

Monday, January 28, 2013

Plenary Session

8:30 AM-12:00 PM

Room: Coquina Salon D

8:30 AM

Opening Remarks

Sanjay Mathur, Sujanto Widjaja

9:00 AM

(ICACC-PL-001-2013) Failure of Ceramics under Externally Applied Loads and Internally Generated Pressures: Zirconia, a Unique Material (Invited Speaker)

Anil Virkar*, University of Utah, USA

9:40 AM

(ICACC-PL-002-2013) Microstructural Evolution and Mechanical Properties of Engineering Ceramics (Invited Speaker)

Tatsuki Ohji*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

10:20 AM

Break

10:40 AM

(ICACC-PL-003-2013) Nanocomposite Materials for the Next generation Vehicles (Invited Speaker)

D. S. Han*, Hyundai Motor Company, Republic of Korea

11:20 AM

(ICACC-PL-004-2013) Designing Ceramics for Electrochemical Energy Storage Devices (Invited Speaker)

Bruce Dunn*, University of California, USA

Symposium 1: Mechanical Behavior and Performance of Ceramics & Composites

Monday, January 28, 2013

Mechanics and Characterizations

1:30 PM-5:50 PM

Room: Coquina Salon D

Session Chair: TBA

1:30 PM

(ICACC-S1-001-2013) Measuring and understanding the fracture toughness in ceramics at the microstructural scale using microcantilever beams

Andrew D Norton*, Richard I Todd, University of Oxford, United Kingdom

1:50 PM

(ICACC-S1-002-2013) Mesoscale Brittle Mechanical Testing Using Theta Specimens

Brian Babcox*, Mary Frecker, George A Lesieutre, James H Adair, Pennsylvania State University, USA

2:10 PM

(ICACC-S1-003-2013) Torsion tests on brittle and tough joining materials

Monica Ferraris*, Milena Salvo, Andrea Ventrella, Politecnico di Torino, Italy

2:30 PM

(ICACC-S1-004-2013) Role of Circumferential Cracking in Fracture from Cylindrical Inclusions in: LTCC-Gold via System

Rajan Tandon*, Sandia National Lab, USA

2:50 PM

(ICACC-S1-005-2013) Grain boundary fracture toughness of Si_3N_4 ceramics using very small specimens

Junichi Tatami*, Masaki Katayama, Katsutoshi Komeya, Toru Wakihara, Yokohama National University, Japan; Tsukahara Yahagi, Kanagawa Academy of Science and Technology, Japan; Takahiro Horiuchi, Masahiro Yokouchi, Kanagawa Industrial Technology Center, Japan; Kouichi Yasuda, Tokyo Institute of Technology, Japan

3:10 PM

Break

3:30 PM

(ICACC-S1-006-2013) Edge Chip Fracture Resistance of Ceramic and Composite Materials

George Quinn*, Anthony Giuseppetti, Kathleen Hoffman, Janet Quinn, American Dental Association Foundation, USA

3:50 PM

(ICACC-S1-007-2013) Heat diffusivity measurements on ceramic foams and fibers with a laser spot and an IR camera

Gerard L. Vignoles*, University Bordeaux, France; Christophe Lorrette, CEA, France; Grégory Bresson, Rénal Backov, University Bordeaux, France

4:10 PM

(ICACC-S1-008-2013) Effect of Calcium-Magnesium-Alumina-Silicate on Strain within the TGO Layer of Thermal Barrier Coatings

Sagarnil Das*, Sanna Siddiqui, Steven Scott, Morgan Ewen, Kevin Knipe, Albert Manero, University of Central Florida, USA; John Okasinski, Jonathan Almer, Argonne National Laboratory, USA; Li Li, Albert Feuerstein, Praxair Surface Technologies, USA; Seetha Raghavan, University of Central Florida, USA

4:30 PM

(ICACC-S1-009-2013) Phase Transformations in YTaO_4 and the Effect of Zr-ion Doping

Pankaj Sarin*, Zlatomir D Apostolov, Daniel R Lowry, Waltraud M. Kriven, University of Illinois at Urbana-Champaign, USA; Samuel Shian, David R Clarke, Harvard University, USA

4:50 PM

(ICACC-S1-010-2013) Neutron Scattering of Ferroelastic Mixed Ionic Electronic Conducting LaCoO₃ based Perovskite Under In-Situ Uniaxial Compression

Nina Orlovskaya*, Yan Chen, University of Central Florida, USA; Dong Ma, Alexandru Stoica, Ke An, Oak Ridge National Laboratory, USA

5:10 PM

(ICACC-S1-011-2013) Characterization of structural behavior under re-entry type transformations in Ln₆WO₁₂ (Ln= Y, Ho, Er, Yb)

Zlatomir Apostolov*, Pankaj Sarin, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

5:30 PM

(ICACC-S1-012-2013) Acquisition Techniques for Synchrotron X-Ray Strain Measurements in Tubular TBC Specimens for Thermal Gradient Mechanical Testing

Kevin Knipe*, Albert Manero, Sagarnil Das, Sanna Siddiqui, Steven Scott, Morgan Ewen, University of Central Florida, USA; Carla Meid, Janine Schneider, DLR Aerospace, Germany; John Okasinski, Jonathan Almer, Argonne National Laboratory, USA; Marion Bartsch, DLR Aerospace, Germany; Seetha Raghavan, University of Central Florida, USA

Tuesday, January 29, 2013
Processing, Microstructure and Mechanical Properties Correlation I

8:00 AM-11:40 AM

Room: Coquina Salon D

Session Chair: TBA

8:00 AM

(ICACC-S1-013-2013) The effect of the addition of ceria stabilised zirconia on the creep of mullite

Daniel Glymond*, Finn Giuliani, Imperial College London, United Kingdom; Mike Vick, Ming-Jen Pan, Naval Research Laboratory, USA; Luc Jean

Vandeperre, Imperial College London, United Kingdom

8:20 AM

(ICACC-S1-014-2013) Characterizations of ZrO₂-stabilized YTaO₄: Thermal conductivity and in-situ Raman micro-analysis

Samuel Shian*, Mary Gurak, Harvard University, USA; Pankaj Sarin, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA; David R Clarke, Harvard University, USA

8:40 AM

(ICACC-S1-015-2013) Doping as a way to control microstructure and mechanical properties of Al₂O₃-ZrO₂ composites

Laurent Gremillard*, Katia Biotteau-Deheuvelds, Jerome Chevalier, INSA, France

9:00 AM

(ICACC-S1-016-2013) High-Temperature Creep Behavior of SiOC Polymer-Derived Ceramic Nanocomposites: Microstructural and Phase Composition Effects

Emanuel Ionescu*, Hans-Joachim Kleebe, Ralf Riedel, Technische Universitaet Darmstadt, Germany

9:20 AM

(ICACC-S1-017-2013) Processing, microstructure and creep behaviour of alumina-SiC micro-nanocomposites

Helen Reveron*, Mira Jaafar, Claude Esnouf, Gilbert Fantozzi, MATEIS Laboratory - Insa de Lyon, France

9:40 AM

Break

10:00 AM

(ICACC-S1-018-2013) Pressure-Induced Transformation Toughening in 10 mol% Yttria Stabilized Zirconia- β -eucryptite Composites

Subramanian Ramalingam*, Ivar E Reimanis, Colorado School of Mines, USA

10:20 AM

(ICACC-S1-019-2013) Investigation into the effect of common ceramic core additives on the crystallisation and sintering of amorphous silica

Ben Taylor*, Birmingham University, United Kingdom; Stewart Welch, Rolls Royce PLC, United Kingdom; Stuart Blackburn, Birmingham University, United Kingdom

10:40 AM

(ICACC-S1-020-2013) Crack Propagation in Tooth Enamel is Regulated by Enamel Apatite Crystallographic Dimensions

Faleh Tamimi*, Elnaz Ghadimi, Hazem Eimar, Benedetto Marelli, Showan Nazhat, Hojatollah Vali, McGill University, Canada

11:00 AM

(ICACC-S1-021-2013) Processing and Mechanical Characterization of ZnO/Polyester Woven Carbon Fiber Composites

Hyung Wook Park*, Kyungil Kong, Ulsan National Institute of Science and Technology, Republic of Korea; HeeJune Kim, LG Hausys R&D Center, Republic of Korea

11:20 AM

(ICACC-S1-022-2013) Solid-solution of nitrogen-containing rare earth aluminates R_2AlO_3N

Yong Jiang*, Laner Wu, Yuhong Chen, Wenzhou Sun, Zhenkun Huang, Beifang University of Nationalities, China

Processing, Microstructure and Mechanical Properties Correlation II

1:30 PM-5:30 PM

Room: Coquina Salon D

Session Chair: TBA

1:30 PM

(ICACC-S1-023-2013) High Fracture Toughness-High Strength Ceramics for Welding Applications

Vladimir D. Krstic*, Queen's University, Canada

1:50 PM

(ICACC-S1-024-2013) Scientific Fundamentals and Industrial Applications of Superhard Nanocomposite Coatings

Stan Veprek*, Technical University Munich, Germany

2:10 PM

(ICACC-S1-025-2013) Fabrication of cBN reinforced $Y-\alpha-SiAlON$ composites through the SPS technique

Jethro Christopher Garrett*, Iakovos Sigalas, Mathias Herrmann, University of the Witwatersrand, South Africa

2:30 PM

(ICACC-S1-026-2013) Processing, structure and mechanical behavior of (Si)-B-C ceramics

Francis Teyssandier*, Camille Pallier, Georges Chollon, Weisbecker Patrick, Jean-Marc Leyssale, CNRS-LCTS, France; Christelle Gervais, LCMCP Paris 6 Collège de France, France; Henry Fischer, Fausto Sirroti, Synchrotron SOLEIL, France

2:50 PM

(ICACC-S1-027-2013) Non-Reactive Processing Methods for Producing Biomimetic Graphite/Copper Composites

Amanda E Sall*, Katherine T Faber, Northwestern University, USA

3:10 PM

Break

3:30 PM

(ICACC-S1-028-2013) Towards a Multiscale Model of Thermally-Induced Microcracking in Porous Ceramics

Ray S Fertig*, University of Wyoming, USA; Seth Nickerson, Corning Incorporated, USA

3:50 PM

(ICACC-S1-029-2013) Investigation on reliability of high alumina refractories

Wenjia Yuan*, Qingyou Zhu, Chengji Deng, Hongxi Zhu, Wuhan University of Science and Technology,

China

4:10 PM

(ICACC-S1-030-2013) Porous oxide ceramic matrix composites produced by the lamination of thermoplastic prepreps

Paula Oliveira Guglielmi*, Technische Universität Hamburg-Harburg, Germany; Diego Blaese, Murilo P Hablitzel, Daniel P Goulart, Márcio C Fredel, Dachamir Hotza, Universidade Federal de Santa Catarina, Brazil; Rolf Janssen, Technische Universität Hamburg-Harburg, Germany

4:30 PM

(ICACC-S1-031-2013) Thermal behaviour and characteristics of fired metakaolinite-based geopolymers

Antoine Elimbi*, Herve K Tchakoute, Joseph M Dika, Marcel Kondo, University of Yaounde 1, Cameroon

4:50 PM

(ICACC-S1-032-2013) Microstructure and Mechanical properties of In-situ processed B4C-HfB2 Composites

Sairam Kannan, T.S.R.Chandra Murthy*, J.k Sonber, C. Subramanian, Rajendra Chennaveer Hubli, Ashok Kumar Suri, Bhabha Atomic Research Centre, India

5:10 PM

(ICACC-S1-033-2013) Densification of SiC with AlN-Nd₂O₃ sintering additives

Laner Wu*, Yong Jiang, Wenzhou Sun, Yuhong Chen, Zhenkun Huang, Beifang University of Nationalities, China

Wednesday, January 30, 2013

Fiber, Matrices, and Interfaces

8:00 AM-12:00 PM

Room: Coquina Salon D

Session Chair: TBA

8:00 AM

(ICACC-S1-034-2013) Effect of Matrix Microstructure on Composite Properties

Thomas Key*, Kristin Keller, AFRL/RXCC & UES, USA

8:20 AM

(ICACC-S1-035-2013) Processing and properties of silicon alloy infiltrated SiC fiber / SiC matrix composites

Toshio Ogasawara*, Takuya Aoki, JAXA, Japan; Katsumi Yoshida, Yosuke Okubo, Toyohiko Yano, Tokyo, Japan

8:40 AM

(ICACC-S1-036-2013) Processing and mechanical properties of melt infiltrated C/SiC composites

Takuya Aoki*, Toshio Ogasawara, Japan Aerospace Exploration Agency, Japan; Takeki Hara, Masashi Ishikawa, Yasuo Kogo, Tokyo University of Science, Japan; Yutaka Iwahori, Japan Aerospace Exploration Agency, Japan

9:00 AM

(ICACC-S1-037-2013) Tensile Properties of 2D and 3D SiC Tyranno SA 3 fiber-reinforced SiC composites, known as EU Reference Material

Darina T Blagoeva*, Johannes B Hegeman, Monica Jong, Theo Bakker, Peter Pierick, Henk Nolles, NRG, Netherlands

9:20 AM

(ICACC-S1-038-2013) Strength degradation in fatigue for Hi Nicalon filaments at elevated temperature

Jacques Luc Lamon*, Mohamed R'Mili, CNRS, France

9:40 AM

Break

10:00 AM

(ICACC-S1-039-2013) Effect of Stress and Steam on Oxidation Rates of Hi-Nicalon-S SiC Fiber

Randall Hay*, Geoff Fair, Marina Ruggles-Wrenn, Benjamin Steffens, Air Force Reserach Laboratory, USA; Mark Cridge, Wright State University, USA;

Olivia Anhofer, University of Dayton, USA

10:20 AM

(ICACC-S1-040-2013) Tensile Behavior and Damage Monitoring of SiC fiber reinforced SiC matrix Single Tow MiniComposites

Sivakumar Ramasamy*, Amjad Almansour, Gregory N Morscher, The University of Akron, USA

10:40 AM

(ICACC-S1-041-2013) Microstructural Evolution during Creep Testing of Nextel 610 and Nextel 720 in Air and Steam

Randall Hay*, Geoff Fair, Marina Ruggles-Wrenn, Clint Armani, Air Force Research Laboratory, USA; Mark Cridge, Wright State University, USA; Olivia Anhofer, University of Dayton, USA

11:00 AM

(ICACC-S1-042-2013) Fabrication and Testing of γ -RE₂Si₂O₇ Matrix Composites

Emmanuel E Boakye*, Kristin Keller, Pavel Mogilevsky, Triplicane Parthasarathy, UES Inc., USA; Michael K Cinibulk, Randall S Hay, AFRL, USA; Mark Ahrens, Mark Cridge, Wright State University, USA

11:20 AM

(ICACC-S1-043-2013) Different Ceramic Fibers Exposed to High Temperature

Henry A Colorado*, Jenn Ming Yang, UCLA, USA; Clem Hiel, Composite Support and Solutions Inc., USA

11:40 AM

(ICACC-S1-044-2013) Study on strength prediction model for unidirectional composites

Hongjian Zhang*, Weidong Wen, Haitao Cui, Jianfeng Xiao, Nanjing University of Aeronautics & Astronautics, China

Mechanical Behaviors of CMCs

1:30 PM-4:50 PM

Room: Coquina Salon D

Session Chair: TBA

1:30 PM

(ICACC-S1-045-2013) Evaluation of Interfacial Fracture Toughness from Single-Fiber Push-Out Tests applied to Ceramic Matrix Composite Samples

Wolfgang M Mueller*, Judith Moosburger-Will, Markus G Sause, Siegfried Horn, University of Augsburg, Germany

1:50 PM

(ICACC-S1-046-2013) Characterization of SiC/SiCN ceramic matrix composites with monazite fiber coating

Enrico Klatt*, Klemens Kelm, Martin Friess, Dietmar Koch, Heinz Voggenreiter, German Aerospace Center (DLR), Germany

2:10 PM

(ICACC-S1-047-2013) Effects of Non-Uniform Strains on Tensile Fracture of Ceramic Composites

Varun Rajan*, Frank W Zok, University of California Santa Barbara, USA

2:30 PM

(ICACC-S1-048-2013) Damage Accumulation Behavior of Silicon Carbide Matrix Composites by Inter-Laminar Tensile Mode

Takashi Nozawa*, Kazumi Ozawa, Toshiya Nakata, Hiroyasu Tanigawa, Japan Atomic Energy Agency, Japan

2:50 PM

(ICACC-S1-049-2013) Thermally-driven delamination in ceramic matrix composites

John H Shaw*, Frank W Zok, UC Santa Barbara, USA

3:10 PM

Break

3:30 PM

(ICACC-S1-050-2013) Characterization of Defects in Textile Composites using 3-D Digital Image Correlation

Michael Nicholas Rossol*, Frank W Zok, UC Santa

Barbara, USA

3:50 PM

(ICACC-S1-051-2013) Delamination in multilayered thin film oxide superconductor composite tapes

Venkat Selvamanickam*, Ibrahim Kesgin, Goran Majkic, Eduard Galtsyan, University of Houston, USA; Changhui Lei, SuperPower, USA

4:10 PM

(ICACC-S1-052-2013) Cooling performance tests of a CMC nozzle with annular sector cascade rig

Nita Kozo*, Okita Yoji, Nakamata Chiyuki, IHI Corporation, Japan

4:30 PM

(ICACC-S1-053-2013) Thermomechanical Properties of Shape Memory Alloy (NiTi) and MAX (Ti₃SiC₂) Phase Interpenetrating Composites

Ankush Kothalkar, Rogelio Benitez, Liangfa Hu*, Miladin Radovic, Ibrahim Karaman, Texas A&M University, USA

Thursday, January 31, 2013

Tribological Performance and Impact Testing of Ceramics and Composites

8:00 AM-10:40 AM

Room: Coquina Salon D

Session Chair: TBA

8:00 AM

(ICACC-S1-054-2013) Tribological Performance of Carbon-Ceramics Composite Materials

Ajayi Oyelayo*, Cinta Lorenzo-Martin, Sol Torrel, Dileep Singh, Argonne National Lab, USA; L. Manocha, Guddu Prasad, Sardar Patel University, India

8:20 AM

(ICACC-S1-055-2013) Tribological Properties of Alumina/Zirconia Composites With and Without h-BN Phases

Liang Xue*, Timken, USA; Gary L Doll, University of

Akron, USA

8:40 AM

(ICACC-S1-056-2013) The Sliding Wear Behaviour of TiC-316L Stainless Steel Composites

