectric MIS Structures based on Hf0.5Zr0.5O2

E. KONDRATYUK, A. CHERNIKOVA, D. NEGROV, Moscow Institute of Physics and Technology, Dolgoprudny, Russia

FM:P04 Bottom Electrode Study of MIM-structures for RRAM Applications

B. KRAH, S. VOGEL, U. SHARATH, E. HILDEBRANDT, L. ALFF, Technische Universität Darmstadt, Institute of Material Science, Darmstadt, Germany

FM:P05 On the Resistive Switching Properties of Random Access Memory Based on Yttria-stabilized Zirconia

S.L. CHAO, **J.S. CHERNG**, Department of Materials Engineering, Ming Chi University of Technology, Taipei, Taiwan

FM:P06 Effect of Oxygen Vacancies in the ZnO Charge Storage Layer on the Performance of a-IGZO TFT Memory

DAN-DAN LIU, BO-TONG HUANG, WEN-JUN LIU, SHI-JIN DING, State Key Laboratory of ASIC and System, School of Microelectronics, Fudan University, Shanghai, China

FM:P07 Self-assembly of Metal@Al2O3 Core-shell Nanoparticles and Nonvolatile Memory Properties

JONG-HWAN YOON, Department of Physics, Kangwon National University, Chuncheon, South Korea

FM:P08 The Energy-efficient Chip Implementation of a ReRAM-Based Binary Neural Network for Image Recognition

QIANG HUO, FENG ZHANG, Laboratory of Nano-Fabrication and Novel Devices Integrated Technology, Institute of Microelectronics, Chinese Academy of Sciences, Beijing, China

FM:P09 Influence of Al-dopant Concentration in the ZnO-based Charge Trapping Layer on the Characteristics of a-IGZO TFT Memory

BO-TONG HUANG, DAN-DAN LIU, WEN-JUN LIU, SHI-JIN DING, State Key Laboratory of ASIC and System, School of Microelectronics, Fudan University, Shanghai, China

FN:P01 Synthesis and Characterization of Stable and Ordered-packing High Order Acenes

QING WANG, N.L. ARUN, C.Y. CHI, National University of Singapore, Singapore

FN:P02 Functional Nanocomposites with Graphene-DNA Hybrid Complexes: Fabrication and Surface Properties under UV Irradiation

E. TOTO, M.G. SANTONICOLA, Dept. of Chemical Materials and Environmental Engineering, Sapienza University of Rome, Rome, Italy; S. LAURENZI, Dept. of Astronautic Electrical and Energy Engineering, Sapienza University of Rome, Rome, Italy

FN:P03 Conductive Co3O4/Graphene (core/shell) Metal Oxide/Carbon Nanomaterials as Electrode Materials for Electrochemical Energy Storage Applications

JAEHO SHIM, Y. KO, K.S. LEE, C.-H. LEE, J.Y. HWANG, D.I. SON, Institute of Advanced Composite Materials, Korea Institute of Science and Technology (KIST), Jeonbuk, South Korea

FN:P04 Hierarchically Mesoporous Carbon Nanofiber/Copper Sulfide Composites as Anodes in Lithium Ion Batteries

HOJIN HWANG, **WAN-JIN LEE**, Chonnam National University, School of Chemical Engineering, Gwangju, South Korea

FN:P05 Micro Wires Graphene in Field Effect Transistors Defined by Photolithography Process

A. PASCON^{1,2}, F. RUFINO^{1,3}, D.R. GONZALEZ LARRUDE⁴, J. REZENDE², J. ALEXANDRE DINIZ^{1,3}, ¹Center of Semiconductor Components and Nanotechnologies - Unicamp; ²Sao Francisco University, Campinas; ³School of Electrical and Computer Engineering - Unicamp; ⁴Mackenzie Presbyterian University, SP, Brazil

FN:P06 A Microfabricated Sensor for Detecting Biochemical Markers of Bone Formation

S. SIRIVISOOT, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

FO:P01 Superconducting Properties of a new Oxysulfate Superconductor

HO KEUN LEE, J. KIM, Department of Physics, Kangwon National University, Chuncheon, South Korea

FO:P02 Fabrication of Intrinsic Josephson Junction Devices using Hydrogen-atmosphere Treatment

HIROMI TANAKA, K. TANAKA, National Institute of Technology, Yonago College, Tottori, Japan; S. KISHIDA, Tottori University, Tottori, Japan

FO:P03 Design and Simulation of 4-bit Random Access Memory Composed of Reciprocal Magnetic Flux Quanta

S. NARENDRAN, J. SELVAKUMAR, SRM Institute of Science and Technology, Chennai, Tamil Nadu, India

FP:P01 Development of Gold Nanorod-based SERS tag for Food Safety Monitoring

R. PARDEHKHORRAM¹, YUANHUI ZHENG¹, P. BAKTHAVATHSALAM¹, R. TILLEY¹, NANJU ALICE LEE², J.J. GOODING^{1,3}, University of New South Wales, Sydney, NSW, Australia: ¹School of Chemistry, ²School of Chemical Engineering, ³ARC Centre of Excellence in Convergent Bio-Nano Science and Technology, Sydney, NSW, Australia

FP:P02 Characterization of the Algerian Phosphate with a View to its Valorisation as Biomaterial

S. BRAHIMI¹, K. BOUMCHEDDA¹, M. HAMIDOUCHE², ¹Research Unit of Materials Processes and Environment, University of Boumerdes, Boumerdes, Algeria; ²Research Unit of Emerging Materials, University of Sétif, Sétif, Algeria

FP:P03 Structural, Morphological and Mechanical Properties of Laser Irradiated CaHPO4 Biomaterial

I.U. KHAWAJA¹, A. RASHEED², S. LIAQAT, M. FAROOQ¹, M. AZHAR KHAN², ¹Department of Physics, Hazara University Mansehra, Pakistan; ²Department of Chemistry, The Islamia University of Bahawalpur, Pakistan

FP:P04 Investigation of Optical Properties of Y-TZP for Aesthetic Dental Application: Effect of Oxygen Vacancies

R. SHAHMIRI, O.C. STANDARD, J.N. HART, C.C. SORRELL, School of Materials Science and Engineering, University of New South Wales Sydney, Sydney, Australia