Chukwuma C Onuoha*, Zoheir N Farhat, Georges J Kipouros, Kevin Paul Plucknett, Dalhousie University, Canada

9:00 AM

(ICACC-S1-057-2013) Tribological profile of binderless niobium carbide

Marcos Stuart, CBMM Companhia Brasileira de Metalurgia e Mineração, Brazil; Kardy Mohrbacher, Niobelcon BV, Belgium; Mathias Woydt*, BAM Federal Institute for Materials Research and Testing, Germany

9:20 AM

(ICACC-S1-058-2013) Comprehensive ablation characteristics of ceramic fibers impregnated rubber composites

Nadeem Iqbal*, Mohammad Bilal Khan, Sadia Sagar, Asghjari Maqsood, National University of Sciences and Technology (NUST), Pakistan

9:40 AM

Break

10:00 AM

(ICACC-S1-059-2013) Use of NDE and Health Monitoring Techniques to Assess High-Velocity Impact Performance of Various SiC/SiC Composites

Christopher Richard Baker*, Gregory N Morscher, University of Akron, USA; Andrew L Gyekenyesi, Ohio Aerospace Institute, USA; Calvin Faucett, Sung R Choi, Naval Air Systems Command, USA

10:20 AM

(ICACC-S1-060-2013) Multilayer Ceramic Composite Armor Design and Impact Tests

Faruk Elaldi*, University of Baskent, Turkey

Environmental Effects on Mechanical Performance of CMCs

1:30 PM-5:50 PM

Room: Coquina Salon D

Session Chair: TBA

1:30 PM

(ICACC-S1-061-2013) Modeling of Oxidation Effects on Mechanical and Thermal Behavior of ZrB₂-20vol%SiC Ceramic at High Temperature

Lokeswarappa R. Dharani*, Jun Wei, K. Chandrashekhara, Greg Hilmas, William G. Fahrenholtz, Missouri University of Science and Technology, USA

1:50 PM

(ICACC-S1-062-2013) Fatigue of Hi Nicalon filaments at elevated temperature: size and stress effects on rupture times

Jacques Luc Lamon*, CNRS, France; Mohamed R'Mili, University of Lyon, France

2:10 PM

(ICACC-S1-063-2013) Creep Behavior of Hi-Nicalon S Fiber Tows at Elevated Temperatures in Air and in Steam

Marina Ruggles-Wrenn*, Benjamin Steffens, Theodore Shillig, Air Force Institute of Technology, USA; Geoff Fair, Randall Hay, Air Force Research Laboratory, USA

2:30 PM

(ICACC-S1-064-2013) Creep Behavior in Interlaminar Shear of a Hi-NiCALON/SiC Ceramic Matrix Composite at 1200° C in Air and in Steam

Matthew T Pope, Marina Ruggles-Wrenn*, Air Force Institute of Technology, USA

2:50 PM

(ICACC-S1-065-2013) Mechanical properties degradation of the YSZ (plasma sprayed coatings) under humidity atmosphere

Gaelle Leclercq*, Sebastien Lambert, Huchet

Guillaume, CEA, France; Chevalier Jerome, Olagnon Christian, INSA, France; Tallaron Christophe, CEA, France

3:10 PM

Break

3:30 PM

(ICACC-S1-066-2013) Influence of oxidation on the mechanical properties of oxide fibre-reinforced ceramic composites with precursor-derived mullite-SiOC matrix

Kamen Tushtev*, Eike Volkmann, Leandro Evangelista Lima, Thomas Schumacher, University of Bremen, Germany; Dietmar Koch, German Aerospace Center, Germany; Christian Wilhelmi, EADS, Germany; Kurosch Rezwani, University of Bremen, Germany

3:50 PM

(ICACC-S1-067-2013) CMAS Exposure Effects in Ceramic Matrix Composites at Elevated Temperatures

D. Calvin Faucett*, Charles Lei, Sung R Choi, Naval Air Systems Command, USA

4:10 PM

(ICACC-S1-068-2013) Hydration of ZrW₂O₈

Mohammad Imteyaz Ahmad*, Mufit Akinc, Iowa State University, USA

4:30 PM

(ICACC-S1-069-2013) Subcritical Crack Growth in Low Temperature Co-fired Ceramics: effect of humidity and temperature on the biaxial strength

Raul Bermejo*, Montanuniversitaet Leoben, Austria; Clemens Krautgasser, Materials Center Leoben Forschung GmbH, Austria; Peter Supancic, Robert Danzer, Montanuniversitaet Leoben, Austria

4:50 PM

(ICACC-S1-070-2013) Slow crack growth in silicon carbide

Luc Jean Vandeperre*, Nasrin Al Nasiri, Finn Giuliani, Eduardo Saiz, Imperial College London,

United Kingdom

5:10 PM

(ICACC-S1-071-2013) Application of SiC/SiC composite to thruster for upper stage liquid fuel engine.

Rumi Kitazawa*, Ken Goto, Japan Aerospace Exploration Agency, Japan; Yuichi Yoshida, Mitsubishi Heavy Industries, Japan; Toshiharu Fukunaga, Kyoto University, Japan; Shinichiroh Tokudome, Tsuyoshi Yagishita, Japan Aerospace Exploration Agency, Japan

Tuesday, January 29, 2013

S1 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-S1-P001-2013) Influence of alumina cement on the refractory behavior of leached clay

Ben O. Adewuyi, Davies O Folorunso*, Joseph O Borode, Federal University of Technology, Akure, Nigeria

(ICACC-S1-P002-2013) Rapid fabrication process for C/SiC composites with dispersed SiC slurry infiltration method

Takeki Hara*, Yasuo Kogo, Masashi Ishikawa, Tokyo University of Science, Japan; Takuya Aoki, Toshio Ogasawara, Japan Aerospace Exploration Agency (JAXA), Japan

(ICACC-S1-P003-2013) The Study on the sinterability of SiC powders prepared from solarcell wafer sludge

Youngseok Kim, Dongil Chun*, Inocera inc., Republic of Korea

(ICACC-S1-P004-2013) Dielectric and electric modulus studies on sol-gel derived fine Grain PZT/CeO₂ nanocomposites

Puja Goel*, Ashok Biradar, National Physical Laboratory, India

(ICACC-S1-P005-2013) A finite element study on

the bending behavior of sandwich structured Si-SiC ceramics

Claudio D'Angelo*, Alberto Ortona, SUPSI, Switzerland

(ICACC-S1-P006-2013) Microstructure and Properties of Reaction Bonded Metal Modified Ceramics.

Sam Salamone*, Michael Aghajanian, M Cubed Technologies Inc., USA; Suzanne Horner, James Zheng, Program Executive Office-Soldier, US Army, USA

(ICACC-S1-P007-2013) Pressureless Infiltration of TiB₂ based Composites by Silicon and Silicides

Mehmet Akbas*, Matthew Iassogna, William Vance, Daniel Mastrobattisto, Micheal Aghajanian, Micheal Aghajanian, M Cubed Technologies, USA

(ICACC-S1-P008-2013) Weave and Fiber Volume Effects on Durability of Ceramic Matrix Composites

Greg Ojard*, Rajiv Naik, Erica Prevost, Pratt & Whitney, USA; Unni Santhosh, Structural Analytistics, Inc., USA; David Jarmon, United Technologies Research Center, USA

(ICACC-S1-P009-2013) Fiber, Porosity and Weave Effects on Properties of Ceramic Matrix Composites

Greg Ojard*, Pratt & Whitney, USA; Jacques Cuneo, Southern Research Institute, USA; Imelda Smyth, Erica Prevost, Pratt & Whitney, USA; Yasser Gowayed, Auburn University, USA; Unni Santhosh, Structural Analytistics, Inc., USA; Anthony Calomino, NASA - Langley Research Center, USA

(ICACC-S1-P010-2013) Aqueous Corrosion of Ti(C,N)/Ni₃Al Cermets

Melanie B Holmes, Georges J Kipouros, Zoheir N Farhat, Kevin Paul Plucknett*, Dalhousie University, Canada

(ICACC-S1-P011-2013) Structural, dielectric and ferroelectric properties of Sr doped BZTN-BCT ceramics

Jyoti Rani*, K. L Yadav, S. Prakash, Indian Institute

of Technology Roorkee, India

(ICACC-S1-P012-2013) High-K Dielectric Ceramics
Piyush Kumar Patel*, K. L Yadav, Indian Institute of Technology Roorkee, India

(ICACC-S1-P013-2013) Advanced Ceramics Property Measurements
Jonathan Salem, NASA GRC, USA; John D. Helfinstine*, Corning Inc, USA; George Quinn, NIST, USA; Stephen Gonczy, Gateway Materials Technology, Inc, USA

(ICACC-S1-P014-2013) Acoustic Emission and Electrical Resistivity Monitoring of SiC/SiC Composite Cyclic Behavior
Christopher Richard Baker*, Gregory N Morscher, University of Akron, USA

(ICACC-S1-P015-2013) Acoustic Emission and Electrical Resistivity During Tensile Testing of Different Volume Fraction SiC/SiC Composites
Amjad Almansour*, Sivakumar Ramasamy, Gregory N Morscher, The University of Akron, USA

(ICACC-S1-P016-2013) Structural, dielectric and magnetoelectric studies of $\text{Ni}_{0.75}\text{Zn}_{0.25}\text{Fe}_2\text{O}_4\text{-BiFeO}_3$ multiferroic composites
Nidhi Adhlakha*, K. L Yadav, Indian Institute of technology Roorkee, India

(ICACC-S1-P017-2013) The effect of thermo-mechanical loading and environmental exposure on creep resistance of EBC/CMC systems
Matthew Paul Appleby*, Gregory N Morscher, University of Akron, USA; Dongming Zhu, NASA Glenn Research Center, USA

(ICACC-S1-P018-2013) Effect of a compatibilizing agent on particles of yttrium-doped BaTiO₃ on the dielectric behavior of silicone rubber composites
Myriam Paredes Olguín*, Carlos Gómez Yáñez, Fermín P Espino Cortés, National Polytechnic Institute, Mexico

(ICACC-S1-P019-2013) Local Damage and

Heterogeneous Structure in Discontinuous Carbon Fiber Dispersed SiC Matrix Composites under Stress Concentration Source
Ryo Inoue*, Hideki Kakisawa, Yutaka Kagawa, University of Tokyo, Japan

(ICACC-S1-P020-2013) Oxidation behavior and mechanical properties degradation of hot-pressed Al₂O₃/ZrB₂/ZrO₂ ceramic composites
Ali Goodarzi*, Hailey Taylor, Harvard University, USA; Mustafa Arslan, Ataturk University, Turkey

(ICACC-S1-P021-2013) Effect of fiber type on mechanical properties of short carbon fiber reinforced B₄C composites
Ali Goodarzi*, Hailey Taylor, Harvard University, USA; Mustafa Arslan, Ataturk University, Turkey

(ICACC-S1-P022-2013) Low temperature Diffusion bonding of Alumina-Alumina ceramics by Hydride inter-layer nano powders mixtures
Navid Hosseinabadi*, Rasoul Sarraf MAmoory, TMU, Islamic Republic of Iran

(ICACC-S1-P023-2013) Electrodeposition and tribological properties of Cu-Si₃N₄ composite coatings
Maryam Eslami*, Farhad Golestanifard, Hassan Saghafian, Iran university of science and technology, Islamic Republic of Iran

(ICACC-S1-P024-2013) Compression failure analysis of graphite foam core based sandwich composite constructions
Hooman Hosseini*, Seyyed Reza Ghaffarian, Amirkabir University of Technology (Tehran Polytechnic), Islamic Republic of Iran; Mohammad Teymouri, Ali reza Moeini, National Iranian Oil Company, Research Institute of Petroleum Industry, Islamic Republic of Iran

(ICACC-S1-P025-2013) Evolution of grain boundary structure during initial stage sintering in yttria stabilized cubic zirconia
Maya Kini K*, Atul H Chokshi, Indian Institute of Science, India

(ICACC-S1-P026-2013) Ultra High Temperature Oxidation of ZrB₂-SiC-ZrC ceramics up to 1700 °C

Yutaro Arai*, Yasuo Kogo, Masashi Ishikawa, Tokyo University of Science, Japan; Shu-qi Guo, National Institute for Material Science (NIMS), Japan; Ken Goto, Japan Aerospace Exploration Agency (JAXA), Japan; Takuya Yasuno, Iwaki Meisei University, Japan

(ICACC-S1-P027-2013) The Effect of Heat Treatment on the Microstructure and Creep Properties of Erbium Oxide containing SiAlON Ceramics

Dilek Turan*, Y. Deniz, S. Kayhan, A. Ulndag, Anadolu University, Turkey

Symposium 2: Advanced Ceramic Coatings for Structural, Environmental and Functional Applications

Monday, January 28, 2013
**Environmental Barrier
Coatings**

1:30 PM-5:50 PM

Room: Ponce DeLeon

Session Chair(s): Kang Lee, Yiguang Wang

1:30 PM

(ICACC-S2-001-2013) Environmental Barrier coatings for Ceramic Matrix Composites (Invited Speaker)

Kang N. Lee*, Rolls-Royce Corporation, USA

2:00 PM

(ICACC-S2-002-2013) Progress in EBC Development for Silicon-based, Non-oxide Ceramics

Charles Lewinsohn*, Hyrum Anderson, Joshua Johnston, Ceramtec, Inc., USA; Dongming Zhu, NASA Glenn Research Center, USA

2:20 PM

(ICACC-S2-003-2013) HfO₂/SiCN Films as an Oxidation Barrier to SiC

Kalvis Terauds*, Univ Colorado, USA; David Marshall, Teledyne Scientific Co., USA; Rishi Raj, Univ Colorado, USA

2:40 PM

(ICACC-S2-004-2013) The Influence of Ca-Mg-Al Silicates on Stresses and Phase Transformations in Yb-Silicate Environmental Barrier Coatings

Fabian Stolzenburg*, Northwestern University, USA; Jonathan Almer, Argonne National Lab, USA;

Kang N Lee, Rolls Royce Corporation, USA; Bryan J Harder, NASA Glenn Research Center, USA; Katherine T Faber, Northwestern University, USA

3:00 PM

Break

3:20 PM

(ICACC-S2-005-2013) The stability of rare-earth silicates in water-vapor environments (Invited Speaker)

Yiguang Wang*, Northwestern Polytechnical University, China

3:50 PM

(ICACC-S2-006-2013) Single Crystal TiO₂ recession in high temperature water vapor

Robert Alexander Sean Golden*, Xinye Liu, Jack Valentine, Elizabeth J Opila, University of Virginia, USA

4:10 PM

(ICACC-S2-007-2013) Plasma Spray - Physical Vapor Deposition of High Temperature Environmental Barrier Coatings for Turbine Blades

Bryan James Harder*, Dongming Zhu, NASA Glenn Research Center, USA

4:30 PM

(ICACC-S2-008-2013) Thermal Expansion and Phase Transitions of Rare Earth Disilicates and Monosilicates

Thomas S Key*, Emmanuel E Boakye, Kayla F Presley, Randall S Hay, UES & AFRL/RXCC, USA

4:50 PM

(ICACC-S2-009-2013) Electrochemical Synthesis of Carbide Derived Carbon - A Novel Air Filter for Volatile Organic Compounds (VOCs)

Senthilnathan Jaganathan*, Weng Chih-Chiang, Tsai Wen-Ta, National Cheng Kung University, Taiwan; Gogotsi Yuri, A. J. Drexel Nanotechnology Institute, Drexel University, USA; Yoshimura Masahiro, National Cheng Kung University, Taiwan

5:10 PM

(ICACC-S2-010-2013) Fabrication of slurry based Y-Si-Al-O environmental barrier coating on the porous Si₃N₄

Yinchao Liu, Chao Wang, Hongjie Wang*, State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, China

5:30 PM

(ICACC-S2-011-2013) Effect of Cobalt Oxide on Willemite Crystalline Glazes at Moderate Temperature

Neetu Sharma*, N.A.S. (P.G.)College, India; Lalit K Sharma, Central Glass and Ceramic Research Institute, India; Herginder Kaur, N.A.S. (P.G.) College, India

Tuesday, January 29, 2013

Thermal Barrier Coatings I

8:00 AM-12:00 PM

Room: Ponce DeLeon

Session Chair(s): Ali Goodarzi, Seongwon Kim

8:00 AM

(ICACC-S2-012-2013) Luminescence-Based Diagnostics of Thermal Barrier Coating Health and Performance (Invited Speaker)

Jeffrey I Eldridge*, NASA Glenn Research Center, USA

8:30 AM

(ICACC-S2-013-2013) TEM Characterization of Zirconate-based Oxides for Thermal Barrier Coatings (TBCs) (Invited Speaker)

Seongwon Kim*, Sung-Min Lee, Yoon-Suk Oh, Hyung-Tae Kim, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; Byung-Koog Jang, National Institute of Materials Science, Japan

9:00 AM

(ICACC-S2-014-2013) Multilayer Thermal Barrier Coatings: Interplay among coating design, processing and properties

Sanjay Sampath*, Gopal Dwivedi, Vaishak

Viswanathan, Yikai Chen, Stony Brook University, USA

9:20 AM

(ICACC-S2-015-2013) Cycle Duration Effects on Thermal Barrier Coating Life- Experiments and Predictive Modeling

Eric Jordan, Shayan Ahmadian*, Charles Thistle, University of Connecticut, USA

9:40 AM

Break

10:00 AM

(ICACC-S2-016-2013) Comparison in Foreign Object Damage (FOD) between Air Plasma Sprayed and EB-PVD Thermal Barrier Coatings (TBCs) (Invited Speaker)

D. Calvin Faucett, S. Charles Lei, Sung R Choi*, Naval Air Systems Command, USA

10:30 AM

(ICACC-S2-017-2013) Thermodynamics of ZrHf-mixed silicates for environmental barrier coatings for Tyranno-hex materials (Invited Speaker)

Ali Goodarzi*, Hailey Taylor, Harvard University, USA

11:00 AM

(ICACC-S2-018-2013) Microstructural and Phase Evolution in Yttria-Stabilized Zirconia Thermal Barrier Coatings Deposited via Plasma Spray-Physical Vapor Deposition (PS-PVD)

Michael P Schmitt*, The Pennsylvania State University, USA; Bryan J Harder, Dongming Zhu, NASA Glenn Research Center, USA; Douglas E Wolfe, The Pennsylvania State University, USA