FP:P05 Synthesis of Nanometric TiO₂ and its Application as Bionanomaterial

V. GONZALEZ-TORRES, M.R SÁNCHEZ-DÍAZ, Escuela de Ciencias de la Salud Valle de las Palmas de la Universidad Autónoma de Baja California, Tijuana, Baja California, México; **M. ROSALES-AGUILAR**, Facultad de Medicina y Psicología de la Universidad Autónoma de Baja California, Tijuana, Baja California México; **Ma.E. VILLAFUERTE-CASTREJÓN**, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Ciudad de México, México; **E. HERNÁNDEZ-GUEVARA**, G.C. DÍAZ-TRUJILLO, Facultad de Ciencias Químicas e Ingeniería de la Universidad Autónoma de Baja California, Tijuana, Baja California, México

FP:P06 The Development of New Drug Delivery Systems based on Magnetic Zeolites

E. BRAZOVSKAYA, O.Y. GOLUBEVA, St. Petersburg, Russia

FP:P07 Isolation and Imaging of Circulating Tumor Cells

CHIUNG WEN KUO, PEILIN CHEN, Research Center for Applied Sciences, Academia Sinica, Taiwan

FP:P08 Programmable Multiple Capture/Release of Circulating Tumor Cells Using Conducting Polymers

DI-YEN CHUEH, CHIUNG WNE KUO, PEILIN CHEN, Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan

FP:P09 Support with Bactericide Coating for Curative Accomplishment and Hygiene on Inferior Memberst

R. CELIA¹, T. BAESSO¹, A.C. SENE¹, L.A. MANFROI¹, A.A. VIEIRA¹, P. A. RADI^{1,2}, M.A. RAMIREZ¹, T.A. VLADIMIR^{3,4}, L.VIEIRA^{1,2},

¹University of Paraíba Valley- UNIVAP/IP&D, São José dos Campos, SP-Brazil;

²Aeronautics Institute of Technology, ITA / LPP, São José dos Campos, SP-Brazil;

³CVD-Vale Jardim Torrao de Ouro, São José dos Campos,SP-Brazil;

⁴National Institute of Space Research - INPE, São José dos Campos, SP, Brazil

FP:P10 Nanobioactive Sol-gel Glass Reinforced-gelatin Based Composite Scaffolds for Bone Regeneration

R. BAGHERI, A. SHEIKH-MEHDI MESGAR, Z. MOHAMMADI, Bioceramics and Implants Lab, Faculty of New Sciences and Technologies, University of Tehran, Tehran, Iran

INFORMATION TO AUTHORS & PARTICIPANTS

LOCATION AND DATES

CIMTEC 2018 - 14th International Ceramics Congress & 8th Forum on New Materials will be held on June 4-14, 2018 in Perugia, splendid chief town of Umbria region, placed in the middle of Central Italy. The city is about 170 km from Rome and is placed in a strategic position to reach the most interesting historical and tourist places in Umbria, such as Assisi, Orvieto, Spoleto, Todi, Spello, Gubbio, Montefalco, Trevi, Trasimeno Lake and several others.

CIMTEC 2018 will consist of the **14th International Ceramics Congress (June 4-8, 2018)** and the **8th Forum on New Materials (June 10-14, 2018)**.

CONFERENCE VENUE

**Centro Congressi Hotel Quattrotorri
at Best Western Hotel Quattrotorri Perugia
Via Corcianese 260
06132 Perugia - Italy**

The Conference Venue is about 8 km outside Perugia center.
A complimentary transfer service between the Conference Hotels

and the Conference Venue will be made available for Conference Members.

For the **Ceramics Congress** the registration desk will open at 15.00 on Monday June 4. Technical Sessions will start Tuesday June 5 morning and continue until Friday June 8. The Congress will close with the *Conference Dinner* on Friday June 8 evening.

For the **Forum on New Materials** the registration desk will open at 15.00 on Sunday June 10. Technical Sessions will start Monday June 11 morning and continue until Thursday June 14. The Forum will close with the *Conference Dinner* on Thursday June 14, evening.

CONFERENCE SECRETARIAT

CIMTEC 2018
Corso Mazzini 52
48018 Faenza
Italy
Tel.: +39 0546 22461
Fax: +39 0546 664138
E-mail: congress@technagroup.it

REGISTRATION DESK AND SECRETARIAT

Registration desk and secretariat will be open at the **Congress Center** according to the following time schedule:

International Ceramics Congress				Forum on New Materials			
June 4	Monday		15.00-19.00	June 10	Sunday		15.00-19.00
June 5	Tuesday	8.00-13.00	14.15-19.00	June 11	Monday	8.00-13.00	14.15-19.00
June 6	Wednesday	8.00-13.00	14.15-19.00	June 12	Tuesday	8.00-13.00	14.15-19.00
June 7	Thursday	8.00-13.00	14.15-19.00	June 13	Wednesday	8.00-13.00	14.15-19.00
June 8	Friday	8.00-13.00	14.15-18.30	June 14	Thursday	8.00-13.00	14.15-18.30

No credit cards are accepted at the registration desk. On site registration payments can be made only by cash

HOW TO REACH PERUGIA

Perugia is located in the Umbria District (Central Italy), about 170 Km from Rome.

By plane

The most suitable Italian airport for delegates coming from overseas countries is the Intercontinental Rome Airport (Aeroporto di Roma Fiumicino, "Leonardo da Vinci Airport"). Direct flights to Perugia are also scheduled. Flight details are available at <http://www.airport.umbria.it/>

To reach Perugia from Rome:

By car

From Rome, take the A1 Motorway and go out at the Orte exit. Then take the A14 Motorway to the Perugia exit.

By train

From the train station located inside the airport of Fiumicino, you can take the "Leonardo express" (departures every 30 minutes) to the Rome Central Railway Station (Roma Termini). From Roma Termini you find the trains to Perugia (departures about every hour, duration about 3 hours).

Please visit web site www.trenitalia.com to find all available connections

By bus

Sulga buses make direct connections from Rome Fiumicino Airport to Perugia. You can buy your ticket directly in the bus.

Departures from Fiumicino Airport: from the International Arrivals Terminal 3.

All days except Sunday: Departure 9.00 12.30 14.30 17.00

Arrival in Perugia: 12.45 16.15 18.15 20.45

On Sunday only two connections: Departure 12.30 and 16.30

Arrival in Perugia: 16.15 and 20.15

COURTESY TRANSFER SERVICE FROM ROME AND PERUGIA AIRPORTS FOR PARTICIPANTS LODGED IN "CONFERENCE HOTELS"

A complimentary bus transfer service will be provided by the Conference Hotels on Monday June 4 and on Sunday June 10 from Fiumicino Rome Airport "Leonardo da Vinci" and from Perugia International Airport "San Francesco d'Assisi" to the respective hotels in Perugia reserved to CIMTEC attendees who booked their stay through the Hotel Booking Center Quattrotorri (Conference Hotels). Hotel Booking Center Quattrotorri staff will welcome participants at the exit of International Arrivals Terminal from 14.00 to 24.00 of June 4 and June 10.