11:20 AM

(ICACC-S2-019-2013) New Chemistries with the Potential to form Novel High Fracture Toughness Thermal Barrier Coating Materials

Michael David Hill*, Trans-Tech Inc., USA

11:40 AM

(ICACC-S2-020-2013) Mechanism of Mullite

Formation By Aluminium Filler-Controlled Pyrolysis of Polymethylsiloxane

Juliana Anggono*, Petra Christian University, Indonesia; Brian Derby, University of Manchester, United Kingdom

Thermal Barrier Coatings II

1:30 PM-3:20 PM

Room: Ponce DeLeon

Session Chair(s): Kevin Plucknett

1:30 PM

(ICACC-S2-021-2013) Materials R&D Within DOE's Advanced Turbine Program

Briggs White*, Dept. of Energy, USA

2:00 PM

(ICACC-S2-022-2013) Effect of microstructure on the fracture toughness of plasma sprayed thermal barrier coatings

Gopal Dwivedi*, Vaishak Viswanathan, Stony Brook University, USA; Amit Shyam, Edgar Lara-Curzio, Oak Ridge National Lab, USA; Sanjay Sampath, Stony Brook University, USA

2:20 PM

(ICACC-S2-023-2013) Thermal Barrier Coatings Degradation Mechanisms in Land Based Gas Turbines

Gregoire Witz*, Bettina Bordenet, Hans-Peter Bossmann, Alstom Power, Switzerland

2:40 PM

(ICACC-S2-024-2013) Evaluation of Thermal Degradation of Thermal Barrier Coatings

Jiangang Sun*, Argonne National Laboratory, USA

3:00 PM

Break

Coating for Tribological Applications

3:20 PM-5:30 PM

Room: Ponce DeLeon

Session Chair(s): Shanghua Wu

3:20 PM

(ICACC-S2-025-2013) Innovative ceramic like coatings for tooling, machining, aerospace, energy and automotive industry (Invited Speaker)

Paul H. Mayrhofer*, Vienna University of Technology, Austria

3:50 PM

(ICACC-S2-026-2013) Zirconia Coating on Stainless Steel with Growing Integration Layer [GIL] Oxides (Invited Speaker)

Masahiro Yoshimura*, Ke-Hung Chen, Yin-Ru Lin, Chii-Shyang Hwang, National Cheng Kung University, Taiwan

4:10 PM

(ICACC-S2-027-2013) Synthesis of some multi-component ceramic coatings for structural applications by a hybrid high power impulse magnetron sputtering method (Invited Speaker)

Qimin Wang*, Guangdong University of Technology, China

4:30 PM

(ICACC-S2-028-2013) Structure and properties of some PVD coatings on ceramic cutting inserts for dry and high speed cutting processes (Invited Speaker)

Ying Long, Qiming Wang, Shanghua Wu*, Guangdong University of Technology, China

4:50 PM

(ICACC-S2-029-2013) Surface Boriding of Titanium Alloys

Timmy Sarkar, Benjamin Blakney, Paul Bishop, Kevin Paul Plucknett*, Dalhousie University, Canada

5:10 PM

(ICACC-S2-030-2013) Characterization and Performance of TiB₂ Coatings on SiAlON Ceramic Cutting Tools

Servet Turan*, Anadolu University, Turkey; Huseyin Alagoz, Erdem Uzun, Bilkent University, Turkey;

Serkan Ulukut, Anadolu University, Turkey; Erman Bengu, Bilkent University, Turkey

Wednesday, January 30, 2013

Multifunctional Coatings

8:00 AM-12:00 PM

Room: Ponce DeLeon

Session Chair(s): Soshu Kiriwara, Jeffrey Eldridge

8:00 AM

(ICACC-S2-031-2013) Plasma-assisted electrolytic coatings and surface treatments for sustainable energy applications (Invited Speaker)

Aleksey Yerokhin*, University of Sheffield, United Kingdom

8:30 AM

(ICACC-S2-032-2013) Interface modification of LiMn₂O₄ cathodes by electronic and ionic conducting coatings (Invited Speaker)

Kuo-Feng Chiu*, Cheng-Lun Chen, Feng Chia University, Taiwan

9:00 AM

(ICACC-S2-033-2013) Fabrication of Fine Ceramics Layers by Thermal Nano-particles Coating Techniques (Invited Speaker)

Soshu Kiriwara*, Yousuke Itakura, Satoko Tasaki, Osaka University, Japan

9:20 AM

(ICACC-S2-034-2013) Surface Modification of La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-δ} Hollow Fiber Membranes for Oxygen Separation

Marijke Jacobs*, Bart Michielsen, Vesna Middelkoop, Marijn Gijsen, Frans Snijkers, VITO, Belgium

9:40 AM

Break

10:00 AM

(ICACC-S2-035-2013) Dynamic oblique angle deposition of nanostructures for energy applications (Invited Speaker)

Gwo-Ching Wang*, Toh-Ming Lu, Ishwara Bhat, Rensselaer Polytechnic Institute, USA

10:20 AM

(ICACC-S2-036-2013) Nonpolar AlN Thin Films on Diamond for New Electronics Devices (Invited Speaker)

Sean Wu*, Tung-Fang Design University, Taiwan; Jow-Lay Huang, National Cheng-Kung University, Taiwan; Ruyen Ro, I-Shou University, Taiwan; Zhi-Xun Lin, Advance Design Technology INC., Taiwan

10:40 AM

(ICACC-S2-037-2013) Thermal conductivity of thick AlN films on glass prepared by aerosol deposition

Dong-Soo Park*, Hangil Kim, Woon-Ha Yoon, Jung-ho Ryu, Jongjin Choi, Jongwoo Kim, Cheolwoo Ahn, Korea Institute of Materials Science, Republic of Korea

11:00 AM

(ICACC-S2-038-2013) Characteristics and Mechanism in Amorphous Oxides for Resistance Random Access Memory Application

Jinn Peter Chu*, Wen Zhi Chang, Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taiwan; Sea Fue Wang, Department of Materials and Minerals Resources Engineering, National Taipei University of Technology, Taiwan

11:20 AM

(ICACC-S2-039-2013) Protective coating based on PDC for high-temperature recovery system

Andre Luiz Geromel Prette*, University of Bayreuth, Germany; Stefan Rannabauer, Michael Scheffler, Otto-von-Guericke University Magdeburg, Germany; Matthias Wersch, DBI Gas- und Umwelttechnik GmbH, Germany; Marcus Wiersig, MIOBA Mitteldeutscher Industrie-Ofenbau GmbH & Co. KG, Germany; Günter Motz, University of Bayreuth, Germany

11:40 AM

(ICACC-S2-040-2013) Preparation of silica-coated nano-sized Y₃Al₅O₁₂:Ce³⁺ phosphor and their

luminescence properties

Hee Jo Song*, Dong Hoe Kim, Chan Woo Lee, Hee-Suk Roh, Seoul National University, Republic of Korea; Dong-Wan Kim, Ajou University, Republic of Korea; Kug Sun Hong, Seoul National University, Republic of Korea

Tuesday, January 29, 2013

S2 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-S2-P027-2013) Large Transverse Thermoelectric Voltage Effect in Nb-doped SrTiO₃ Single and Multi layer Epitaxial Film

Yi Qin*, Ting Zhao, Jianfeng Yang, State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, China

(ICACC-S2-P028-2013) The self-healing matrix composites: Numerical approach of dynamic behavior of a self-healing fluid and the composite in a rotational system

Louiza Benazzouk*, Eric Arquis, Nathalie Bertrand, Cédric Descamps, Marc Valat, University of Bordeaux 1, France

(ICACC-S2-P029-2013) First principles simulations of vacancy formation in a $\Sigma 31$ grain boundary of α -alumina

Takafumi Ogawa*, Akihide Kuwabara, Hiroki Moriwake, Japan Fine Ceramics Center, Japan; Katsuyuki Matsunaga, Nagoya University, Japan; Satoshi Kitaoka, Japan Fine Ceramics Center, Japan

(ICACC-S2-P030-2013) Epitaxial growth of LaxZr1-xOy films on the textured substrate

Yanling Cheng*, Guangdong University of Technology, China; Hongli Suo, Beijing University of Technology, China; Shanghua Wu, Guangdong University of Technology, China; Min Liu, Lin Ma, Beijing University of Technology, China; Qiming Wang, Fenglin Zhang, Guangdong University of Technology, China

(ICACC-S2-P031-2013) Development of solid lubricant by nano ceramic composite binder
Woo Young Chung*, Ki Hyeong Yoo, Korea Automotive Technology Institute, Republic of Korea; Gyeong Jae Lee, SAM SAN SLC co., LTD., Republic of Korea; Joon-Won Min, Korea Automotive Technology Institute, Republic of Korea

(ICACC-S2-P032-2013) Formation of microcrystalline 3C-SiC film from Si and graphite sources by using a high-pressure hydrogen plasma
Hiromasa Ohmi*, Hiroaki Kakiuchi, Kiyoshi Yasutake, Osaka University, Japan

(ICACC-S2-P033-2013) Hot Corrosion of ZrO₂-4mol%Y₂O₃ Plasma Sprayed Coatings by Volcanic ash

WonJun Lee, Gyeongsang National University, Republic of Korea; Byung-Koog Jang*, Toshio Hiraoka, Hiroshi Araki, Hideyuki Murakami, Seiji Kuroda, Dong-Woo Shin, National Institute for Materials Science (NIMS), Japan

(ICACC-S2-P034-2013) Effect of surface morphology on thermal radiation reflectance of oxide ceramics multilayer coatings for high temperature thermal radiation control

Masahiro Yamazoe*, Hideki Kakisawa, Yutaka Kagawa, University of Tokyo, Japan

(ICACC-S2-P035-2013) Structural Design and Characterization of Flake-reinforced Oxide Coatings for CMC Surface Protection

Hideki Kakisawa*, Takuya Matsumoto, Yutaka Kagawa, University of Tokyo, Japan

(ICACC-S2-P036-2013) Effect of Extrinsic Factors on Rumpling Behavior of TGO Layer formed by Oxidation of PtAl Bond Coat

Hayato Suzuki*, Hideki Kakisawa, Yutaka Kagawa, University of Tokyo, Japan

(ICACC-S2-P037-2013) Investigation of the three dimensional behavior of MCrAlY bond coat rumpling using high fidelity 3D imaging

Sina Shahbazmohamadi*, Eric Jordan, University of Connecticut, USA

Symposium 3: 10th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

Tuesday, January 29, 2013

SOFC Applications

8:00 AM-12:00 PM

Room: Coquina Salon H

Session Chair: TBA

8:00 AM

(ICACC-S3-001-2013) Role of Solid Oxide Fuel Cells in a Balanced Energy Strategy (Invited Speaker)

Eric D. Wachsman*, Craig A Marlowe, Kang Taek Lee, University of Maryland, USA

8:30 AM

(ICACC-S3-002-2013) SECA Program Status (Invited Speaker)

Briggs White*, Dept. of Energy, USA

9:00 AM

(ICACC-S3-003-2013) SOFC-system for high efficient power generation from biogas

Andreas Lindermeir*, Ralph-Uwe Dietrich, Jana Oelze, CUTEC Institut GmbH, Germany

9:20 AM

(ICACC-S3-004-2013) Development of a portable propane driven 300 W SOFC-system

Christian Szepanski, Andreas Lindermeir*, Ralph-Uwe Dietrich, CUTEC Institut GmbH, Germany

9:40 AM

Break

10:00 AM

(ICACC-S3-005-2013) Development and

Application of SOFC-MEA Technology at INER (Invited Speaker)

Maw-Chwain Lee*, Tai-Nan Lin, Ruey-yi Lee, Institute of Nuclear Energy Research, Taiwan

10:30 AM

(ICACC-S3-006-2013) Development of Solid Oxide Fuel Cell Stack Modules for High Efficiency Power Generation (Invited Speaker)

Hossein Ghezal-Ayagh*, FuelCell Energy, Inc., USA

11:00 AM

(ICACC-S3-007-2013) Portable LPG-fueled microtubular SOFC (Invited Speaker)

Sascha Kuehn*, Stefan Kaeding, Lars Winkler, eZelleron GmbH, Germany

11:30 AM

(ICACC-S3-008-2013) Demonstration of a Highly Efficient SOFC Power System Using Adiabatic Steam Reforming and Anode Gas Recirculation (Invited Speaker)

Vincent Sprenkle*, Mike Powell, Kerry Meinhardt, Larry Chick, Pacific Northwest National Laboratory, USA

Electrodes I

1:30 PM-5:20 PM

Room: Coquina Salon H

Session Chair: TBA

1:30 PM

(ICACC-S3-009-2013) Recent Progress in Modeling and In Situ Characterization of SOFC Electrode Processes (Invited Speaker)

Meilin Liu*, Georgia Tech, USA; Kevin Blinn, Xiayi Li, Samson Lai, Matt Lynch, Georgia Institute of Technology, USA

2:00 PM

(ICACC-S3-010-2013) Electronic Property of Mn and Fe doped CeO₂ as an Oxide Anode for Solid Oxide Fuel Cell using LaGaO₃ base Electrolyte Film (Invited Speaker)

Tatsumi Ishihara*, Joung Wan Ju, Shintaro Ida,

Kyushu University, Japan

2:30 PM

(ICACC-S3-011-2013) Heterogeneous Functional Ceramic Anodes for Solid Oxide Fuel Cells (Invited Speaker)

Guoliang Xiao, Chenghao Yang, University of South Carolina, USA; Zhibin Yang, China University of Mining & Technology, China; Xihui Dong, Qiang Liu, Lei Zhang, Fanglin (Frank) Chen*, University of South Carolina, USA; Minfang Han, China University of Mining & Technology, China

3:00 PM

Break

3:20 PM

(ICACC-S3-012-2013) Structural and Electrochemical Characterization of Fe-Substituted Perovskite Anodes for Solid Oxide Fuel Cells

Daniel Fowler*, Sungmee Cho, Jacob Haag, Scott A Barnett, Kenneth R Poepelmeier, Northwestern University, USA

3:40 PM

(ICACC-S3-013-2013) Promising anode material for medium temperature SOFCs based on SDC electrolyte

Kadi Tamm*, University of Tartu, Estonia; Rainer Küngas, University of Pennsylvania, USA; Enn Lust, University of Tartu, Estonia; Raymond J Gorte, University of Pennsylvania, USA

4:00 PM

(ICACC-S3-014-2013) Nickel Pattern anodes for studying SOFC electrochemistry

Hrishikesh Patel*, Vikrant Venkatraman, P v Aravind, Technical University of Delft, Netherlands

4:20 PM

(ICACC-S3-015-2013) Infiltrated Y-doped SrTiO₃-based Anodes for Solid Oxide Fuel Cells

Alireza Torabi*, Thomas R Etsell, University of Alberta, Canada

4:40 PM

(ICACC-S3-016-2013) Ni Modified WC-based Anode Materials for Direct Methane Solid Oxide Fuel Cells

Alireza Torabi*, Thomas R Etsell, University of Alberta, Canada

5:00 PM

(ICACC-S3-017-2013) Tailoring the shrinking upon co-sintering in Metal Supported Solid Oxide Fuel Cells by the addition of doping elements to NiO-anode producing powder

Pradnyesh Satardekar*, University of Trento, Italy; Dario Montinaro, Viale Trento, Italy; Vincenzo Sglavo, University of Trento, Italy

Wednesday, January 30, 2013

Electrodes II

8:00 AM-12:00 PM

Room: Coquina Salon H

Session Chair: TBA

8:00 AM

(ICACC-S3-018-2013) Sulfur poisoning and reaction kinetics in Ni/YSZ and Ni/GDC anodes (Invited Speaker)

Mihails Kusnezoff*, Sena Kavurucu Schubert, Nikolai Trofimenko, Alexander Michaelis, Fraunhofer IKTS, Germany

8:30 AM

(ICACC-S3-019-2013) Redox behaviour of sulphur at Ni/GDC SOFC anode at mid- and low-range temperatures: An operando S K-edge XANES study

Gunnar Nurk*, University of Tartu, Estonia; Thomas Huthwelker, Paul Scherrer Institut, Switzerland; Artur Braun, Empa-Swiss Federal Laboratories for Materials Science and Technology, Switzerland; Christian Ludwig, Paul Scherrer Institut, Switzerland; Enn Lust, University of Tartu, Estonia; Rudolf Struis, Paul Scherrer Institut, Switzerland

8:50 AM

(ICACC-S3-020-2013) The systematical study of material natures on La_{0.6}Sr_{0.4}Co_{1-y}FeyO_{3-d}

cathode (Invited Speaker)

Shin-ichi Hashimoto*, Mi-Young Oh, Yu-Cheol Shin, XinXin Li, Yuta Kimura, Tatsuya Kawada, Yasuhiro Fukuda, Issei Nakano, Melanie Kuhn, Honami Kudo, Kazuhisa Sato, Kenji Yashiro, Koji Amezawa, Junichiro Mizusaki, Tohoku University, Japan

9:20 AM

(ICACC-S3-021-2013) 3D Microstructural and Electrochemical Evolution of LSM-YSZ Composite Cathodes at Elevated Temperatures

Kyle Yakal-Kremiski*, J. Scott Cronin, Scott A Barnett, Northwestern University, USA

9:40 AM

Break

10:00 AM

(ICACC-S3-022-2013) Ca₃Co₄O₉ and Ba₂Co₉O₁₄ : promising materials as air electrodes for SOFC and SOEC (Invited Speaker)

Rose-Noelle Vannier*, Vincent Thoréton, Da Huo, Aurélie Rolle, Caroline Pirovano, Sylvie Daviero-Minaud, Nicolas Nuns, Anne-Sophie Mamede, Ecole Nationale Supérieure de Chimie de Lille, France

10:30 AM

(ICACC-S3-023-2013) Assessment of Ba_{1-x}Co_{0.9-y}FeyNb_{0.1}O_{3-δ} for Prospective High Temperature Electrochemical Devices (Invited Speaker)

Minfang Han*, Zhibing Yang, Shidong Song, Peng Zhang, Fanglin Chen, China University of Mining and Technology, Beijing, China

11:00 AM

(ICACC-S3-024-2013) Life Testing of LSM-YSZ Composite Electrodes During Current-Switched Operation

Gareth A Hughes*, Kyle Yakal-Kremiski, Scott A Barnett, Northwestern University, USA