PERUGIA CONNECTION TO CONGRESS CENTER

By train

From Perugia (Central Railway Station) to Ellera station (100 meters from the Congress Center) about every hour from 6.00 to 21.30, train ride 10/15 min.

From Ellera Station to Perugia Central Railway Station about every hour from 7.00 to 22.00, train ride 10/15 min.

By bus

From the centre of Perugia to the Congress Center there are two lines (Line F and Line G), one every hour from 6.00 to 21.00, bus ride 40 min, the other every half an hour from 5.30 to 21.30, bus ride 45 min.

(proper information may be asked at the hotels)

By car

From Perugia about 15-20 min in normal traffic.

By taxi

From Perugia centre about 15-20 min in normal traffic. Fare about 20/15 EUR.

CIMTEC daily shuttle connections to and from the Congress Center

A complimentary shuttle service will be available to delegates to reach the Congress Center for the beginning of the Technical Sessions and come back at the end of the Technical Sessions. The service will be available from Tuesday 5 to Friday 8 and from Monday 11 to Thursday 14. Departures and arrivals are from and to Piazza Partigiani (near the city center).

Bus departures to Congress Center:

8.00 a.m. from Piazza Partigiani

Bus departures from Congress Center:

6.45 to 7.00 p.m. to Piazza Partigiani

A special complimentary shuttle bus connection to and from each "Conference Hotel" to the Congress Centre will be made available to delegates who booked their room through the "Hotel Booking Center". The service will be active as from the Registration day (June 4 afternoon for the Ceramics Congress and June 10 afternoon for the Forum on New Materials) and during the whole conference. Time schedule will be available at each hotel.

PAYMENTS

All payments shall be made in EUR or US\$, **net of all charges**, by:

Bank transfer made payable to:

Techna Group Srl, Cassa di Risparmio di Cesena SpA, 505 Filiale Faenza 1

SWIFT: CECRIT2CXXX

IBAN: IT58 Q061 2023 705C C505 0002 852

DESCRIPTION: CIMTEC 2018 and Participant Name

(copy of the bank transfer to be attached to the Registration Form)

Credit cards cannot be charged directly by the Conference organization.

However on-line payment by credit card can be made:

ON-LINE PAYMENT

To make on-line payment please go at:

<http://2018.cimtec-congress.org/onlinereg>

a 2,30% commission is charged by the bank for on-line payment

Participants are encouraged to take advantage of the discounted rate, applicable only if both registration and payment are received by April 20.

REGISTRATION AND FEES

All those planning to attend CIMTEC 2018 must register and receive badges. Advanced and late registrations fees are offered as well as special student registration fees. All Registration Fees include 22% government taxes.

Registration rates are in EUR, but payments may be also effected in US\$ at the exchange rate of the day in which the payment is made.

	CERAMICS CONGRESS (June 4-8)	FORUM ON NEW MATERIALS (June 10-14)	WHOLE CIMTEC (CONGRESS+FORUM) (June 4-14)
Early (by April 20, 2018)			
Full Member*	720.00 EUR	720.00 EUR	1,240.00 EUR
Student**	420.00 EUR	420.00 EUR	740.00 EUR
Invited Lecturer***	360.00 EUR	360.00 EUR	880.00 EUR
Late and on site			
Full Member*	800.00 EUR	800.00 EUR	1,320.00 EUR
Student**	470.00 EUR	470.00 EUR	820.00 EUR
Invited Lecturer***	440.00 EUR	440.00 EUR	960.00 EUR

* authors of lectures (L), posters (P), other Participants

** evidence of student status must accompany the registration

*** and/or Member of CIMTEC 2018 Committees

The fees include:

- General and secretariat costs
- Government taxes
- Admission to all technical sessions
- Lunch tickets
- Coffee tickets
- Participant bag and booklet of the Final Programme
- Admission to the Social Programme

Every attendee is requested to fill in and return the Registration Form unless the payment is made online by credit card.

Those members who make the payment on-line do not have to return the Registration Form.

PRESENTATION FORMATS

Oral Presentations

Electronic presentation (Power Point) facilities will be available including video projector, PC and laser pointer. Slide projectors will not be available. Cost for any special audio-visual request will be the responsibility of the individual speaker.

The timing for each lecture (day, and morning/afternoon sessions) may be read in the Session Timetable at page 6 and page 52.

Poster Presentations

Poster board: 200 cm (vertical) x 100 cm (horizontal). Pins can be used to attach the poster. Authors are kindly requested to be present at their poster for discussion with attendees during the Poster Session. It is each author's responsibility to remove the poster immediately after the end of the session. The organisers do not assume any responsibility for posters left up after this time. Guidelines for Poster preparation are available at the Conference web site. Attendance by at least one of the authors is mandatory for poster presentation.

LANGUAGE

English will be the official language for the Conference.

VISA APPLICATION

All travel, lodging and registration expenses will be responsibility of the individual participants. Special letters of invitation to be used for visa application will be provided upon written request by the participant to the conference organizers.

As the application for a visa may be a lengthy process, we recommend to start your visa application process in due advance. Those attendees who need a visa to entry in Europe are suggested to contact CIMTEC Secretariat as soon as possible indicating full mailing address, date and place of birth, passport number and date of expiration and any other information useful to obtain visa to: CIMTEC 2018 Secretariat, info@technagroup.it All letter of invitations will be sent by airmail and PDF e-mail attachment or fax.

CIMTEC organisation is unable to contact Embassies in support of an individual attempting to gain entry to attend the Conference.

FINAL PROGRAMME

The booklet of the Final Programme including titles and detailed timetable of Lectures, Posters and "HOT POSTERS" will be given at the registration desk. It also will be hopefully available on the conference web site approx. 10 days before the beginning of the conference.

WEATHER

The weather in Perugia at the beginning of June is usually fine with temperatures ranging from 22 to 27 °C during the day and 12 to 15 °C during the night. Clothing suitable for (early) summer is recommended.

SOCIAL PROGRAMME

CC is for Ceramic Congress; **FNM** is for Forum on New Materials

June 5 (CC) / June 11 (FNM)

Evening: Welcome Party

June 7 (CC) / June 13 (FNM)

Evening: Opera Concert

June 8 (CC) / June 14 (FNM)

Evening: Conference Dinner

OPTIONAL TOURS

June 5 (CC) / June 11 (FNM)

Full day: Guided tour to Perugia and Trasimeno Lake

June 6 (CC) / June 12 (FNM)

Full day: Guided tour to Spoleto and Montefalco

June 7 (CC) / June 13 (FNM)

Full day: Guided tour to Assisi and Spello

June 8 (CC) / June 14 (FNM)

Morning: Guided tour to Gubbio

Registration and payment for optional tours is to be made on site by cash only. Subjected to availability of places.

COMPANIONS PROGRAMME

Ceramics Congress

June 5

Full day: Guided tour to Perugia and Trasimeno Lake

Evening: Welcome Party

June 6

Full day: Guided tour to Spoleto and Montefalco

June 7

Full day: Guided tour to Assisi and Spello

Evening: Opera Concert

June 8

Morning: Guided tour to Gubbio

Evening: Conference Dinner

Appropriate booking space may be found in the Registration Form. On-line registration is also available.

Registration Fee: **290** EUR - After April 20: **310** EUR

On-site registration is subject to availability of places.

COMPANIONS PROGRAMME

Forum on New Materials

June 11

Full day: Guided tour to Perugia and Trasimeno Lake

Evening: Welcome Party

June 12

Full day: Guided tour to Spoleto and Montefalco

June 13

Full day: Guided tour to Assisi and Spello

Evening: Opera Concert

June 14

Morning: Guided tour to Gubbio

Evening: Conference Dinner

Appropriate booking space may be found in the Registration Form. On-line registration is also available.

Registration Fee: **290** EUR - After April 20: **310** EUR

On-site registration is subject to availability of places.

HOTEL ACCOMMODATION

Rooms have been reserved by CIMTEC 2018 Hotel Booking Center in a number of hotels (Conference Hotels). The prices agreed for CIMTEC 2018 members are reported in the *Hotel Booking Form*.

CIMTEC 2018 Hotel Booking Center

Via Corcianese 260

06132 Perugia

Italy

Tel. +39 075 5171722

Fax +39 075 5171707

e-mail: cimtec2018@hotelquattrotorriperugia.com

Shuttle bus connection to and from the Congress Center (which is located about 8 km from Perugia centre) will be made available by the Conference Hotels for the registration day (June 4 afternoon for the Ceramics Congress and June 10 afternoon for the Forum on New Materials) and during the whole conference.

Buses departure for evening social events will be arranged from Conference Hotels.

PUBLICATION POLICY

Authors of selected papers will be given the opportunity to publish in a special issue of "Ceramics International" (Elsevier Science / Techna Group) as fully peer reviewed papers. Authors will receive proper information for paper submission by May 15, 2018. A window for papers uploading will be opened at the journals web site from June 15 to July 15, 2018. Late submissions will not be processed.

SUMMARY OF DEADLINES

April 20, 2018

Registration at reduced rate

May 20, 2018

Conference Fees Cancellations (80% refund)

ABSTRACTS

A book of abstracts of all Oral and Poster Presentations will be made available at the conference web site well in advance of the beginning of the conference.

CURRENCY, BANKING AND INSURANCE

Banks are generally open Monday to Friday from 8.30 a.m. to 1.30 p.m. and from 3.00 p.m. to 4.00 p.m. Banks are closed on Saturdays and Sundays. Major credit cards are accepted in most hotels, and in some restaurants and shops.

The Organizers do not assume any responsibility for participant's personal accidents, sickness, thefts or property damage.

CANCELLATION

Prepaid registration fees (conference, companions programme) are refundable, minus a 20% administration fee, if written notification of the cancellation is received before May 20, 2018. No refund can be made for cancellations received after May 20, 2018. However delegate substitution can be accepted. All refunds will be made after the Conference.

"HOT" POSTERS (Last-minute Posters)

Late-news papers will be accepted for poster presentation, provided the following mandatory conditions be verified:

- Only Poster submission from Presenting Authors who **do not** have oral or poster presentations already scheduled in the conference programme will be accepted.
- Only one "HOT POSTER" may be contributed by the same Presenting Author.
- Submission shall be accompanied by the payment of the registration fee.
- The submission deadline of **April 20, 2018** be strictly respected.

To submit go to:

[http://2018.cimtec-congress.org/
abstract_submission_1](http://2018.cimtec-congress.org/abstract_submission_1)

The Conference Secretariat will confirm receipt of the Hot Poster and will supply the Presenting Author with proper information about Poster Presentation.

FURTHER INFORMATION

For scientific and organizational aspects of the conference (**until May 30**)

CIMTEC 2018
Ms Stefania Bianchedi
Corso Mazzini, 52
48018 FAENZA - ITALY

Tel. +39 0546 22461

Fax +39 0546 664138

e-mail: congress@technagroup.it

For aspects related to hotel accommodation (booking, schedule changes, cancellations, etc.)

CIMTEC 2018 Hotel Booking Center
Via Corcianese, 260
06132 Perugia - Italy

Tel. +39 075 5171722

Fax +39 075 5171707

e-mail: cimtec2018@hotelquattrotorriperugia.com

SOCIAL PROGRAMME

The Social Programme for Registered Members to CIMTEC 2018 will include:

Welcome Party - Main Cloister of Saint Peter Monastery (CC June 5 - FNM June 11, evening)

The monastery was created around 102 over the former cathedral church, seat of Perugia's bishops, existing since the early seventh century, although the first document citing the abbot is from 1002. Its early patron was Pietro Vincioli, a Perugian noble, later canonized. In the following centuries the abbey increased greatly its power, until in 1398 it was burnt by the Perugini, as the abbot Francesco Guidalotti had taken part in the plot against Biordo Michelotti, chief of the popular party. The monastery reflooured with Pope Eugene IV, who united it to the Congregation of St. Justine of Padua, maintaining a position of prestige and power in the city. The abbey was temporarily suppressed by the French in 1799. The monks had aided the Perugine revolt of 1859 against the Papal government, and, after the Unification of Italy, the new government allowed them to remain in the Abbey.

The Abbey has two more cloisters: one, called Chiostro Maggiore, is a Renaissance construction attributed to Guido da Settignano, another, also known as Chiostro delle Stelle, is from 1571.