11:20 AM

(ICACC-S3-025-2013) Electrochemical Analysis for Microstructural Optimization of SSC Infiltrated Solid Oxide Fuel Cell Cathodes

Ann V Call*, Zhan Gao, Scott A Barnett, Northwestern University, USA

11:40 AM

(ICACC-S3-026-2013) In-Operando XRD of LSCF Cathodes on Anode-Supported SOFCs Operating at Various Temperatures

John S Hardy*, Jared W Templeton, Jeffrey W Stevenson, Pacific Northwest National Laboratory, USA

Interfacial Reactions/Degradation

1:30 PM-4:00 PM

Room: Coquina Salon H

Session Chair: TBA

1:30 PM

(ICACC-S3-027-2013) Three-Dimensional Characterization of Solid Oxide Fuel Cell Microstructure: Correlation With Electrochemical Performance and Degradation (Invited Speaker)

Scott Barnett*, Scott Cronin, Kyle Yakal-Kremiski, David Kennouche, Northwestern Univ, USA

2:00 PM

(ICACC-S3-028-2013) Long-term stability of the oxygen surface exchange kinetics of SOFC cathode materials (Invited Speaker)

Werner Sitte*, Edith Bucher, Andreas Egger, Montanuniversitaet Leoben, Austria

2:30 PM

(ICACC-S3-029-2013) Visualization of Oxide Ionic Diffusion at Cathode/Electrolyte Interfaces by Isotope Oxygen Labeling/Secondary Ion Mass Spectrometry Imaging Technique (Invited Speaker)

Teruhisa Horita*, Do-Hyung Cho, Taro Shimonosono, Mina Nishi, Haruo Kishimoto, Katsuhiko Yamaji, Manuel E Brito, Harumi Yokokawa, AIST, Japan

3:00 PM

Break

3:20 PM

(ICACC-S3-030-2013) Mn-doped YSZ interlayer for improving the durability of solid oxide electrolysis cells

Na Li*, Michael Keane, Manoj K Mahapatra, Prabhakar Singh, Uconn, USA

3:40 PM

(ICACC-S3-031-2013) Strontium diffusion in magnetron sputtered gadolinia-doped ceria thin film barrier coatings for solid oxide fuel cells

Steffen Sonderby*, Danish Technological Institute, Denmark; Petru Lunca Popa, Jun Lu, Linkoping University, Sweden; Bjarke H Christensen, Klaus P Almtoft, Lars P Nielsen, Danish Technological Institute, Denmark; Per Eklund, Linkoping University, Sweden

Sealing Glasses

4:00 PM-5:00 PM

Room: Coquina Salon H

Session Chair: TBA

4:00 PM

(ICACC-S3-032-2013) Compliant sealing glass for SOFC applications: microstructure optimization

Yeong-Shyung Chou*, Jung-Pyung Choi, Jeff W Stevenson, Eric Mast, Pacific Northwest National Lab, USA

4:20 PM

(ICACC-S3-033-2013) Viscous Sealing Glass Development for Solid Oxide Fuel Cells

Cheol-Woon Kim*, MO-SCI Corporation, USA; Richard K Brow, Missouri University of Science and Technology, USA; Joe Szabo, MO-SCI Corporation, USA; Jen Hsien Hsu, Casey Townsend, Missouri University of Science and Technology, USA

4:40 PM

(ICACC-S3-034-2013) Interface reactions between barium-free sealing glasses with high-chromium alloys

Jens Suffner*, Ulf Dahlmann, Valentin Bernd, Schott AG, Germany

Thursday, January 31, 2013

Processing/Performance

8:00 AM-12:00 PM

Room: Coquina Salon H

Session Chair: TBA

8:00 AM

(ICACC-S3-035-2013) Recent developments on direct ethanol solid oxide fuel cells (Invited Speaker)

Fabio C Fonseca*, Shayenne D Nobrega, IPEN, Brazil; Fabio B Noronha, INT, Brazil; Patrick Gelin, IRCELYON, France; Samuel Georges, Marlu C Steil, LEPMI, France

8:30 AM

(ICACC-S3-036-2013) Solid oxide fuel cell activities at POSTECH (Invited Speaker)

Jong Shik Chung*, Nigel M Sammes, POSTECH, Republic of Korea

9:00 AM

(ICACC-S3-037-2013) Planar metal supported solid oxide fuel cells fabricated with ultra-thin YSZ membranes

Chriffe Omar Belda*, Egle Dietzen, Mihails Kusnezoff, Nikolai Trofimenko, Alexander Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany

9:20 AM

(ICACC-S3-038-2013) Metal supported SOFCs by Freeze Tape Casting

Ping Wei, Meng Ren, McMaster University, Canada; Stephen W Sofie, Montana University, USA; Anthony Petric*, McMaster University, Canada

9:40 AM

Break

10:00 AM

(ICACC-S3-039-2013) Solid Oxide Fuel Cell

Materials Development at PNNL (Invited Speaker)

Jeff Stevenson*, Yeong-Shyung Chou, John Hardy, Olga Marina, David Reed, Jung-Pyung Choi, Elizabeth Stephens, Chris Coyle, Jared Templeton, Ryan Scott, Pacific Northwest National Laboratory, USA

10:30 AM

(ICACC-S3-040-2013) Extrusion and optimization of tubular IT-SOFCs

Andrea Azzolini*, Vincenzo M Sglavo, Giovanni Fantini, Enrico Vitorbi, University of Trento, Italy

10:50 AM

(ICACC-S3-041-2013) Anode-Supported Solid Oxide Fuel Cells with LaGaO₃-based Electrolyte Film Fabricated by a Simple One-step Co-firing Process

Yu Chen*, Yunhui Gong, Zhibin Yang, University of South Carolina, USA; Zhibin Yang, China University of Mining & Technology, China; Jacob Bunch, Fanglin Chen, University of South Carolina, USA; Minfang Han, China University of Mining & Technology, China

11:10 AM

(ICACC-S3-042-2013) Electrochemical Performance and Redox Cycling Tolerance of an Infiltrated Tubular Fuel Cell

Amir Reza Hanifi*, Alireza Torabi, Thomas H Etsell, University of Alberta, Canada; Partha Sarkar, Alberta Innovates - Technology Futures, Canada

11:30 AM

(ICACC-S3-043-2013) The development of plasma sprayed metal-supported solid oxide fuel cells at Institute of Nuclear Energy Research

Chun-Liang Chang*, Chang-Sing Hwang, Chun-Huang Tsai, Sheng-Hui Nien, Chih-Ming Chuang, Shih-Wei Cheng, Szu-Han Wu, Institute of Nuclear Energy Research, Taiwan

Interconnects/Coatings

1:30 PM-6:00 PM

Room: Coquina Salon H

Session Chair: TBA

1:30 PM

(ICACC-S3-044-2013) Analysis of the corrosion behaviour of steel interconnects and coatings in solid oxide electrolysis cells (Invited Speaker)

Ulrich F. Vogt*, Ji Woo Kim, Yong Seok Choi, Karine Couturier, Andreas Zuetzel, Empa, Switzerland; K.H. Oh, Seoul National University, Republic of Korea

2:00 PM

(ICACC-S3-045-2013) Novel Composite Interconnect for SOFC

Sergey Somov*, Solid Cell Inc, USA; Sam Ghosh, RocCera LLC, USA; Olivia A Graeve, James P Kelly, Michael Alberga, Alfred University, USA

2:20 PM

(ICACC-S3-046-2013) Co- and Ni-doped PrCaCrO₃ as a promising interconnect for high temperature Solid Oxide Fuel Cells (SOFCs)

Niloufar Raeis Hosseini*, Nigel M Sammes, Jong Shik Chung, Pohang University of Science and Technology (POSTECH), Republic of Korea

2:40 PM

(ICACC-S3-047-2013) Phase transformation and thermal-electrical properties of Lanthanum Chromite

Sapna Gupta*, Manoj K Mahapatra, Prabhakar Singh, University of Connecticut, USA

3:00 PM

Break

3:20 PM

(ICACC-S3-048-2013) Improved cathode contact system against chromium poisoning

Amaia Arreguiq*, Lide Rodriguez-Martinez, Ikerlan S. Coop., Spain; Stefano Modena, Massimo Bertoldi, University of Trento, Italy; Vincenzo Maria Sglavo, Sofcpower S.p.A., Italy

3:40 PM

(ICACC-S3-049-2013) Effect of additives on conductivity of copper manganese spinel for SOFC interconnects

Simon Joshi*, McMaster University, Canada; Roger Lawcock, Stackpole International, Canada; Anthony Petric, McMaster University, Canada

4:00 PM

(ICACC-S3-050-2013) Long-term evaluation of surface-treated (Mn,Co) spinel-coated AISI441 interconnect for SOFC application

Yeong-Shyung Chou*, Jung-Pyung Choi, Jeff Stevenson, Elizabeth Stephens, Eric Mast, Pacific Northwest National Lab, USA

4:20 PM

(ICACC-S3-051-2013) Advanced Conductive (MnCo)₃O₄ Coating on SOFC Interconnect Frames with One-Step Heat Treatment

Jung-Pyung Choi*, Jeffrey W Stevenson, Ryan C Scott, Matt Chou, Pacific Northwest National Lab, USA

4:40 PM

(ICACC-S3-052-2013) Electrodeposition of Spinel Coatings on SOFC Interconnects

Xavier D Michaud*, McMaster University, Canada; Roger Lawcock, Stackpole International, Canada; Anthony Petric, McMaster University, Canada

5:00 PM

(ICACC-S3-053-2013) Protective Oxide Coatings for the High Temperature Protection of Metallic SOFC Components

Neil James Kidner*, Matthew Seabaugh, Kellie Chenault, Sergio Ibanez, Kari Smith, Robert Underhill, Lora Thrun, NexTech Materials, USA

5:20 PM

(ICACC-S3-054-2013) Chromium evaporation from alumina and chromia forming alloys used in Solid oxide fuel cell-Balance of Plant applications

Le Ge*, Prabhakar Singh, University of Connecticut, USA; Michael Brady, Oak Ridge National

Laboratory, USA; Ellen Sun, University of Connecticut, USA

5:40 PM

(ICACC-S3-055-2013) Processing effects on phase and microstructure of plasma sprayed Strontium doped Lanthanum Manganite

Yikai Chen, Su Jung Han, Sanjay Sampath*, Stony Brook University, USA

Friday, February 1, 2013

Mechanical/Thermal Properties

8:00 AM-9:20 AM

Room: Coquina Salon H

Session Chair: TBA

8:00 AM

(ICACC-S3-056-2013) The mechanical behavior of solid oxide fuel cell substrates in relevant environments

Amit Shyam*, Dana McClurg, Amit Pandey, Trejo Rosa, Edgar Lara-Curzio, Oak Ridge National Laboratory, USA; Richard Goettler, LG Fuel Cell Systems Inc., USA

8:20 AM

(ICACC-S3-057-2013) Thermal Residual Stress and Biaxial Strength of (Y₂O₃)_{0.08}(ZrO₂)_{0.92} / (Sc₂O₃)_{0.1}(CeO₂)_{0.01}(ZrO₂)_{0.89} Multi-layered Electrolytes for Intermediate Temperature Solid Oxide Fuel Cells

Yan Chen*, Nina Orlovskaya, University of Central Florida, USA; Thomas Graule, Jakob Kuebler, Empa, Swiss Federal Laboratories for Materials Science and Technology, Laboratory for High Performance Ceramics, Switzerland

8:40 AM

(ICACC-S3-058-2013) Evaluation of crack mechanism of SOFCs in redox cycle at high temperatures using X-CT method

Takuto Kushi*, Kenjiro Fujita, Tokyo Gas Co., Ltd., Japan

9:00 AM

(ICACC-S3-059-2013) Thermal diffusivity/conductivity of Zirconia before, during and after Sintering

Ekkehard Post*, NETZSCH Geraetebau GmbH, Germany

Electrolysis, etc.

9:20 AM-12:00 PM

Room: Coquina Salon H

Session Chair: TBA

9:20 AM

(ICACC-S3-060-2013) Operating strategies to counteract degradation in SOEC systems

John Bøggild Hansen*, Haldor Topsøe A/S, Denmark; Jens U Nielsen, Mads F Madsen, Topsoe Fuel Cell A/S, Denmark

9:40 AM

Break

10:00 AM

(ICACC-S3-061-2013) Testing and Analysis of Solid Oxide Electrolysis Stacks

S. Elangovan*, Joseph Hartvigsen, Ceramatec, Inc., USA; Prabhakar Singh, University of Connecticut, USA

10:20 AM

(ICACC-S3-062-2013) Thermal imaging of Solid Oxide Cells during co-electrolysis of carbon dioxide and steam

Denis J Cumming*, Rachael H Elder, Derek C Sinclair, University of Sheffield, United Kingdom

10:40 AM

(ICACC-S3-063-2013) Propane driven hot gas ejector for anode off gas recycling in an SOFC-system

Christoph Immisch*, Andreas Lindermeir, Ralph-Uwe Dietrich, CUTECH Institut, Germany

11:00 AM

(ICACC-S3-064-2013) Progress in Development of Solid Oxide Fuel Cells with Silver Based Composites

Ayhan Sarikaya*, Vladimir Petrovsky, Fatih Dogan, Missouri University of Science and Technology, USA

11:20 AM

(ICACC-S3-065-2013) Aqueous processing routes for new SOFC materials

Maarten Christiaan Verbraeken*, Mark Cassidy, John T Irvine, University of St Andrews, United Kingdom

11:40 AM

(ICACC-S3-066-2013) Proton conducting lanthanum tungstates for ceramic fuel cells and gas separation membranes

Truls Norby*, University of Oslo, Norway

Wednesday, January 30, 2013

S3 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-S3-P038-2013) Mechanical Properties of Ni / (Sc₂O₃)_{0.1}(CeO₂)_{0.01}(ZrO₂)_{0.89} Porous Anodes

Yan Chen*, Nina Orlovskaya, University of Central Florida, USA; Thomas Graule, Jakob Kuebler, Empa, Swiss Federal Laboratories for Materials Science and Technology, Laboratory for High Performance Ceramics, Switzerland

(ICACC-S3-P039-2013) A Study of the Anelastic Relaxation of Defect Complexes in Oxide Ceramics by Resonant Ultrasound Spectroscopy

Peipei Gao*, Matthew Westwick, Texas A&M University, USA; Tarek Ali, British University in Egypt, Egypt; Miladin Radovic, Texas A&M University, USA

(ICACC-S3-P040-2013) Preparation of Ce_{0.9}Sm_{0.1-x}Tb_xO_{2-δ} Films by Using Ultrasonic Spray Pyrolysis

Mihkel Vestli*, Martin Maide, Erik Anderson, Gunnar Nurk, Enn Lust, Institute of Chemistry, University of Tartu, Estonia

(ICACC-S3-P041-2013) Oxygen permeability and phase stability of SrCoO_{3-δ}-based mixed conducting perovskite membrane

Toru Nagai*, Wataru Ito, Nippon Steel Corp., Japan

(ICACC-S3-P042-2013) Influence of the Method of Sintering on Phase Assemblage and Electrical Conductivity of Zirconia-Scandia-Ceria Solid Electrolyte

Robson L Grosso, Eliana Navarro dos Santos Muccillo*, Energy and Nuclear Research Institute, Brazil

(ICACC-S3-P043-2013) Effects of Humidity in Cathode Air on LSM/YSZ Cathodes

Jared W Templeton*, John S Hardy, Stevenson W Jeffrey, Pacific Northwest National Laboratory, USA

(ICACC-S3-P044-2013) Ionic conductivity in mullite and mullite type compounds

Claus H Rüscher*, Florian Kiesel, Leibniz University Hannover, Germany

(ICACC-S3-P045-2013) Electrical Properties of Composite YSZ/Al₂O₃

Huyra Araujo*, Dulcina F Souza, PPGCEM- UFSCar, Brazil

(ICACC-S3-P046-2013) Influence of sintering temperature on the electrical properties of GDC/YSZ composites

Raphael Fortes Marcomini, Dulcina F Souza*, Programa de Pós Graduação em Ciência e Engenharia de Materiais, Brazil

(ICACC-S3-P047-2013) ZnO as sintering aid of Yttrium-doped BaCeO₃

Francisco Jose Macambira*, Dulcina F Souza, PPGCEM-UFSCar, Brazil; Camila M Hosken, UFF, Brazil

(ICACC-S3-P048-2013) The effect of Co and Zn addition on densification and electrical properties of ceria-based nanopowders

Lucia Adriana Villas-Bôas*, Dulcina F Souza,

PPGCEM-UFSCar, Brazil; Fernando Marques, Filipe Figueiredo, University of Aveiro, Portugal

(ICACC-S3-P049-2013) Numerical Simulation of Electrolyte-Supported Planar Button Solid Oxide Fuel Cell (SOFC)

Amjad Aman*, Rusty Gentile, Yan Chen, Yunjun Xu, University of Central Florida, USA; Xinyu Huang, University of South Carolina, USA; Nina Orlovskaya, University of Central Florida, USA

(ICACC-S3-P050-2013) Structural Stability and Conductivity of La_{0.8}Ca_{0.2}Fe_{1-x}Co_xO₃ (x=0~0.4) Perovskite in Reducing Atmosphere

Kuan-Zong Fung*, Han-Lung Liu, Chi-Yang Liu, National Cheng Kung University, Taiwan

(ICACC-S3-P051-2013) Structural and conductivity studies of doped lanthanum gallate

Kapil Sood*, Kulvir Singh, O. P Pandey, Thapar University, India

(ICACC-S3-P052-2013) Mixed Protonic-Anionic Conducting Ceramics For Dual Membrane Fuel Cells

Massimo Viviani, Sabrina Presto, Vincenzo Buscaglia*, Giovanna Canu, National Research Council, Italy; Antonio Barbucci, Paola Carpanese, University of Genoa, Italy; Zdravko Stoynov, Daria Vladikova, Bulgarian Academy of Sciences, Bulgaria; Alain Thorel, Mines-ParisTech, France; Zeynep Ilhan, DLR, Germany

Symposium 4: Armor Ceramics

Monday, January 28, 2013
**Transparent Ceramics &
Glasses**

1:30 PM-6:10 PM

Room: Coquina Salon E

Session Chair(s): Parimal Patel, Jane Adams

1:30 PM

(ICACC-S4-001-2013) Mechanical Behaviors and Structure of Glass (Invited Speaker)

Setsuro Ito*, Tokyo Institute of Technology, Japan

2:00 PM

(ICACC-S4-002-2013) Structure and Properties of Densified Glasses (Invited Speaker)