At the Welcome Party delegates will enjoy a variety of renowned Umbria traditional dishes and drinks in an elegant and friendly environment.

Entrance ticket for non-registered companions: 30.00 EUR



Concert "Opera Gran Gala" - Teatro Morlacchi (CC June 7 - FNM June 13, evening)

The "Opera Gran Gala" of CIMTEC 2018 will be performed by the renowned "Lucca Philharmonic Orchestra" at the magnificent Teatro Morlacchi in Perugia. The Orchestra is composed of about sixty players. Singers: Soprano Francesca Maiorchi and Bianca Barzanti; Tenors: Simone Frediani and Simone Mugnaini. Master conductor: Andrea Colombini.

The Concert of the **Ceramic Congress** will be held on Thursday June 7, evening (21.30-23.30). The programme will include pieces by: W.A. Mozart, G. Verdi, G. Puccini and R. Leoncavallo.

The Concert of the **Forum on New Materials** will be held on Wednesday June 13, evening (21.30-23.30).

The programme will include pieces by: G. Bizet, W.A. Mozart, G. Puccini, J. Strauss, R. Leoncavallo and J. Offenbach.



Entrance ticket for non-registered companions: 30.00 EUR (subjected to place availability)

Conference Dinner - Chiostro di Santa Giuliana (CC June 8, FNM June 14, evening)

The Conference Dinner will take place at the St' Giuliana Cloister (Chiostro di Santa Giuliana). The Cloister is part of the monumental complex of St' Giuliana erected around the year 1253 and now the seat of the School for Foreign Languages of the Italian Army. The splendid cloister by architect Matteo Gattapone constitutes one of highest examples of "circestence" architecture in Italy and is characterized by wide white arches supported by octagonal pillars with pink and white stripes, also including some capitals remnants of previous Roman building.

Entrance ticket for non-registered companions: 60.00 EUR



OPTIONAL TOURS

PERUGIA, PASSIGNANO & TRASIMENO LAKE (CC Tuesday June 5, FNM Monday June 11, full day)

Perugia (<https://en.wikipedia.org/wiki/Perugia>) is the capital city of the Umbria region in central Italy, crossed by the river Tiber. It is located about 170 km north of Rome, and 150 km south-east of Florence. It covers a high hilltop and part of the valleys around the area.

The history of Perugia goes back to the Etruscan period. Perugia was one of the main Etruscan cities. The city is also known as the universities town, with the University of Perugia founded in 1308 (about 34,000 students), the University for Foreigners (5,000 students), and some smaller colleges such the Academy of Fine Arts "Pietro Vannucci" (Italian: *Accademia di Belle Arti "Pietro Vannucci"*) public athenaeum founded in 1573, the Perugia University Institute of Linguistic Mediation for translators and interpreters, the Music Conservatory of Perugia, founded in 1788, and others Institutes. There are annual festivals and events: the Eurochocolate Festival (October), the Umbria Jazz Festival (July), and the International Journalism Festival (April).

Perugia is a well-known cultural and artistic centre of Italy. The famous painter Pietro Vannucci, nicknamed Perugino, was a native of Città della Pieve near Perugia. He decorated the local



Sala del Cambio with a beautiful series of frescoes; eight of his pictures can also be admired in the National Gallery of Umbria. Perugino was the teacher of Raphael, the great Renaissance artist who produced five paintings in Perugia (today no longer in the city) and one fresco. Another famous painter, Pinturicchio, lived in Perugia. Galeazzo Alessi is the most famous architect from Perugia. The city symbol is the griffin, which can be seen in the form of plaques and statues on buildings around the city.

The tour includes:

- Corso Vannucchi (main Perugia street)
- Historical buildings: Palazzo dei Priori and Sala dei Notari
- Cathedral - Main Fountain (Fontana Maggiore) - Etruscan Arch
- Medioeval alleys and panoramic views

Served Lunch: Restaurant in Passignano sul Trasimeno

Passignano sul Trasimeno (Passignano on Trasimeno Lake) is placed on the lakeshores. The town was built in between the 16th and the 17th Century whereas its suggestive historical centre surrounding the fortress dates back to medieval and also to most ancient times.



After a view of the historical centre, participants will take a ferry to visit Isola Maggiore, the biggest island of Lake Trasimeno.

The lake is south of the river Po and north of the nearby river Tiber. Only two minor streams flow directly into the Lake and none flows out. The water level of the lake fluctuates significantly according to rainfall levels and the seasonal demands from the towns, villages and farms near the shore. The first civilization to inhabit this area was the Etruscans; three of the main Etruscan cities - Perugia, Chiusi, and Cortona - are within



20 kilometres (12 miles) of the lake. Little physical evidence remains from the period of Etruscan or later Roman settlement. Castiglione del Lago, has some Roman ruins and its main streets are structured like a chessboard in the Roman style. The lake includes three islands: Isola Maggiore, Isola Polvese and Isola Minore.

Meeting point: Entrance of the Congress Center at 9.00 a.m. Return to Perugia at about 7.00 p.m.

The participation fee (70 EUR) includes bus transfer, English speaking hostess and local guides, served lunch and ferry ticket.



SPOLETO & MONTEFALCO (CC Wednesday June 6, FNM Tuesday June 12, full day)

Spoletto, (Latin *Spoletium*) is an ancient city in the Perugia district located at the head of a large, broad valley, surrounded by mountains. The town has long occupied a strategic geographical position. It appears to have been an important town to the original Umbri tribes, who built walls around their settlement in the 5th century BC, some of which are visible today. An ancient Roman colony, after Ostrogoth and Lombard, medieval town contended between the Pope and the Emperor, between Guelfs and Ghibellines, cultural centre during the Renaissance and Bishop seat, the history of the City has left an exceptional architectonic and art cultural heritage within a splendid naturalistic context. The Acquedotto delle Torri (Towers Aqueduct) with its majesty and beauty welcomes us when joining Spoleto.

The tour includes:

- Town walls, "Torre dell'Olio" (Oil Tower) and Porta Fuga (Fuga Door)
- Roman Theatre
- Domus of Flavia Vespasia Pollia Domus, mother of Roman Emperor Vespasiano
- Arco di Druso (Arch of Drusus)
- Roman church of Sant'Eufemia
- Cathedral square
- Ponte delle torri (Tower Bridge) connecting the historical centre. The bridge, built in between the 12th and 13th Century, is 280 meters long and 82 meters high.



Lunch: Restaurant in Spoleto

Montefalco, a charming town built on a hill overlooking the valley linking Perugia with Spoleto, has been settled since the times of the Umbri. It has been under the successive domination of the Romans, Lombards, being called **Coccorone** in the Middle Ages. In 1249 it was sacked by Frederick II, but was soon rebuilt with the modern name. From the 13th century it had been a free comune under the domination of local nobles and merchants, but later, as with many other Umbrian locales, the comune gave way to government by a signoria (1383-1439). In 1446 it fell under the rule of the Papal States where it remained until the unification of Italy in 1861. Montefalco has several churches, some in the Romanesque, some in the Gothic and some in the Renaissance style. The 13th century Palazzo Comunale ("Town Hall") has a mullioned window from the original edifice and a 15th-century portal. Also notable are the gates in the walls, including Porta Sant'Agostino, Porta Camiano and Porta Federico II.



The tour includes:

- Saint Francis Church
- Architectural lodges
- Main Square
- Consuls Palace and Palace of the Podestà
- Cathedral
- Ducal Palace
- Medieval street and panoramic views

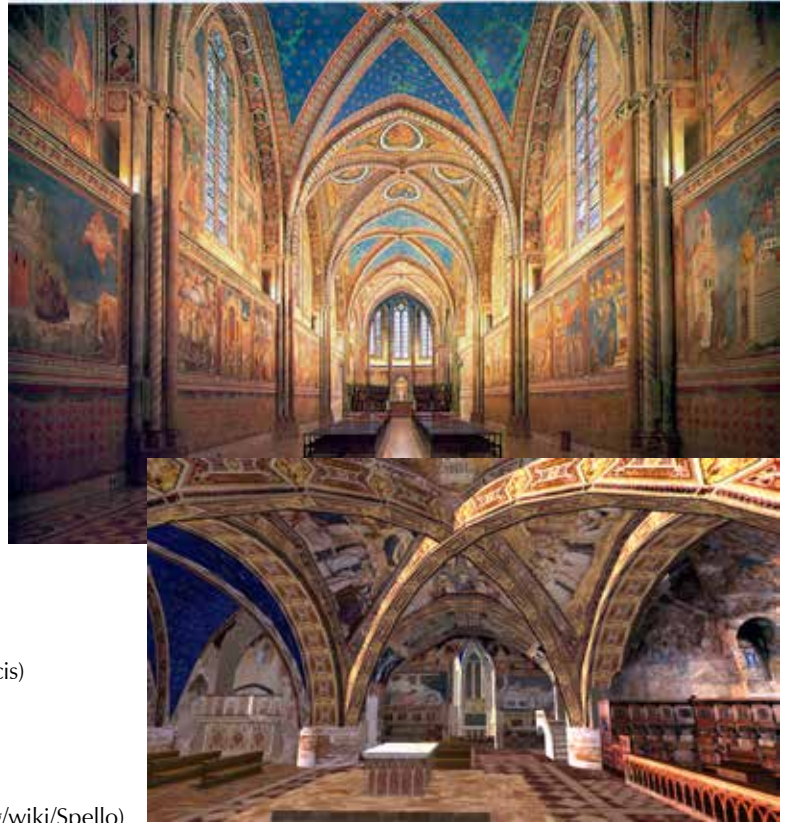
Meeting point: entrance of the Congress Center at 9.00 a.m. Return to Perugia at about 7.00 p.m.

The participation fee (60.00 EUR) includes bus transfer, English speaking hostess and local guides, and served lunch.

ASSISI & SPELLO (CC Thursday June 7, FNM Wednesday June 13, full day)

Placed on the slope of Subasio Mountain (Monte Subasio), **Assisi** (<https://en.wikipedia.org/wiki/Assisi>) is without any doubt the most internationally renowned city from Umbria Region its fame mainly deriving from being the birth place of San Francis (San Francesco) the patron saint of Italy. UNESCO collectively designated the Franciscan structures of Assisi as a World Heritage Site in 2000. The city retains vestiges of the Roman age whereas the Middle Ages urban planning remains practically untouched.

The Basilica of San Francesco d'Assisi (St. Francis) is the major sight in Assisi. The Franciscan monastery, il Sacro Convento, and the lower and upper church (Italian: *Basilica inferiore* and *Basilica superiore*) of St Francis were begun in 1228, and completed in 1253. The lower church has frescoes by the late-medieval artists Cimabue and Giotto; the upper church houses frescoes of scenes in the life of St. Francis previously ascribed to Giotto, but now thought to be by artists of the circle of Pietro Cavallini from Rome.



The visit includes:

- Basilica di San Francesco (St. Francis Church)
- Piazza del Comune (Town Hall square)
- Tempio della Minerva (Minerva Temple)
- Chiesa Nuova (New Church built over the presumed parental home of St. Francis)
- Oratorio di San Francesco piccolino (Oratory of St. Francis)
- Basilica di Santa Chiara (Basilica of St. Clare)

Lunch: Restaurant in Assisi

Spello (in Antiquity: Hispellum) (<https://en.wikipedia.org/wiki/Spello>) is an ancient town placed on the lower southern flank of Mt. Subasio, about 6 km from Assisi. The old walled town lies on a regularly NW-SE sloping ridge that eventually meets the plain. From the top of the ridge, Spello commands a good view of the Umbrian plain towards Perugia; at the bottom of the ridge, the town spills out of its walls into a small modern section (or *Borgo*).

Spello remains four monumental gates and a long track of walls of Roman Age, besides the ruins of Roman amphitheatre and holy buildings. The Middle Ages town is one of the more fascinating of the Umbria Region.

The visit includes:

- Porta Urbica (Urbica Gate)
- Mura Romane (Roman Walls)
- Porta Consolare (Consular Gate)
- Chiesa Collegiata di Santa Maria Maggiore (Santa Maria Maggiore Church with Pinturicchio frescoes)
- Palazzo Comunale (Medioeval Tawn Hall)



- Palazzo Cruciali (Cruciali Palace)
- Belvedere (panoramic viewpoint)
- Porta Venere con Torri di Propezio (Venere Gate and Propezio Towers)

Meeting point: entrance of the Congress Center at 9.00 a.m. Return to Perugia at about 7.00 p.m.

The participation fee (60.00 EUR) includes transportation, city entrance taxes, English speaking hostess and local guides, and lunch.