Liping Huang*, Rensselaer Polytechnic Institute, USA

2:30 PM

(ICACC-S4-003-2013) MD Simulations of Structure and Mechanical Properties of Silica Glasses (Invited Speaker)

Alastair Cormack*, Laura Adkins, Alfred University, USA

3:00 PM

Break

3:20 PM

(ICACC-S4-004-2013) Glass: A Highly Tunable and Versatile Material for Armor Applications

Mark J. Davis*, SCHOTT North America, Inc., USA

3:40 PM

(ICACC-S4-005-2013) Compression, release, and densification of borosilicate glass (Invited Speaker)

Michael Zellner*, Richard Becker, Dattaraya Dandekar, Army Research Laboratory, USA;

Christopher Morris, Los Alamos National Laboratory, USA

4:10 PM

(ICACC-S4-006-2013) Responses of Siliceous Materials to High Pressures

Andrew Wereszczak*, Timothy Morrissey, Mattison Ferber, Oak Ridge National Laboratory, USA; Kaye Bortle, Elliott Rodgers, ORISE, USA; Yogesh Vohra, University of Alabama - Birmingham, USA

4:30 PM

(ICACC-S4-007-2013) Damage Mechanisms of Chemically Strengthened Glass Bars Due to High-Velocity Ball Impact

Phillip Anthony Jannotti*, Ghatu Subhash, University of Florida, USA

4:50 PM

(ICACC-S4-008-2013) Modeling Multiple Impacts onto Glass Targets

Timothy Holmquist*, Southwest Research Institute, USA

5:10 PM

(ICACC-S4-009-2013) Brittle fracture evolution in projectile impact on a glass laminate: comparison between experiments and peridynamics results

Florin Bobaru*, Wenke Hu, University of Nebraska-Lincoln, USA; Jian Yu, Chian-Fong Yen, ARL, USA

5:30 PM

(ICACC-S4-010-2013) Multiscale Modeling of Non-crystalline Ceramics (Glass)

George A. Gazonas*, James W McCauley, Parimal Patel, U.S. Army Research Laboratory, USA

5:50 PM

(ICACC-S4-011-2013) Quantum mechanical modeling of structure and elastic properties of AION

Iskander G Batyrev*, DeCarlos E Taylor, James W McCauley, George A Gazonas, Neil S Weingarten, Betsy M Rice, US Army Research Laboratory, USA

Tuesday, January 29, 2013
Brittle Materials Modeling

8:00 AM-10:10 AM
Room: Coquina Salon E
Session Chair(s): Brian Leavy

8:00 AM
(ICACC-S4-012-2013) Multiscale Modeling of Brittle Fracture with Peridynamics (Invited Speaker)
Stewart A Silling*, Sandia National Laboratories, USA

8:30 AM
(ICACC-S4-013-2013) Constitutive and Adaptive Kinematic Modelling of Dynamic Fracture in Ceramic Armour
Nik Petrinic*, Simone Falco, Ettore Barbieri, Sascha Knell, Emilio López-López, University of Oxford, United Kingdom; Teresa Rodriguez Suarez, Universidad de Oviedo, Spain; Richard I Todd, University of Oxford, United Kingdom

8:50 AM
(ICACC-S4-014-2013) 3D Mechanism-Based Modeling of the Failure of Brittle Materials under Dynamic Multiaxial Loading
Guangli Hu*, Kalia Ramesh, Johns Hopkins University, USA

9:10 AM
(ICACC-S4-015-2013) Simulations of Edge-on Impact (EOI) using a micromechanics damage model
Andrew Llewellyn Tonge*, Kalia T Ramesh, The Johns Hopkins University, USA

9:30 AM
(ICACC-S4-016-2013) Current Numerical Efforts on Predicting the Ballistic Impact of W-Based Penetrators on Confined Hot-Pressed Boron Carbide Targets Behavior
Costas G Fountzoulas*, Jerry C LaSalvia, WMRD,

USA

9:50 AM
Break

Materials in Extreme Dynamic Environments (MEDE)

10:10 AM-12:00 PM
Room: Coquina Salon E
Session Chair(s): James McCauley

10:10 AM
Opening Remarks

10:20 AM
(ICACC-S4-017-2013) Materials in Extreme Dynamic Environments - A Collaborative Research Alliance(CRA) (Invited Speaker)
John H Beatty*, US Army Research Laboratory, USA; K. T Ramesh, Johns Hopkins University, USA

10:40 AM
(ICACC-S4-018-2013) Armor Ceramics in Extreme Dynamic Environments (Invited Speaker)
K. T. Ramesh*, Johns Hopkins Univ, USA

11:10 AM
(ICACC-S4-019-2013) Materials in Extreme Dynamic Environments (MEDE)- The Opportunities for Boron Carbide as the Next Generation Armor Material (Invited Speaker)
Richard Haber*, Rutgers University, USA

11:40 AM
Panel Question & Answer Session

Boron-Icosahedral Based Ceramics I

1:20 PM-5:10 PM
Room: Coquina Salon E
Session Chair(s): Jerry LaSalvia

1:20 PM
(ICACC-S4-020-2013) Electronic Structures of

Boron Crystals (Invited Speaker)

Koun Shirai*, ISIR, Osaka University, Japan

1:50 PM

(ICACC-S4-021-2013) Failure and Phase Transformation in Boron Carbide from a Shock Physics Perspective (Invited Speaker)

Dennis Grady*, Applied Research Associates, USA

2:30 PM

(ICACC-S4-022-2013) A brief review of deformation induced amorphization of boron carbide (Invited Speaker)

Mingwei Chen*, Tohoku University, Japan

3:00 PM

Break

3:20 PM

(ICACC-S4-023-2013) Stoichiometry effects on the mechanical properties of icosahedral boron carbide under load (Invited Speaker)

DeCarlos Taylor*, James W McCauley, Army Research Laboratory, USA

3:50 PM

(ICACC-S4-024-2013) Can We Truly Measure the Hardness of Crystalline Boron Carbide? - New Insights into the Spatial Distribution of Amorphized Zone

Ghatu Subhash*, University of Florida, USA

4:10 PM

(ICACC-S4-025-2013) Indentation Size Effect in Boron Carbide

Eugene Shanholtz*, Jerry C LaSalvia, Kristopher D Behler, U.S. Army Research Lab, USA; Vlad Domnich, Rutgers University, USA

4:30 PM

(ICACC-S4-026-2013) Characterization of the Hardness-Load Dependence of Boron Suboxide

Jerry C. LaSalvia, U.S. Army Research Laboratory, USA; Vladislav Domnich, Rutgers, The State University of New Jersey, USA; Robert Pavlacka*, Eugene R Shanholtz, Kristopher D Behler, U.S. Army

Research Laboratory, USA

4:50 PM

(ICACC-S4-027-2013) Structural Instability of Boron Carbide Under High-Velocity Impact

Vladislav Domnich*, Rutgers University, USA; Jerry C LaSalvia, Eugene R Shanholtz, U.S. Army Research Laboratory, USA; Richard A Haber, Rutgers University, USA

Wednesday, January 30, 2013

Boron-Icosahedral Based Ceramics II

8:00 AM-9:50 AM

Room: Coquina Salon E

Session Chair(s): Jane Adams

8:00 AM

(ICACC-S4-028-2013) Consequences of Amorphization on Boride Carbide Ballistic Performance (Invited Speaker)

Michael Joseph Normandia*, Ceradyne, USA

8:30 AM

(ICACC-S4-029-2013) Armour research at FOI on boron carbide

Patrik Lundberg*, Defence & Security, Systems and Technology Division, Sweden

8:50 AM

(ICACC-S4-030-2013) Edge-on Impact investigation of fracture propagation in Boron Carbide

Elmar Strassburger*, Fraunhofer EMI, Germany

9:10 AM

(ICACC-S4-031-2013) Intact and predamaged boron carbide strength under moderate confinement pressures

Isaias Sidney Chocron, Charles E Anderson*, Kathryn A Dannemann, Arthur E Nicholls, Nikki L King, Southwest Research Inst, USA

9:30 AM

Break

Quasi-Static and Dynamic Behavior I

9:50 AM-12:00 PM

Room: Coquina Salon E

Session Chair(s): Sikhanda Satapathy

9:50 AM

(ICACC-S4-032-2013) Pressure and Shear Induced Phase Transformations in Ceramics (Invited Speaker)

Valery I Levitas*, Iowa State University, USA

10:20 AM

(ICACC-S4-033-2013) Raman Characterization of Ballistically-Impacted Polycrystalline 3C and 6H Silicon Carbides

Jerry C. LaSalvia*, U.S. Army Research Laboratory, USA; Vladislav Domnich, Rutgers, The State University of New Jersey, USA; Kristopher D Behler, Eugene R Shanholtz, U.S. Army Research Laboratory, USA

10:40 AM

(ICACC-S4-034-2013) Thermal Effects in Extreme Dynamic Environments

Mark J. Davis*, SCHOTT North America, Inc., USA

11:00 AM

(ICACC-S4-035-2013) Shock experiments to study source of inelasticity in ceramics

Sikhanda Satapathy*, Dattatraya Dandekar, Cyril Williams, US Army Research Laboratory, USA

11:20 AM

(ICACC-S4-036-2013) Effect of Prestressing on the Ballistic Performance of Alumina Ceramics: Experiments and Modeling

Aaron H. Gassman*, Vitaly Paris, Lev Levin, Zvi Asaf, Avi Ya'akovovich, Eylam Ran, Felix Aizik, Plasan Sasa Ltd., Israel

11:40 AM

(ICACC-S4-037-2013) Comparison of interface response of different ceramic microstructures to

high strain rate indentation

Emilio Lopez Lopez, Simone Falco, University of Oxford, United Kingdom; Santonu Ghosh, Loughborough University, United Kingdom; Teresa Rodriguez Suarez, Claire Dancer, University of Oxford, United Kingdom; Houzheng Wu, Loughborough University, United Kingdom; Nik Petrinic, Richard I Todd*, University of Oxford, United Kingdom

Quasi-Static and Dynamic Behavior II

1:20 PM-4:20 PM

Room: Coquina Salon E

Session Chair(s): Sikhanda Satapathy

1:20 PM

(ICACC-S4-038-2013) Effect of zirconia phase transformation on the high strain rate performance of nano zirconia toughened alumina

Shuo Huang*, Jon Binner, Sanotu Ghosh, Bala Vaidhyanathan, Houzheng Wu, Loughborough University, United Kingdom; Simone Falco, Nik Petrinic, Richard Todd, University of Oxford, United Kingdom

1:40 PM

(ICACC-S4-039-2013) Anisotropy, Damage and the Dynamic Piezoelectric Effect

Leslie Elise Lamberson*, Drexel University, USA; Eswar Korimilli, K. T Ramesh, Johns Hopkins University, USA

2:00 PM

(ICACC-S4-040-2013) Use of Brazilian disk test to determine the mechanical strength of laminated-ceramic composites

Christian J. Espinoza Santos*, John Lambros, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

2:20 PM

(ICACC-S4-041-2013) Influence of porosity on the mechanical behavior of alumina/porous alumina laminates

Pathikumar Sellappan*, Waltraud M Kriven, John Lambros, University of Illinois at Urbana-Champaign, USA

2:40 PM

(ICACC-S4-042-2013) Validity of Split Hopkinson Pressure Bar Testing for Ceramics

Emilio Lopez-Lopez*, Robert Gerlach, Simone Falco, Claire E Dancer, University of Oxford, United Kingdom; Colin Roberson, Sir Frank Whittle Business Centre, United Kingdom; Nik Petrinic, Richard I Todd, University of Oxford, United Kingdom

3:00 PM

Break

3:20 PM

(ICACC-S4-043-2013) Mechanical Response Anisotropy in Hot-Pressed Silicon Carbide

Andrew Wereszczak*, Daniel Vuono, Oak Ridge National Laboratory, USA; Kaye Bortle, Patrick Ritt, ORISE, USA; Jeffrey Swab, James Campbell, US Army Research Laboratory, USA

3:40 PM

(ICACC-S4-044-2013) Microstructure and Mechanical Properties of SiC-TiB₂ Ceramic Composites

Derek King*, William Fahrenholtz, Greg Hilmas, Missouri University of Science and Technology, USA

4:00 PM

(ICACC-S4-045-2013) Properties and Performance of Cubic-Boron Nitride

Jeffrey J Swab*, Eric Warner, James Campbell, Todd Jessen, Army Research Laboratory, USA

Synthesis and Processing I

4:20 PM-5:10 PM

Room: Coquina Salon E

Session Chair(s): Robert Pavlacka

4:20 PM

(ICACC-S4-046-2013) Processing of optical

ceramics using current activated pressure assisted densification (Invited Speaker)

Javier E Garay*, University of California, Riverside, USA

4:50 PM

(ICACC-S4-047-2013) Development of Transparent Polycrystalline Beta-Silicon Carbide Ceramic using FAST

Guillermo R Villalobos*, Shyam S Bayya, Jasbinder S Sanghera, US Naval Research Lab, USA; Michael P Hunt, University Research Foundation, USA; Carmen M Carney, Kristin A Keller, Michael K Cinibulk, US Air Force Research Center, USA; Bryan M Sadowski, Ishwar D Aggarwal, Sotera Defense Solutions, Inc., USA

Thursday, January 31, 2013

Synthesis and Processing II

1:20 PM-3:50 PM

Room: Crystal Ballroom

Session Chair(s): Robert Pavlacka

1:20 PM

(ICACC-S4-048-2013) Thermomechanical properties of nanocomposites of hafnia and silicon carbide (Invited Speaker)

Yutaka Shinoda*, Tokyo Institute of Technology, Japan; Rishi Raj, Department of Mechanical Engineering, USA; Fumihiko Wakai, Tokyo Institute of Technology, Japan

1:50 PM

(ICACC-S4-049-2013) Comparison of armor ceramics made by spark plasma sintering (SPS) and pressureless sintering

Prashant Karandikar*, Stephen Wong, Matthew Duke, M Cubed Technologies, Inc., USA; Richard Haber, Minh Vu, Rutgers University, USA; Jogender Singh, Pennsylvania State University, USA

2:10 PM

(ICACC-S4-050-2013) Pressureless sintering of silicon carbide - boron carbide composites

Luc Jean Vandeperre*, Jia Teo, Imperial College

London, United Kingdom

2:30 PM

(ICACC-S4-051-2013) Synthesis and Characterization of Submicron-Grained Boron Carbide

Chris Haines*, Darold Martin, Kendall Mills, Rajendra Sadangi, Deepak Kapoor, US Army ARDEC, USA

2:50 PM

Break

3:10 PM

(ICACC-S4-052-2013) Rapid Carbothermal Reduction Synthesis of Boron Carbide

Muhammet Fatih Toksoy*, William Rafaniello, Richard A Haber, Steve L Miller, Rutgers University, USA

3:30 PM

(ICACC-S4-053-2013) The Role of Interfaces on the Sintering, Microstructure Evolution, and Properties of Hot-Pressed Transparent MgAl₂O₄ Spinel

Marc Rubat du Merac, Technical University Darmstadt, Germany; Ivar Reimanis*, Colorado School of Mines, USA; Hans-Joachim Kleebe, Mathis Müller, Technical University Darmstadt, Germany

Non-Destructive Evaluation

3:50 PM-5:10 PM

Room: Crystal Ballroom

Session Chair(s): Matthew Bratcher

3:50 PM

(ICACC-S4-054-2013) Ultrasonic Nondestructive Characterization of Spark Plasma Sintered Silicon Carbide Microstructure

Vincent DeLucca*, Richard A Haber, Rutgers University, USA

4:10 PM

(ICACC-S4-055-2013) Nondestructive

Characterization of Low Velocity Impact Damage in Protective Ceramic Components

Raymond Brennan*, William Green, US Army Research Laboratory, USA

4:30 PM

(ICACC-S4-056-2013) Evaluation of Low Velocity Strike Damage in Ceramic Tile Modules Using a Microwave Interference Scanning System

William Howard Green*, Raymond Brennan, U.S. Army Research Laboratory, USA

4:50 PM

(ICACC-S4-057-2013) Portable Automated Microwave Interferometry Imaging in Complex Ceramics

Karl Schmidt*, Jack Little, Evisive, Inc., USA; William Ellingson, ERC Company, USA; Lisa P Franks, US Army Tank Automotive Research Development and Engineering Center, USA; William H Green, US Army Research Laboratory, USA

Tuesday, January 29, 2013

S4 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-S4-P053-2013) Indentation Behaviour in Spark Plasma Sintered SiC-B₄C Ceramics

David Hallam*, Paul Smith, Julie Yeomans, University of Surrey, United Kingdom; Andrew Heaton, Bryn James, DSTL, United Kingdom

(ICACC-S4-P054-2013) Thermal Stability of Amorphous Boron Carbide Phase Formed Under Indentation

Vladislav Domnich*, Rutgers University, USA; Jerry C LaSalvia, Eugene R Shanholtz, U.S. Army Research Laboratory, USA; Richard A Haber, Rutgers University, USA

(ICACC-S4-P055-2013) Characterization of the Amorphous Zone Beneath Static and Dynamic Vickers Indentations in Boron Carbide

Gregory Parsard*, Ghatu Subhash, University of

Florida, USA

(ICACC-S4-P056-2013) Macroscopic Assessment of High Pressure Failure of B4C and B4C/SiC Composites

Samuel Salamone, Prashant Karandikar, Andrew Marshall, Michael Aghajanian*, M Cubed Technologies, Inc., USA; Suzanne Horner, James Zheng, Program Executive Office - Soldier, US Army, USA

(ICACC-S4-P057-2013) Quantum Mechanical Study of Grain Boundaries in Boron Carbide

Todd D. Beaudet*, Army Research Laboratory, USA; John R Smith, Johns Hopkins University, USA; Jennifer S Dunn, Betsy M Rice, Jerry C LaSalvia, Army Research Laboratory, USA

(ICACC-S4-P058-2013) Synthesis of nanocrystalline AlMgB14 powders by solid state synthesis technique

Zhilin Xie*, Nina Orlovskaya, University of Central Florida, USA

(ICACC-S4-P059-2013) Improvements in the Spark Plasma Sintering of Magnesium Aluminum Spinel

Gordon A Alanko*, Darryl Butt, Boise State University, USA

(ICACC-S4-P060-2013) Consolidation of Aluminum Magnesium Boride (AlMgB14) by Pulsed Electric Current Sintering (PECS) Technique