GUBBIO (CC Friday June 8, FNM Thursday June 14, morning)

Gubbio (<https://en.wikipedia.org/wiki/Gubbio>), located on the lowest slope of Mt. Ingino, a small mountain of the Apennines, is among the best preserved splendid Middle Ages city of Umbria Region. The city's origins are very ancient. The hills above the town were already occupied in the Bronze Age, followed by Umbrian people and Roman conquest in the 2nd century BC. Gubbio became very powerful in the beginning of the Middle Ages and became part of the Papal States in 1631. The historical centre of Gubbio has a decidedly medieval aspect: the town is austere in appearance because of the dark grey stone, narrow streets, and Gothic architecture. Many houses in central Gubbio date to the 14th and 15th centuries, and were originally the dwellings of wealthy merchants. Among most important buildings and sites in the city are: Roman Theater and Roman Mausoleum, Palazzo dei Consoli, Duomo, Palazzo Ducale and several others.

The visit includes:

- Chiesa di San Francesco (St. Francis Church)
- Logge (Open galleries)
- Piazza Grande (Main Square)
- Palazzo dei Consoli e Palazzo del Podestà (Middle Ages public palaces)
- Cattedrale (Cathedral)
- Palazzo Ducale (Dukes Palace)
- Middle Ages alleys and panoramic views



Meeting point: entrance of the Congress Center at 9.00 a.m. Return to Perugia at about 1.00 p.m. The participation fee (30 EUR) includes transportation, city taxes, English speaking guide.

REGISTRATION FORM

Return by April 20, 2018 to:

CIMTEC Corso Mazzini, 52 48018 FAENZA ITALY
Fax +39 0546 664138 - E-mail: congress@technagroup.it

PARTICIPANT for on-line registration and/or Hot Poster submission, please go to:
<http://2018.cimtec-congress.org/onlinereg>

Family Name First Name

INVOICING DETAILS:

Institute / Company

Full Address

.....

Postal Code City Country

Phone Fax E-mail

VAT Number

Tax Code / Tax Identification Number

If you need the invoice issued to yourself, please write your place and date of birth

.....

REGISTRATION FEES* (EUR)	Early (by April 20)	Late and On Site
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CERAMICS CONGRESS (June 4-8)

Full Member**	<input type="checkbox"/> 720.00 EUR	<input type="checkbox"/> 800.00 EUR
Student***	<input type="checkbox"/> 420.00 EUR	<input type="checkbox"/> 470.00 EUR
Invited Lecturer****	<input type="checkbox"/> 360.00 EUR	<input type="checkbox"/> 440.00 EUR

FORUM ON NEW MATERIALS (June 10-14)

Full Member**	<input type="checkbox"/> 720.00 EUR	<input type="checkbox"/> 800.00 EUR
Student***	<input type="checkbox"/> 420.00 EUR	<input type="checkbox"/> 470.00 EUR
Invited Lecturer****	<input type="checkbox"/> 360.00 EUR	<input type="checkbox"/> 440.00 EUR

WHOLE CIMTEC 2018 (June 4-14)

Full Member**	<input type="checkbox"/> 1,240.00 EUR	<input type="checkbox"/> 1,320.00 EUR
Student***	<input type="checkbox"/> 740.00 EUR	<input type="checkbox"/> 820.00 EUR
Invited Lecturer****	<input type="checkbox"/> 880.00 EUR	<input type="checkbox"/> 960.00 EUR

* Payment can also be made in US\$ at the exchange rate of the day in which the payment is made

** Authors of Contributed Lectures (L) and Posters (P), other participants

*** Evidence of student status must accompany the registration

**** and/or Member of CIMTEC 2018 Committees

Early fee is applicable only if both registration and payment are received by April 20

I confirm attendance in the following complimentary socials (check please)

Welcome Party (June 5 June 11) Opera Concert (June 7 June 13)
Conference Dinner (June 8 June 14)

This section is to be filled-out ONLY if you are a **Presenting Author**

Please indicate below the code number of your presentation as assigned by the Conference Secretariat and reported in the Final Announcement **Code Number**

COMPANION/S

Family NameFirst Name.....

Family NameFirst Name.....

Family NameFirst Name.....

Companions Programme**Early****Late and On Site****(by April 20)**Ceramics Congress*

Persons No. x 290.00 EUREUR No. x 310.00 EUREUR

Forum on New Materials

Persons No. x 290.00 EUREUR No. x 310.00 EUREUR

* *On site registration is subject to availability of places***Inscription to Companions Programme does not allow to attend technical sessions****SUMMARY OF FEES**

Registration Fee (Full Member) EUR

Registration Fee (Student) EUR

Registration Fee Invited Lecturer or/and
CIMTEC 2018 Committee Member EURRegistration Fee (Accompanying Persons)
- CERAMICS CONGRESS EUR
- FORUM EUR

TOTAL EUR

PAYMENT (to be made **net of all charges** in EUR or equivalent in US\$)**Payment of EUR / US\$ is being made:**

By bank transfer made payable to:
Techna Group Srl, Cassa di Risparmio di Cesena SpA, 505 Filiale Faenza 1
 SWIFT: **CECRIT2CXXX**
 IBAN: **IT58 Q061 2023 705C C505 0002 852**
 DESCRIPTION: **CIMTEC 2018 and Participant Name**
(please enclose copy of the bank transfer)

 I will pay on-site (on-site payment to be made by cash only)**NOTE: USE A SEPARATE FORM FOR EACH INDIVIDUAL REGISTRATION**

HOTEL BOOKING FORM **Return to:**

Hotel Booking Center Via Corcianese, 260 06132 Perugia - Italy

Tel. +39 075 5171722 Fax +39 075 5171707

cimtec2018@hotelquattrotorriperugia.com

PARTICIPANT (please use block letters or type)

Family Name First Name

INVOICING DETAILS:

Institute / University

Full Address

Post Code City Country

Phone..... Fax..... E-mail.....

VAT Number (for invoicing)

Prices per Day per Person (EUR)

HOTEL CATEGORY	BB-Bed & Breakfast	
	DUS (Double Single Use)	Double (Per person)
5 star (Luxury)*	160.00	120.00
4 star	119.00	81.00
3 star super	89.00	60.00
3 star	79.00	55.00

*Only a limited number of rooms are available. Therefore the rooms will be assigned on first-come - first-served basis.

All rooms are with private bath or shower. Third occupancy with additional bed in double room: 30% discount on third occupancy. Children: 0-2 years old, no charge with no additional bed; 2-12 years old, 30% discount.