Gary A. Gilde, Kyu Cho, Nesredin Kedir*, Army Research Lab, USA

(ICACC-S4-P061-2013) Mechanochemical synthesis of hexagonal OsB2

Zhilin Xie*, Nina Orlovskaya, University of Central Florida, USA; David Cullen, Oak Ridge National Laboratory, USA; Richard Blair, University of Central Florida, USA

(ICACC-S4-P062-2013) Al/Al2O3 metal matrix composites for armor applications

Prashant Karandikar*, M Cubed Technologies, Inc., USA; Eric Klier, Army Research Laboratories, USA;

Matthew Watkins, Michael Aghajanian, M Cubed Technologies, Inc., USA

(ICACC-S4-P063-2013) Microstructure and Mechanical Behavior of Pressureless Sintered and Reaction-Bonded Silicon Carbide Ceramics

Alison Trachet*, Ghatu Subhash, University of Florida, USA; Prashant Karandikar, M Cubed Technologies, USA

(ICACC-S4-P064-2013) Geometrical Effect on Damage in Reaction Bonded Ceramic Composites having Experienced High Strain Rate Impact

Andrew Marshall*, M Cubed Technologies, Inc., USA; Kevin J Doherty, Eric M Klier, U.S. Army Research Laboratory, USA; Prashant G Karandikar, Brian P Givens, Anthony F Liszkiewicz, Raul Segura, M Cubed Technologies, Inc., USA

(ICACC-S4-P065-2013) Surface preparation of silicon carbide for improved adhesive bond strength in armour

Andrew Harris*, Paul Smith, Julie Yeomans, University of Surrey, United Kingdom; Steve Burnage, Bryan Vaughan, Lockheed Martin UK, United Kingdom

(ICACC-S4-P066-2013) Production of silicon carbide-boron carbide composites for armour applications

Tom Williams*, Julie Yeomans, Paul Smith, University of Surrey, United Kingdom; Andrew Heaton, Dstl, United Kingdom; Chris Spacie, Roger Bayliss, Morgan AM&T, United Kingdom

(ICACC-S4-P067-2013) Static and dynamic response of ultra-high strength sintered ceramics

John J Pittari*, Ghatu Subhash, University of Florida, USA

(ICACC-S4-P068-2013) Tensile Strength, Fracture Toughness, and Flaw Characterization of Tungsten Carbide

Jared Wright*, UIC TS, Bowhead Science and Technology, LLC, USA; Jeffrey J Swab, U.S. Army Research Laboratory, USA

(ICACC-S4-P069-2013) The Effect of a Glass Coating on the Strength of Soda-Lime-Silicate Glass

Shelby Thies, Steve Kilczewski*, Jeffrey J Swab, Parimal Patel, Army Research Laboratory, USA

(ICACC-S4-P070-2013) Deformation Twinning in Transparent Single Crystals: Indentation Experiments and Mesoscale Modeling

Corydon Hilton*, Jian Yu, Oak Ridge Institute for Science and Education, USA; John Clayton, Jarek Knap, Jeffrey Swab, US Army Research Laboratory, USA

(ICACC-S4-P071-2013) X-ray Computed Tomography (XCT) of Confined Ceramics

Brian Leavy*, Army Research Laboratory, USA; Chris Peitsch, Chesapeake Defense Services, Inc., USA; William J Bruchey, Survice Engineering Company, USA

(ICACC-S4-P072-2013) Resonant Ultrasound Spectroscopy for the Evaluation of Armor Ceramics

Eric Warner*, Matthew Bratcher, U.S. Army Research Laboratory, USA

(ICACC-S4-P073-2013) Optimizing the Arrangement of Ceramic Tile Periodic Arrays for Armor Applications Using a Genetic Algorithm

Michael C Golt*, Matthew Bratcher, U.S. Army Research Laboratory, USA

(ICACC-S4-P074-2013) Numerical study of stress and fracture propagation in glass during ring-on-ring testing

Costas G Fountzoulas*, Jeffrey J Swab, Parimal J Patel, U.S.Army Research Laboratory, USA

(ICACC-S4-P075-2013) Operational Equations of State with Arbitrary Heat Capacity

Michael Greenfield*, ARL, USA

(ICACC-S4-P076-2013) Manufacturing Process Scale-Up of Transparent Spinel Ceramic at

ArmorLine Corporation

John Voyles*, Joseph (J.J.) Nick, Joseph Spilman, Lawrence Shaffer, ArmorLine Corporation, USA

(ICACC-S4-P077-2013) Limits of accelerating numerical analysis study of the failure mechanism of ceramics during low velocity impact used in protective systems

Costas G Fountzoulas*, Raymond E Brennan, U.S.Army Research Laboratory, USA

Symposium 5: Next Generation Bioceramics and Biocomposites

Wednesday, January 30, 2013

Porous Bioceramics

1:30 PM-4:40 PM

Room: Coquina Salon C

Session Chair(s): Eldon Case, Federico Rosei, Enrico Bernardo, Akiyoshi Osaka

1:30 PM

(ICACC-S5-001-2013) Nanoscale structure and modification of Biomaterials (Invited Speaker)

Federico Rosei*, INRS, Canada

1:50 PM

(ICACC-S5-002-2013) Grain size dependence of fracture toughness for hydroxyapatite (Invited Speaker)

Eldon Darrel Case*, Michigan State Univ., USA

2:10 PM

(ICACC-S5-003-2013) Novel biocompatible glass-ceramic foams from low temperature foaming and reactive ceramization of silicone-based mixtures (Invited Speaker)

Enrico Bernardo*, Jean Francois Carlotti, Laura Fiocco, Marco Pace, Paolo Colombo, University of Padova, Italy

2:30 PM

(ICACC-S5-004-2013) Redox Active Nanoparticles Mediated Angiogenesis to Facilitate Wound Healing (Invited Speaker)

Sudipta Seal*, Soumen Das, Srinu Chigurupati, Saji Oommen, Willam T Self, Mark P Mattson, University of Central Florida, USA

2:50 PM

Break

3:20 PM

(ICACC-S5-005-2013) Increasing Mechanical Strength of Carbonate Apatite Block by Ca Salt Introduction

Jane Harland*, Kanji Tsuru, Kyushu University, Japan; Michito Maruta, Fukuoka Dental College, Japan; Giichiro Kawachi, Kunio Ishikawa, Kyushu University, Japan

3:40 PM

(ICACC-S5-006-2013) Bioactive Ceramic Foams for Bone Tissue Engineering

B. A Mound*, J. P Ball, J. B Allen, F. Barrie, M. V Manuel, J. C Nino, University of Florida, USA

4:00 PM

(ICACC-S5-007-2013) Collagen coatings on 45S5 Bioglass® scaffolds

Jasmin Hum*, Aldo R Boccaccini, University of Erlangen-Nuremberg, Institute of Biomaterials, Germany

4:20 PM

(ICACC-S5-008-2013) Hydrothermal conversion of calcite foam to carbonate apatite

Tram Xuan Thanh Nguyen*, Kyushu University, Japan; Maruta Michito, Fukuoka Dental College, Japan; Tsuru Kanji, Kyushu University, Japan; Matsuya Shigeki, Fukuoka Dental College, Japan; Ishikawa Kunio, Kyushu University, Japan

Thursday, January 31, 2013

Medical Ceramics

8:00 AM-11:40 AM

Room: Coquina Salon C

Session Chair(s): Kuroschi Rezwan, Christian Bonhomme

8:00 AM

(ICACC-S5-001-2013) Fluorescently labeled metal oxide colloidal particles for nanotoxicological in vitro screening (Invited Speaker)

Kuroschi Rezwan*, Advanced Ceramics, University of Bremen, Germany

8:20 AM

(ICACC-S5-002-2013) Theranostics Based on Hybrid Nanoparticles for Early Cancer Detection and Treatment (Invited Speaker)

Min Wang*, Si-Yue Li, The University of Hong Kong, Hong Kong; Lei Ren, Xiamen University, China

8:40 AM

(ICACC-S5-003-2013) Bioactive Glass and Ceramic Scaffolds for Bone Regeneration (Invited Speaker)

Mohamed N. Rahaman*, Missouri University of Science & Technology, USA

9:00 AM

(ICACC-S5-004-2013) Nature-inspired Materials Design and Manufacturing (Invited Speaker)

Xiaodong Li*, University Of South Carolina, USA

9:20 AM

(ICACC-S5-005-2013) Revisiting electro-spinning procedure for preparation of biologically active fiber mats (Invited Speaker)

Hiroki Yoshihara, Yuki Shirosaki, Okayama University, Japan; Song Chen, Nonutaka Hanagata, National Institute of Materials Science, Japan; Satoshi Hayakawa, Okayama University, Japan; Artemis Stambourlis, University of Birmingham, United Kingdom; Yuri Nakamura, Akiyoshi Osaka*, Okayama University, Japan

9:40 AM

Break

10:00 AM

(ICACC-S5-006-2013) New synthetic biomineralization media for the in vitro testing of synthetic biomaterials

A. Cuneyt Tas*, University of Illinois at Urbana-Champaign, USA; Neslihan Temizel, Giray Giriskan, Yeditepe University, Turkey

10:20 AM

(ICACC-S5-007-2013) Spectroscopy and simulations: towards a better understanding of complex biomaterials (Invited Speaker)

Christian Bonhomme*, UPMC, France

10:40 AM

(ICACC-S5-008-2013) X-ray imaging enhancement using nanoscience (Invited Speaker)

Jacqueline Johnson*, Russell Leonard, UTSI, USA; Carlos Alvarez, Northwestern University, USA; Rick Lubinsky, SUNY, USA; Sharon Gray, UTSI, USA; Amanda Petford-Long, Northwestern University, USA; Stefan Schweizer, Fraunhofer Institute, Germany; Charles Johnson, UTSI, USA

11:00 AM

(ICACC-S5-009-2013) Biomimetic apatites : surface state and potential interfacial issues (Invited Speaker)

Christophe Drouet*, Nicolas Vandecandelaere, Christian Rey, CIRIMAT Carnot Institute, France

11:20 AM

(ICACC-S5-010-2013) Evaluation of Bioactive Borate Glass Fibers In-vitro and In-vivo for Wound Care Applications

Steven Jung*, Mo-Sci Corporation, USA

Advanced Bioceramics

1:30 PM-5:40 PM

Room: Coquina Salon C

Session Chair(s): Tomaz Kosmac, Min Wang, Peter Ma

1:30 PM

(ICACC-S5-011-2013) Airborne Particle Abrasion of Dental Zirconia: Criteria for the Selection of Process Variables (Invited Speaker)

Tomaz Kosmac*, Medical Faculty, University of Ljubljana, Slovenia; Jasna Cotic, Peter Jevnikar, Institute Jozef Stefan, CO NAMASTE, Slovenia

1:50 PM

(ICACC-S5-012-2013) Novel Electrospun Bicomponent Scaffolds for Nerve Tissue Repair

Chaoyu Liu, Xin Zhang, Min Wang*, The University of Hong Kong, Hong Kong

2:10 PM

(ICACC-S5-013-2013) Biological properties of ion substituted apatite coatings

Håkan Engqvist*, Wei Xia, Carl Lindahl, Engineering Sciences, Sweden; Ahmed Ballo, Gothenburg University, Sweden; Andreas Hoess, Shiuli Pujari, Engineering Sciences, Sweden; Jukka Lausmaa, Peter Thomsen, SP Technical Research Institute of Sweden, Sweden; Marjam Ott, Engineering Sciences, Sweden

2:30 PM

(ICACC-S5-014-2013) Maturation of brushite and preparation of brushite micro-granules

A. Cuneyt Tas*, Andrew S Madden, Preston R Larson, Manoj K Jain, Matthew R Kendall, Matthew A Miller, University of Oklahoma, USA

2:50 PM

(ICACC-S5-015-2013) Mineralized Tissue Regeneration Using Biomimetic Scaffolds and Stem Cells (Invited Speaker)

Peter X Ma*, University of Michigan, USA

3:10 PM

Break

3:40 PM

(ICACC-S5-016-2013) Tantalum-based Diffusion Coating for Increasing the Biocompatibility of Conventional Metal Implant Alloys

Jacob J Stiglich*, Brian E Williams, Ultramet, USA

4:00 PM

(ICACC-S5-017-2013) Stimuli-responsive smart hybrid capsules for on-demand delivery system (Invited Speaker)

Kiyofumi Katagiri*, Hiroshima University, Japan

4:20 PM

(ICACC-S5-018-2013) 3-D printed bioactive bone replacement scaffolds of alkali substituted ortho-phosphates containing meta- and di-phosphates

Felix Dombrowski, Cynthia Morais Gomes, Georg Berger, BAM Federal Institute for Materials Research and Testing, Germany; Patric Garcia Caso,

Moritz Klein, Matthias Laschke, Saarland University Medical Center, Germany; Jens Guenster*, BAM Federal Institute for Materials Research and Testing, Germany

4:40 PM

(ICACC-S5-019-2013) Towards a Life-Time Prediction for Yttria-stabilized Zirconia Dental Material experiencing Low-Temperature Degradation

Melanie Keuper*, Christoph Berthold, Klaus G Nickel, Eberhard Karls University Tuebingen-Faculty of Science, Germany

5:00 PM

(ICACC-S5-020-2013) Development of nanostructured ceramic biomaterials within the ZrO₂-Y₂O₃-Al₂O₃ and ZrO₂-CeO₂-Al₂O₃ systems and their suitability for the field of dental implantology

Lidia Goyos*, Catuxa Prado, Belen Cabal, Luis Antonio Diaz, Ramon Torrecillas, CINN-CSIC-UNIOVI-PA, Spain

5:20 PM

(ICACC-S5-021-2013) Solid state NMR study of the structural characteristics of apatite in bone highlighting the role of collagen (Invited Speaker)

Thierry Azaïs*, Yan Wang, Stanislas Von Euw, Guillaume Laurent, Université Paris 6, France; Babonneau Florence, Nadine Nassif, CNRS, France

Friday, February 1, 2013

Ceramics for Medical and Dental Applications

8:00 AM-11:40 AM

Room: Coquina Salon C

Session Chair(s): A. Cuneyt Tas

8:00 AM

(ICACC-S5-022-2013) Processing and Microstructure-Property of Multi Stage Spark Plasma Sintered Hydroxyapatite- Calcium Titanate Biocomposite

Prafulla Kumar Mallik*, Kantesh Balani, Bikramjit Basu, Indian Institute of Technology, India

8:20 AM

(ICACC-S5-023-2013) Enhancement of hydroxiapatite precipitation on PDLLA scaffolds functionalized with diazonium chemistry

Hesameddin Mahjoubi*, Marta Cerruti, McGill University, Canada

8:40 AM

(ICACC-S5-024-2013) Calcium metal to synthesize amorphous or cryptocrystalline calcium phosphates

A. Cuneyt Tas*, Yeditepe University, Turkey

9:00 AM

(ICACC-S5-025-2013) Energetics of Rare Earth Doped Apatite-Based Materials

Seyedeh Mahboobeh Hosseini*, Alexandra Navrotsky, UC Davis, USA; Christophe Drouet, Institut Carnot CIRIMAT, France

9:20 AM

(ICACC-S5-026-2013) Investigation of Effect of Polymers on Calcium Oxalate Crystallization

Mualla Oner*, Bora Akin, Yildiz Technical University, Turkey

9:40 AM

Break

10:00 AM

(ICACC-S5-027-2013) Surface modification of sol-gel-derived 45S5 Bioglass® for incorporation in polylactic acid (PLA)

Ehsan Rezabeigi*, Paula Wood-Adams, Robin .A.L. Drew, Concordia University, Canada

10:20 AM

(ICACC-S5-028-2013) Production of Potassium Titanate Whisker Reinforced Dental Composites

Derya Kapusuz*, Middle East Technical University, Turkey; Jongee Park, Atilim University, Turkey; Abdullah Ozturk, Middle East Technical University, Turkey

10:40 AM

(ICACC-S5-029-2013) Effect of reactants' solutions aging time on hydroxyapatite precipitation in the presence of arginine and glutamic acid

Maryam Tavafoghi Jahromi*, Marta Cerruti, McGill University, Canada

11:00 AM

(ICACC-S5-030-2013) Perfluorodecalin containing bioceramics and bone regeneration (Invited Speaker)

Faleh Tamimi*, Patricia Comeau, McGill University, Canada; Damien Le Nihouannen, University of Bordeaux, France; Yu Ling Zhang, David Bassett, Saeed Khalili, McGill University, Canada; Uwe Gbureck, University of Wuzburg, Germany; Simon D Tran, Komarova Svetlana, Jake E Barralet, McGill University, Canada

Wednesday, January 30, 2013

S5 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-S5-P078-2013) Friction and Wear Behavior of Ceramic (Used for Head of Total Hip Replacement)

Fellah Mamoun*, Labaîz Mohammed, laboratory of metallurgy and materials engineering, Algeria

(ICACC-S5-P079-2013) Effect of sintering additives on Mechanical Properties and Bioactivity of Hydroxyapatite/ β -Tricalcium Phosphate Composites

Satoshi Kobayashi*, Takuma Murakoshi, Tokyo Metropolitan University, Japan

(ICACC-S5-P080-2013) Synthesis of doped calcium phosphate nanorods

Tatiane Silva Eufrásio, Andre Luiz G Prette, Vincenzo M Sglavo*, University of Trento, Italy

(ICACC-S5-P081-2013) Electrospinning vs. Three-Dimensional (3D) Rapid Prototype Bioprinting

Michael Hansen, James R Brenner*, Florida Tech,
USA

Symposium 6: Advanced Materials and Technologies for Energy Generation and Rechargeable Energy Storage

Monday, January 28, 2013

Li-ion Battery Technology - Advanced Electrodes

1:30 PM-5:40 PM

Room: Coquina Salon G

Session Chair(s): Kiyoshi Kanamura, Michelle Johannes

1:30 PM

(ICACC-S6-001-2013) All Solid State Batteries for High Energy Applications (Invited Speaker)

Sehee Lee*, Thomas A. Yersak¹ Yersak, Alex MacPherson, University of Colorado, USA; Seul Cham Kim, Kyu Hwan Oh, Seoul National University, Republic of Korea; Conrad Stoldt, University of Colorado, USA

2:00 PM

(ICACC-S6-002-2013) Two Dimensional Transition Metal Carbides and Carbonitrides (MXenes) Anodes for Lithium Ion Batteries and Lithium Ion Capacitors

Michael Naguib*, Drexel University, USA; Jérémy Come, Université Paul Sabatier, France; Yohan Dallagnese, Olha Mashtalir, Drexel University, USA; Pierre-Louis Taberna, Patrice Simon, Université Paul Sabatier, France; Michel W Barsoum, Yury Gogotsi, Drexel University, USA

2:20 PM

(ICACC-S6-003-2013) Preparation and Property of Li₂MSiO₄/Graphene Cathode Materials

Yinjie Cen, Yuqin Yao, Worcester Polytechnic

Institute, USA; Cunguo Wang, Qingdao University of Science and Technology, China; Richard D Sisson*, Jianyu Liang, Worcester Polytechnic Institute, USA

2:40 PM

(ICACC-S6-004-2013) Decoration of Graphene with Sn Nanoparticles through Surface Functionalization using Diazonium Chemistry for Lithium-ion Battery Application

Gul Zeb*, Peter Gaskell, McGill University, Canada; Xingcheng Xiao, General Motors, USA; Thomas Szkopek, Marta Cerruti, McGill University, Canada

3:00 PM

Break

3:20 PM

(ICACC-S6-005-2013) Ion Beam Mixing to Improve Ge Thin Film Li Ion Battery Anodes (Invited Speaker)

Kevin S. Jones*, Nicholas Rudawski, Robert G Elliman, University of Florida, USA

3:50 PM

(ICACC-S6-006-2013) Lithium-ion storage-Advanced High Rate and Energy anode materials (Invited Speaker)

Sagar Mitra*, Uttam Sen, Alok Tripathi, Pavan Veluri, Indian Institute of Technology Bombay, India

4:20 PM

(ICACC-S6-007-2013) Potential meso-structured Li (Mn_{0.9}Fe_{0.05}Mg_{0.05})PO₄/C cathode material for high rate energy storage application

Vishwanathan Ramar*, Palani Balaya, NUS, Singapore

4:40 PM

(ICACC-S6-008-2013) Synthesis and characterization of olivine-type LiFePO₄ cathode material prepared by a polymeric steric entrapment precursor route.

Daniel Ribero*, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

5:00 PM

(ICACC-S6-009-2013) Li-ion conducting solid electrolytes

Axel Rost*, Jochen Schilm, Mihails Kusnezoff, Alexander Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems, Germany

5:20 PM

(ICACC-S6-010-2013) Atomistic Description of the Conversion Reaction in Li-FeF₂ Cathodes for Advanced Batteries

Stephen H Garofalini*, Ying Ma, Rutgers University, USA

Tuesday, January 29, 2013

Li-ion Battery Technology - Design and Interface

8:00 AM-10:00 AM

Room: Coquina Salon G

Session Chair(s): Sehee Lee, Kevin Jones

8:00 AM

(ICACC-S6-011-2013) The research on all-solid-state battery with hole-array structure (Invited Speaker)

Kiyoshi Kanamura*, Teruaki Nishioka, Saito Naoto, Jungo Wakasugi, Ryo Osone, Hirokazu Munakata, Tokyo Metropolitan University, Japan

8:30 AM

(ICACC-S6-012-2013) Understanding Li diffusion and interface stability in garnet structured solid electrolyte materials (Invited Speaker)

Michelle Johannes*, Naval Research Laboratory, USA; Khang Hoang, George Mason University, USA; Noam Bernstein, Naval Research Laboratory, USA; Jeff Sakamoto, Michigan State University, USA

9:00 AM

(ICACC-S6-013-2013) Tailoring Active Material and Electrode Design for High Capacity Battery Performance

Srirama Hariharan*, Palani Balaya, National University of Singapore, Singapore

9:20 AM

(ICACC-S6-014-2013) The Effect of Processing and Microstructural Variables on the Li-ion Conductivity of Li_{0.29}La_{0.57}TiO₃

Jeff Wolfenstine*, Anthony Sutorik, Christopher Cooper, Matthew Green, Gary Gilde, Army Research Laboratory, USA

9:40 AM

Break

Materials for Energy Storage - Supercapacitors

10:00 AM-12:00 PM

Room: Coquina Salon G

Session Chair(s): Sehee Lee, Kevin Jones

10:00 AM

(ICACC-S6-015-2013) Carbide-Derived Carbon Films for Integrated Electrochemical Energy Storage (Invited Speaker)

Min Heon, Majid Beidaghi, Yury Gogotsi*, Drexel University, USA

10:30 AM

(ICACC-S6-016-2013) Nanostructured MnO₂/composites for supercapacitors (Invited Speaker)

Li Lu*, National University of Singapore, Singapore

11:00 AM

(ICACC-S6-017-2013) Metal oxide-carbon composite nanofibers with enhanced electrochemical energy storage performance (Invited Speaker)

Yuanbing Mao*, Qiang Li, University of Texas-Pan American, USA

11:30 AM

(ICACC-S6-018-2013) Combined in-situ TEM-EELS and Synchrotron X-ray Techniques for Tracking Lithium Transport and Electrochemical Reactions (Invited Speaker)

Feng Wang*, Sung-Wook Kim, Lijun Wu, Yimei Zhu,

Jason Graetz, Brookhaven National Laboratory,
USA

Materials for Clean Energy Technologies

1:30 PM-3:20 PM

Room: Coquina Salon G

Session Chair(s): Kuan-Zong Fung, Pavol Sajgalík

1:30 PM

(ICACC-S6-019-2013) A binder-free process for making all plastic substrate flexible dye-sensitized solar cells having gel electrolyte (Invited Speaker)

Jyh-Ming Ting*, National Cheng Kung University, Taiwan

2:00 PM

(ICACC-S6-020-2013) Characteristics of mesoporous TiO₂ beads synthesized using microwave-assisted hydrothermal method and its application in dye-sensitized solar cell

Yung-Yi Tsou, Wei-Xuan Sun, Wanyu Wu*, MingDao University, Taiwan

2:20 PM

(ICACC-S6-021-2013) Europium and Cerium-Doped MgSiN₂ and LaSi₃N₅ - Electronic Structure and Luminescent Properties

Zoltan Lences*, L. Benco, M. Hrabalová, A. Czímerová, I. Ibrahim, P. Šajgalík, Slovak Academy of Sciences, Slovakia

2:40 PM

(ICACC-S6-022-2013) Functionalization of nitride engineering ceramics by polymer derived sintering aids

Pavol Sajgalík*, Z. Lences, T. Plachky, Slovak Academy of Sciences, Slovakia; R. Riedel, H. J Kleebe, Technische Universität Darmstadt, Germany

3:00 PM

Break

Energy Storage Technology

3:20 PM-5:20 PM

Room: Coquina Salon G

Session Chair(s): Kuan-Zong Fung, Pavol Sajgalík

3:20 PM

(ICACC-S6-023-2013) Dual Phase Cathode Materials for Protonic Conducting Solid Oxide Fuel Cell (Invited Speaker)

Hailei Zhao*, Cuijuan Zhang, University of Science and Technology Beijing, China

3:50 PM

(ICACC-S6-024-2013) Sodium iron phosphate Na₂FeP₂O₇ glass-ceramics for sodium ion battery

Tsuyoshi Honma*, Takuya Togashi, Noriko Ito, Takayuki Komatsu, Nagaoka University of Technology, Japan

4:20 PM

(ICACC-S6-025-2013) The Effect of Geometric Factors on Sodium Conduction: A Comparison of β - and β' -Alumina

Emma Kennedy*, Dunbar Birnie, Rutgers University, USA

4:40 PM

(ICACC-S6-026-2013) New energy storage with high power and low cost: A combination of computational and experimental study of cathode materials for Na-ion batteries

Jing Xu*, Dae Hoe Lee, Shirley Meng, University of California, San Diego, USA

5:00 PM

(ICACC-S6-027-2013) Properties of the Solid Ionic Conductor: Li₇La₃Zr₂O₁₂

Jeff Wolfenstine*, Jan Allen, Jeff Read, Army Research Lab, USA; Jeffrey Sakamoto, Michigan State University, USA

Wednesday, January 30, 2013
**Advanced Materials for
Energy Harvesting and
Storage**

8:00 AM-11:00 AM

Room: Coquina Salon G

Session Chair(s): Eldon Case, Truls Norby

8:00 AM

(ICACC-S6-028-2013) On synthesis, phase purity, and oxygen stoichiometry of sodium and calcium cobaltate thermoelectrics (Invited Speaker)

Truls Norby*, Harald Fjeld, Matthias Schrade, Terje Finstad, University of Oslo, Norway; Ole Martin Løvvik, SINTEF, Norway; Casolo Simone, University of Milan, Italy

8:30 AM

(ICACC-S6-029-2013) Spark plasma sintering of oxide thermoelectric materials (Invited Speaker)

Richard Donelson*, Aaron Seeber, CSIRO, Australia; Cong Chen, Md. Rezaul Kabir, UNSW, Australia

9:00 AM

(ICACC-S6-030-2013) The Seebeck Coefficient of Mesoscopic Nanocrystalline SrTiO₃

Giuliano Gregori*, Stefan Heinze, Piero Lupetin, Hans-Ulrich Habermeier, Joachim Maier, Max Planck Institute for Solid State Research, Germany

9:20 AM

(ICACC-S6-031-2013) Thermal shock and thermal fatigue of thermoelectrics - strategies and trade-offs

Eldon Darrel Case*, Michigan State Univ., USA

9:40 AM

Break

10:00 AM

(ICACC-S6-032-2013) Novel Flexible Thin Layer Electrochemical Components for Thermal

Batteries

Tomer Leviatan*, Shlomi Cohen, Irit Eliel, Rafael Ltd., Israel; Gennady E Shter, Assael Choen, Vadim Beilin, Gideon S Grader, Technion-Israel Institute of Technology, Israel

10:20 AM

(ICACC-S6-033-2013) Enhancement of the Thermoelectric Performance of p-type Ca₃Co₄O_{9+δ} with Spark Plasma Sintering Technology

Ruoming Tian*, Tianshu Zhang, Sean Li, University of New South Wales, Australia; Richard Donelson, CSIRO, Australia

10:40 AM

(ICACC-S6-034-2013) Processing dependent thermoelectric properties of Na_{0.77}CoO₂-Ca₃Co₄O₉ composites

Cong Chen*, Tianshu Zhang, Ruoming Tian, Dewei Chu, The University of New South Wales, Australia; Richard Donelson, CSIRO, Australia; Sean Li, The University of New South Wales, Australia

Tuesday, January 29, 2013
S6 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-S6-P082-2013) Synthesis and Characterization of LiMBO₃ Electrode Materials

Hyukjae Lee*, Yong-Suk Lee, Andong National University, Republic of Korea

(ICACC-S6-P083-2013) Dependence of Temperature and Atmosphere on Conductivity and Crystal Structure and Ni-Co Oxide Solid Solution

Kuan-Zong Fung*, Yang-Hao Hsu, National Cheng Kung University, Taiwan; Chao-Nan Wei, Hui-Yun Bor, Chung-Shan Institute of Science and Technology(CSIST), Taiwan

(ICACC-S6-P084-2013) Dependence of Chemical Reaction on Degradation of Composite Cathode

Consisting of Yttrium Doped Bismuth Oxide ($\text{Y}_{0.25}\text{Bi}_{0.75}\text{O}_{1.5}$) and $\text{La}_{1-x}\text{Sr}_x\text{MeO}_{3-\delta}$ Perovskite (Me=Mn, Cu)

Kuan-Zong Fung*, Hao-Sheng Wang, National Cheng Kung University, Taiwan

(ICACC-S6-P085-2013) Stability Enhancement of Li Solid Electrolytes against Metallic Li by Cation Substitution

Kuan-Zong Fung*, Chung-Ta Ni, Chih-Ying Shen, Chi-Yang Liu, Kai-Yun Yang, National Cheng Kung University, Taiwan

(ICACC-S6-P086-2013) Deposition of LiCoO_2 Film on Flexible Substrate for Li Microbattery Applications

Kuan-Zong Fung*, Chung-Ta Ni, Chi-Yang Liu, National Cheng Kung University, Taiwan

(ICACC-S6-P087-2013) Effect of Atmosphere on Synthesis and Conductivity of $\text{Li}_4\text{Ti}_5\text{O}_{12}$ Anode for Li battery application

Kuan-Zong Fung*, Chung-Ta Ni, Mei-Han Chen, National Cheng Kung University, Taiwan

(ICACC-S6-P088-2013) Synthesis n-ZnO/p-CuO Core/Shell Nanorods for Solar Cell Application

Ryun-Tak Kim*, Jin-Hwan Kim, Chonbuk National University, Republic of Korea; Haslin Kim, University of British Columbia, Canada; Yoon-Bong Hahn, Chonbuk National University, Republic of Korea

(ICACC-S6-P089-2013) Microstructure and tensile properties of Zr-modified and extruded in-situ Al-20wt.%Mg_2 Si composite

Mojtaba Bagherzadeh*, Rasoul Azari khosroshahi, Masoud Emamy, Sahand university of technology, Islamic Republic of Iran

Symposium 7: 7th International Symposium on Nanostructured Materials and Nanocomposites

Monday, January 28, 2013

Synthesis and Applications of Functional Nanostructures I

1:30 PM-3:20 PM

Room: Coquina Salon B

Session Chair(s): Sanjay Mathur

1:30 PM

(ICACC-S7-001-2013) Nanostructured ceramics: Processing, characterisation and commercialisation (Invited Speaker)

Jon Binner*, Bala Vaidhyanathan, Chris Reilly, Sina Saremi, Min Nah Tong, Yifei Zhang, Sherry Ghanizadeh, Sharon Huang, Prabhu Ramanujam, Saranya Venugopal, Pengxiang Zhang, Loughborough University, United Kingdom

2:00 PM

(ICACC-S7-002-2013) Phase-selective synthesis of rare earth phosphors at the nanoscale from ionic liquids (Invited Speaker)

Anja-Verena Mudring*, Ruhr-Universitaet Bochum, Germany

2:30 PM

(ICACC-S7-003-2013) Zinc oxide particles: The growth and characterization (Invited Speaker)

Zorica Crnjak Orel*, National Institute of Chemistry, Slovenia

3:00 PM

Break

Synthesis and Applications of Functional Nanostructures II

3:20 PM-6:00 PM

Room: Coquina Salon B

Session Chair(s): Anja-Verena Mudring, K. Byrappa

3:20 PM

(ICACC-S7-004-2013) Tuning of Bandgap and Nanoporosity in Hydrothermally Prepared Metal Oxide Semiconductors using Positron Annihilation Lifetime Spectroscopy (Invited Speaker)

K. Byrappa*, University of Mysore, India; K. Namratha, C. Ranganathaiah, University with Potential for Excellence Building, India

3:50 PM

(ICACC-S7-005-2013) Effect of grain size on the thermal conductivity of La-doped SrTiO₃ nanoceramics

Vincenzo Buscaglia*, Maria Teresa Buscaglia, National Research Council, Italy; Filippo Maglia, Umberto Anselmi Tamburini, University of Pavia, Italy; Daniele Marrè, University of Genoa, Italy; Ilaria Pallecchi, National Research Council, Italy; Adelina Ianculescu, Polytechnics University of Bucharest, Romania; Monica Fabrizio, National Research Council, Italy

4:10 PM

(ICACC-S7-006-2013) Polymer-Derived Ceramics - Nanodomain Structure and Energetics

Gabriela Mera*, Technische Universität Darmstadt, Germany; Alexandra Navrotsky, University of California at Davis, USA; Hans-Joachim Kleebe, Technische Universität Darmstadt, Germany; Sabyasachi Sen, University of California at Davis, USA; Ralf Riedel, Technische Universität Darmstadt, Germany

4:30 PM

(ICACC-S7-007-2013) Novel Synthesis and Analysis of Ce-doped TiO₂ Nanotubes

Paulo Noronha Lisboa-Filho*, UNESP-São Paulo State University, Brazil; Larisa B Arruda, UNESP -

São Paulo State University, Brazil

4:50 PM

(ICACC-S7-008-2013) Preparation of high solids loading nYAG suspension for transparent YAG ceramics

Prabhu Ramanujam*, Bala Vaidhyanathan, Jon Binner, Loughborough University, United Kingdom; Chris Spacie, Morgan Advanced Materials & Technology, United Kingdom

5:10 PM

(ICACC-S7-009-2013) Multifunctional behaviour of nanostructured surfaces, research and development of new industrial products (Invited Speaker)

Giovanni Baldi*, Andrea Barzanti, Valentina Dami, Andrea Cioni, Colorobbia Italia Spa, Italy

5:40 PM

(ICACC-S7-010-2013) Water Vapor Facilitated Synthesis of Single-Crystal Platinum Nanoparticles

Ting Cheng*, Karren L More, Oak Ridge National Lab, USA

Tuesday, January 29, 2013

Nanomaterials for Energy Applications I

8:00 AM-10:00 AM

Room: Coquina Salon B

Session Chair(s): Vladimir Sivakov, Mark Hersam

8:00 AM

(ICACC-S7-011-2013) Piezoelectric Nanogenerators and Piezotronics for Energy and Optoelectronic Device Applications (Invited Speaker)

Sang-Woo Kim*, Sungkyunkwan University, Republic of Korea

8:30 AM

(ICACC-S7-012-2013) Oxide Nanowires for Optoelectronics

Guido Faglia*, Camilla Baratto, Elisabetta Comini, Isabella Concina, Matteo Ferroni, Andrea Ponzoni,

Galstyan Vardan, Dario Zappa, Giorgio Sberveglieri, Universita' degli Studi di Brescia, Italy

9:00 AM

(ICACC-S7-013-2013) Electrospinning of TiO₂ Nanofibers and Hydrogen Plasma Treatment for Solar Water Splitting

Ashish Lepcha*, Aadesh P Singh, Andreas Mettenböcker, Sanjay Mathur, University of Cologne, Germany

9:20 AM

(ICACC-S7-014-2013) Effect of Doping on In-Situ Crystallization and Crystal Growth in Electrospun TiO₂ Nanofibres

Hani Albetran, Hazim Haroosh, Roger Dong, Jim Low*, Curtin University, Australia

9:40 AM

Break

Nanomaterials for Energy Applications II

10:00 AM-12:10 PM

Room: Coquina Salon B

Session Chair(s): Peter Notten, Guido Faglia

10:00 AM

(ICACC-S7-015-2013) Novel Discovery of Silicon (Invited Speaker)