Prices include:

- Buffet breakfast,
- Service,
- All taxes exception being made for the city tax to be paid directly to the hotel (5 stars EUR 2.50 - 4 stars EUR 2.00 - 3 stars EUR 1.50 per day per person).
- Bus transfer to and from the Congress Center at the beginning and at the end of the Technical Sessions and shuttle bus connections Congress Center - Hotel during the day.

- A complimentary bus transfer on **Monday June 4** for the Ceramics Congress and on **Sunday June 10** for the Forum on New Materials (from 14.00 to 24.00) from Fiumicino Rome Airport "Leonardo da Vinci" and from Perugia International Airport "San Francesco d'Assisi" to the booked hotel in Perugia will be made available to hotels guests. Hotel staff will receive participants at the exit of International Arrivals Terminal from 14.00 to 24.00.

Please book No. DUS for No. nights

Please book No. Double No. Twin for No. nights

in a 5 star 4 star 3 star super 3 star hotel at the prices reported above

Arrival on Departure on

Arrival by: car train plane at Rome Airport Umbria/Perugia Airport

on at by flight Number from

Rooms Booked**Deposit per Room******Total**

No. DUS B&B

.....EUR

.....EUR

No. Double B&B

.....EUR

.....EUR

GRAND TOTALEUR

**** First night deposit has to be forwarded for each booked room. The full amount of deposit received will be detracted from the final hotel bill.**

The payment has been effected by **bank transfer free of charge** to:
Golf Hotel Quattrotorri Srl - IBAN: IT 03 J 02008 38402 000040624671
BIC/SWIFT UNCRITM1J04
DESCRIPTION: CIMTEC 2018 and Participant Name

The payment has been effected by **telegraphic money-order** to:
Golf Hotel Quattrotorri Srl
DESCRIPTION: CIMTEC 2018 and Participant Name

NOTES

 PAYMENT BY CREDIT CARD

I authorise "Hotel Booking Center Quattrotorri Perugia" to charge the indicated GRAND TOTAL amount for hotel reservation

Please charge my credit card MASTERCARD VISA AMERICAN EXPRESS JCB MAESTRO

Credit card number..... Expiration date.....

Credit card holder.....

for the total payment (subject to verification) of EUR

.....
Signature (binding)

REMARKS

- You will be informed by Hotel Booking Center about available accommodation giving the name of the hotel, the price and confirming receipt of the first night deposit. Balance will be made to hotel by each individual participant.
- In case of no-show of the first night, room(s) availability or refund of the deposit will not be possible.
- 1st night deposit is not refundable. However delegate substitution is admitted.

Please send this form to CIMTEC 2018 Hotel Booking Center:
by mail: Hotel Booking Center Quattrotorri Via Corcianese, 260 06132 Perugia - Italy
or by e-mail: cimtec2018@hotelquattrotorriperugia.com
or by fax: +39 075 5171707

NO RESERVATION WILL BE MADE WITHOUT PAYMENT OF THE HOTEL DEPOSIT
AFTER APRIL 20th ROOM RESERVATION CANNOT BE GUARANTEED

CIMTEC 2018

<i>Flowsheet</i>		JUNE 10		JUNE 11		JUNE 12		JUNE 13		JUNE 14	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
8th FORUM ON NEW MATERIALS	REGISTRATION										
	SYMPOSIUM FA			FA	FA	FA	FA	FA	FA	FA	
	SYMPOSIUM FB			FB	FB	FB		FB			
	FOCUSED SESSION FB-6							FB-6		FB-6	FB-6
	SYMPOSIUM FC			FC	FC	FC	FC	FC	FC	FC	FC
	SYMPOSIUM FD			FD	FD	FD	FD	FD	FD	FD	
	SYMPOSIUM FE			FE	FE	FE	FE	FE	FE	FE	FE
	SYMPOSIUM FF			FF	FF	FF	FF	FF	FF	FF	FF
	SYMPOSIUM FG			FG	FG	FG	FG	FG	FG	FG	FG
	SYMPOSIUM FH			FH	FH	FH	FH	FH	FH	FH	
	SYMPOSIUM FI			FI	FI	FI	FI	FI	FI	FI	FI
	SYMPOSIUM FJ			FJ	FJ	FJ	FJ	FJ	FJ	FJ	FJ
	SYMPOSIUM FK			FK	FK	FK	FK	FK	FK	FK	FK
	FOCUSED SESSION FK-10					FK-10	FK-10	FK-10			
	SYMPOSIUM FL			FL	FL	FL	FL	FL	FL	FL	FL
	CONFERENCE FM			FM	FM	FM	FM	FM	FM	FM	FM
	CONFERENCE FN			FN	FN	FN	FN	FN	FN	FN	FN
	CONFERENCE FO			FO	FO	FO	FO	FO	FO	FO	FO
	CONFERENCE FP			FP	FP	FP	FP	FP	FP	FP	FP
	POSTER MOUNTING										
POSTER DISCUSSION											
SOCIALS											

P L E N A R Y S E S S I O N

● WELCOME RECEPTION
 ● GALA CONCERT
 ● CONFERENCE DINNER

A selection of endorsing and cooperating bodies of CIMTEC Conferences

Commission of the European Communities • National Research Council, Italy • Italian National Agency for New Technology, Energy and the Environment • Academy of Sciences of Romania • Academy of Sciences of Russia • Academy of Sciences of Ukraine • World Academy of Ceramics • International Union of Materials Research Societies • International Ceramic Federation • International Institute of Welding • ASM International • International Union of Pure and Applied Chemistry • International Union of Pure and Applied Physics • International Standards Organization • International Thermoelectric Society • The International Society for Optical Engineering • International Association for Structural Control and Monitoring • Versailles Project for Advanced Materials and Standards • European Association of Composite Materials • European Committee for Standardization • European Optical Society • European Society for Biomaterials • European Thermoelectric Society • EURO-CVD • Federation of European Materials Societies • Royal Institute of British Architects • American Carbon Society • Brick Institute of America • The American Institute of Architects • American Powder Metallurgy Institute • American Society for Composites Institute of Electric and Electronic Engineers • Italian Center for Composites • Italian Institute for the Physics of Materials • Italian Physical Society • Italian Society for Optics and Photonics • Japanese Orthopaedic Ceramic Implant Society • Optical Society of America • Society for Biomaterials, USA • The Electrochemical Society, USA • The Japan Society for Applied Physics • The Japan Society for Biomaterials • The Japan Society of Mechanical Engineers • The Japan Society for Composite Materials • The Society for Fiber Science and Technology of Japan