Vladimir Sivakov*, Institute of Photonic Technology, Germany

10:30 AM

(ICACC-S7-016-2013) Design and integration of Q1D metal oxide heterostructures

Raquel Fiz*, Sanjay Mathur, Universität zu Köln, Germany

10:50 AM

(ICACC-S7-017-2013) Monodisperse Carbon Nanomaterial Coatings and Composites in Electronic and Energy Conversion Devices (Invited Speaker)

Mark C Hersam*, Northwestern University, USA

11:20 AM

(ICACC-S7-018-2013) Microwave assisted synthesis of Graphene/Metal Oxide Nanocomposites for Lithium-Ion Battery Anodes

Ralf Mueller*, Sanjay Mathur, University of Cologne, Germany

11:40 AM

(ICACC-S7-019-2013) From materials research to integrated Li-ion micro-batteries (Invited Speaker)

Peter H.L. Notten*, Eindhoven University of Technology, Netherlands

Chemical Processing of Nanomaterials I

1:30 PM-3:30 PM

Room: Coquina Salon B

Session Chair(s): An Hardy, Dunwei Wang

1:30 PM

(ICACC-S7-020-2013) Self-Induced Growth of GaN Nanowires by Plasma Assisted Molecular Beam Epitaxy (Invited Speaker)

Zbigniew Zytkiewicz*, Marta Sobanska, Kamil Klosek, Aleksandra Wierzbicka, Anna Reszka, Jolanta Borysiuk, Institute of Physics, Polish Academy of Sciences, Poland

2:00 PM

(ICACC-S7-021-2013) Synthesis and Characterisation of Nanostructured Copper Oxide

David Dodoo-Arhin*, University of Ghana, Ghana; Matteo Leoni, Paolo Scardi, University of Trento, Italy

2:20 PM

(ICACC-S7-022-2013) Hierarchical Assembly of LiFePO₄ Nanostructures (Invited Speaker)

Jianxin Zhu, UC Riverside, USA; Joseph Fiore, Richard Lu, UC Riverside, USA; Anthony Lira, UC Riverside, USA; Nichola Kinsinger, David Kisailus*, UC Riverside, USA

2:40 PM

(ICACC-S7-023-2013) Nanostructured metal oxides from aqueous solution deposition (Invited Speaker)

An Hardy*, Marlies Van Bael, Hasselt University - imomec, Belgium

3:10 PM

Break

Functional Nanocomposites

3:30 PM-5:40 PM

Room: Coquina Salon B

Session Chair(s): Zbigniew Zytkiewicz, David Kisailus

3:30 PM

(ICACC-S7-024-2013) Innovating hematite-based materials for improved solar water splitting (Invited Speaker)

Dunwei Wang*, Boston College, USA

4:00 PM

(ICACC-S7-025-2013) Heteroepitaxial Branched TiO₂ Nanorods on Sb:SnO₂ Nanobelt backbones for Photoelectrochemical Hydrogen Production

Sangbaek Park*, Se Won Seo, Chan Woo Lee, Sang Hyeon Kim, Seoul National University, Republic of Korea; Sangwook Lee, University of California at Berkeley, USA; Dong-Wan Kim, Ajou University, Republic of Korea; Kug Sun Hong, Seoul National University, Republic of Korea

4:20 PM

(ICACC-S7-026-2013) Plasma-enhanced Chemical Vapour Deposition of Surface Disordered Metal Oxide Nanostructures: Growth and PEC Applications

Aadesh P Singh*, Andreas Mettenboerger, Sanjay Mathur, University of Cologne, Germany

4:40 PM

(ICACC-S7-027-2013) Modelling of optical and electrical properties of WO₃ photoanode with use of plasmonic nanostructures in photoelectrochemical systems

Renata Solarska*, University of Warsaw, Poland;
Krzysztof Bienkowski, Institute of Technology of
Electronic Materials, Poland; Jan Augustynski,
University of Warsaw, Poland

5:00 PM

**(ICACC-S7-028-2013) Eclipse Transparent
Electrode and Applications**

Hulya Demiryont, Kenneth Coleman Shannon*,
Eclipse Energy Systems, Inc., USA; Matthew
Bratcher, U. S. Army Research Laboratory, USA

5:20 PM

**(ICACC-S7-029-2013) Atomic Layer Deposition and
Plasma-enhanced CVD of Nanometric Metal Oxide
thin films for Functional Applications**

Trilok Singh*, Thomas Fischer, Sanjay Mathur,
University of Cologne, Germany

Wednesday, January 30, 2013

Chemical Processing of Nanomaterials II

8:00 AM-9:50 AM

Room: Coquina Salon B

Session Chair(s): Jordi Arbiol, Werner Mader

8:00 AM

**(ICACC-S7-030-2013) Metals and composites from
solution (Invited Speaker)**

Gunnar Westin*, Koroush Lashagari, Annika Pohl,
Uppsala University, Sweden; Kjell Jansson,
Stockholm University, Sweden

8:30 AM

**(ICACC-S7-031-2013) Precursor dependent
morphology of hydrothermal SrTiO₃
nanostructures. Evidence for different
crystallization pathways (Invited Speaker)**

Vincenzo Buscaglia*, Maria Teresa Buscaglia,
National Research Council, Italy; Vishwanath
Kalyani, University of Genoa, Italy; Adelina
Ianculescu, Bogdan Vasile, Polytechnics University
of Bucharest, Romania; Paolo Nanni, University of
Genoa, Italy

9:00 AM

**(ICACC-S7-032-2013) Nanoscale Oxides for
Photocatalytic Applications (Invited Speaker)**

Greta Ricarda Patzke*, University of Zurich,
Switzerland

9:30 AM

**(ICACC-S7-033-2013) Design and Development of
Nanocrystalline Zinc Ferrite Based Microstrip
Patch Antenna**

Gaurav Singh*, S k s Parashar, Sudhakar Sahu, KIIT
University, India

Nanotubes, Nanorods, Nanowires and Other One- dimensional Structures

9:50 AM-12:00 PM

Room: Coquina Salon B

Session Chair(s): Greta Patzke, Vincenzo Buscaglia

9:50 AM

**(ICACC-S7-034-2013) VLS Growth Mechanism of
ZnO Nanowires (Invited Speaker)**

Werner Mader*, Heike Simon, Tobias Krekeler,
Gunnar Schaan, University of Bonn, Germany

10:20 AM

**(ICACC-S7-035-2013) Precursor decomposition
pathways during chemical vapor deposition of
metal oxide nano-structures (Invited Speaker)**

Thomas Fischer*, Irina Giebelhaus, Sanjay Mathur,
University of Cologne, Germany

10:40 AM

**(ICACC-S7-036-2013) Fabrication of
heterostructured ZnO nanowires and their
applications in quantum dot sensitized solar cells
(Invited Speaker)**

Kijung Yong*, POSTECH, Republic of Korea

11:10 AM

**(ICACC-S7-037-2013) Visualization of light atoms
(O and N) in semiconductor NWs: direct way to**

**determine the polarity in 1D nanostructures
(Invited Speaker)**

Jordi Arbiol*, Maria de la Mata, Reza Zamani, ICREA and Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Spain; Joan R Morante, Catalonia Institute for Energy Research, IREC, Spain

11:40 AM

(ICACC-S7-038-2013) Nafen: Novel Nanomaterial With Industrial Production Capabilities

Michael Kutuzov*, ANF Development, Estonia

Bio-active Nanomaterials and Nanostructured Materials for Bio-medical Applications

1:30 PM-5:30 PM

Room: Coquina Salon B

Session Chair(s): Yoon-Bong Hahn, Mufit Akinc, Donglu Shi

1:30 PM

(ICACC-S7-039-2013) Impact of the Physicochemical Properties of Engineered Nanomaterials on their Cellular Uptake and Potential Toxicity (Invited Speaker)

Prabir Dutta*, The Ohio State University, USA

2:00 PM

(ICACC-S7-040-2013) A Green Chemical Approach for Highly Water-Soluble and Biocompatible Superparamagnetic Magnetite Nanoparticles for Enhanced MRI

Sanjay Mathur, Lisong Xiao*, University of Cologne, Germany

2:20 PM

(ICACC-S7-041-2013) Biocide activity of copper nanoparticles supported on biogenic silica

Belén Cabal*, Miriam Miranda, Marta Suárez, Nanomaterials and Nanotechnology Research Center (CINN), Spain; Fernando Rojo, Francisco Malpartida, National Center for Biotechnology (CNB-CSIC), Spain; Ramón Torrecillas, Nanomaterials and Nanotechnology Research

Center (CINN), Spain; José S Moya, Materials Science Institute of Madrid (ICMM-CSIC), Spain

2:40 PM

(ICACC-S7-042-2013) Investigation of surface properties of nano-structured TiO₂ for dental implants design

Sabin Issa*, Pierre Cenedese, IICMPE-MCMC, CNRS UMR 7182, 2-8, rue Henri Dunant, 94320 THIAIS, France; Christophe Azevedo, U.F.R. Odontologie, France; Pierre Dubot, IICMPE-MCMC, CNRS UMR 7182, 2-8, rue Henri Dunant, 94320 THIAIS, France

3:00 PM

(ICACC-S7-043-2013) High Performance Glucose and Cholesterol Biosensors Based on Zinc Oxide Nanostructures (Invited Speaker)

Yoon-Bong Hahn*, Chonbuk National University, Republic of Korea

3:30 PM

(ICACC-S7-044-2013) Nano-hydroxyapatite composites for medical applications

Katalin Balazsi, Istvan Endre Lukacs, Greta Gergely, Hungarian Academy of Sciences, Hungary; Chang-Hoon Chae, Hallym University, Republic of Korea; Pelagia-Irene Gouma, State University of New York at Stony Brook, USA; Seong-Gon Kim, Gangneung-Wonju National University, Republic of Korea; Csaba Balazsi*, Hungarian Academy of Sciences, Hungary

3:50 PM

(ICACC-S7-045-2013) Bottom up Approach to Design of Nanostructured Materials: Biomimicking and Bioinspiration (Invited Speaker)

Mufit Akinc*, Yan-Yan Hu, Yusuf Yusufoglu, Xunpei Liu, Klaus Schimdt-Rohr, Surya Mallapragada, Iowa State Univ, USA

4:20 PM

(ICACC-S7-046-2013) Design of Multifunctional "Plug and Play" Nano-Carriers for Biomedical Applications (Invited Speaker)

Haiqing Dong, Yong Yong Li, Tongji University, China; Donglu Shi*, University of Cincinnati, USA

4:50 PM

(ICACC-S7-047-2013) Self-Assembly of Nanomaterials: Ammonium Hydrogen Phosphate Crystals, Zeolite Crystals, and Lysozyme Fibers Characteristic of Alzheimer's Disease

Kavitha Hari, Yekaterina Lin, Lisa M Cole-Burnett, Benjamin J Burnett, Shaohua Xu, James R Brenner*, Florida Tech, USA

5:10 PM

(ICACC-S7-048-2013) Controlling the Growth of Biofilms on Ceramics using Nanoparticle Coatings

Curtis Larimer, Mohammad Islam, Anil Ojha, Ian Nettleship*, University of Pittsburgh, USA

Thursday, January 31, 2013
Innovative Processing of Functional Materials

8:00 AM-10:00 AM

Room: Coquina Salon B

Session Chair(s): Gunnar Westin, Oliver Diwald

8:00 AM

(ICACC-S7-049-2013) Nanoparticle Surface Design for Controlling their Dispersion Stability and Processing Functional Composite Materials (Invited Speaker)

Motoyuki Iijima, Hidehiro Kamiya*, Tokyo University of Agriculture and Technology, Japan

8:30 AM

(ICACC-S7-050-2013) Structure-Property Relations in Designing Functional Nanomaterials and Nanocomposites

Elena V Timofeeva*, Michael R Moravek, Dileep Singh, Wenhua Yu, David France, Argonne National Laboratory, USA

8:50 AM

(ICACC-S7-051-2013) Boron Nitride Nanotube Reinforcement for High Temperature Composite Applications

Janet Hurst*, Diana Santiago, Ching-cheh Hung, NASA Glenn Research Center, USA

9:10 AM

(ICACC-S7-052-2013) Nanocomposite Films With Low-Field Magnetoresistance or Magnetoelectric Properties (Invited Speaker)

Menka Jain*, University of Connecticut, USA

9:40 AM

Break

Surfaces and Controlled Interface Properties

10:00 AM-12:00 PM

Room: Coquina Salon B

Session Chair(s): Menka Jain, Motoyuki Iijima

10:00 AM

(ICACC-S7-053-2013) Chemical and Thermal Effects on Phase Evolution and Cation Gradients in Solution-Derived Thin Film Ferroelectrics (Invited Speaker)

Geoff Brennecke*, Jon Ihlefeld, Sandia National Laboratories, USA; Krishna Nittala, University of Florida, USA; Kelsey Meyer, New Mexico Institute of Mining and Technology, USA; Ryan Wilkerson, Missouri University of Science and Technology, USA; Soon-Wook Mhin, Jacob Jones, University of Florida, USA

10:30 AM

(ICACC-S7-054-2013) Interface Controlled Property Changes of Titanate Nanostructures (Invited Speaker)

Michael J Elser, Andreas K Sternig, Benedikt Schuerer, Wolfgang Peukert, Oliver Diwald*, University of Erlangen Nürnberg, Germany

11:00 AM

(ICACC-S7-055-2013) Solution based processing of doped zinc oxide and titanium dioxide as transparent conducting materials

K. Elen*, H. Damm, A. Kelchtermans, K. Schellens, An Hardy, M. K Van Bael, Hasselt University - imomec, Belgium

11:20 AM

(ICACC-S7-056-2013) Structural and magnetic properties of Zn_{1-x}Ni_xO diluted magnetic semiconductors synthesized by a polymer precursor method

J. Jadhav, M. Patange, Somnath Biswas*, The LNM Institute of Information Technology, India

11:40 AM

(ICACC-S7-057-2013) All Inkjet-printed Field Effect Transistors with p-type CuO Nanoparticles Ink

Mohammad Vaseem*, A-Ra Hong, Yoon-Bong Hahn, Chonbuk National University, Republic of Korea

Patterning and Tomography I

1:30 PM-3:30 PM

Room: Coquina Salon B

Session Chair(s): Thomas Fischer, Prabir Dutta, Flavio Soldera

1:30 PM

(ICACC-S7-058-2013) Soft Lithographic Approaches for Patterning of Metal Oxides and Graphene on Arbitrary Substrates (Invited Speaker)

Johan E. ten Elshof*, University of Twente, Netherlands

2:00 PM

(ICACC-S7-059-2013) Tomography and 3D analysis of micro- and nanostructures (Invited Speaker)

Flavio Soldera*, Federico Miguel, Frank Mücklich, Saarland University, Germany

2:30 PM

(ICACC-S7-060-2013) Processing of Nanostructured Alumina Ceramics

Shaghayegh Ghanizadeh*, Jon Binner, Bala Vaidhyanathan, Xujin Bao, Loughborough University, United Kingdom

2:50 PM

(ICACC-S7-061-2013) Rheology of Alumina Nano Powder Suspensions in the Presence of Organic Acids

Simge Cinar*, Muift Akinc, Iowa State University, USA

3:10 PM

Break

Patterning and Tomography II

3:30 PM-6:10 PM

Room: Coquina Salon B

Session Chair(s): Thomas Fischer, Prabir Dutta, Flavio Soldera

3:30 PM

(ICACC-S7-062-2013) Study of Carbon Nanotubes Effect on Anti-ballistic Property of Abalone-shell-like Silicone-Epoxy Composites

Hongyu Wang*, Daniel Chua, Vincent Tan, National University of Singapore, Singapore; Zhuo Sun, Zhejuan Zhang, East China Normal University, China

3:50 PM

(ICACC-S7-063-2013) Hexagonal Boron Nitride Nanocomposite Synthesis: A Method Derived from Carbon Technology

Ching-cheh Hung*, Janet Hurst, NASA Glenn Research Center, USA

4:10 PM

(ICACC-S7-064-2013) Silicon nitride-graphene composites with improved strength and toughness processed from low concentrations of few layer graphene using SPS

Luke Sky Walker*, Victoria R Marotto, The University of Arizona, USA; Nikhil Koratkar, Rensselaer Polytechnic Institute, USA; Erica L Corral, The University of Arizona, USA

4:30 PM

(ICACC-S7-065-2013) Reinforcement mechanisms in alumina toughened zirconia nanocomposites with different stabilizing agents

Sergio Rivera, Lidia Goyos, Nanomaterials and Nanotechnology Research Center (CINN-CSIC-UNIOVI-PA), Spain; Adolfo Fernández, Instituto Tecnológico de Materiales, Spain; Luis Antonio

Diaz*, Nanomaterials and Nanotechnology Research Center (CINN-CSIC-UNIOVI-PA), Spain; Jose Moya, Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Spain; Ramon Torrecillas, Nanomaterials and Nanotechnology Research Center (CINN-CSIC-UNIOVI-PA), Spain

4:50 PM

(ICACC-S7-066-2013) Fabrication and Thermal transport study of carboxylic functionalized multiwalled carbon nanotubes impregnated polydimethylsiloxane nanocomposites

Sadia Sagar*, Nadeem Iqbal, Asghari Maqsood, School of Chemical and Materials Engineering, Pakistan

5:10 PM

(ICACC-S7-067-2013) Chemically Bonded Phosphate Ceramics Reinforced with Carbon Nanotubes

James Wade*, Houzheng Wu, Loughborough University, United Kingdom

5:30 PM

(ICACC-S7-068-2013) Spray Freeze Granulation of Nanozirconia Powders

Yifei Zhang*, Jon Binner, Chris Rielly, Bala Vaidhyanathan, Loughborough University, United Kingdom; Paul Rimmer, MEL Chemicals, United Kingdom

5:50 PM

(ICACC-S7-069-2013) Shape specific synthesis of ZnO nanoparticles and applications thereof

K. Elen*, IMEC vzw, Belgium; M. Murariu, Université de Mons, Belgium; R. Peeters, XIOS Hogeschool Limburg, Belgium; H. Van den Rul, Sirris Smart Coating Application Lab, Belgium; An Hardy, M. K Van Bael, Hasselt University - imomec, Belgium

Wednesday, January 30, 2013

S7 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-S7-P090-2013) The Effects of Nano-Silica on Mechanical Properties and Setting Time of Cement Composites Containing BOF Slag

Seyed Vahid Hosseini*, Mohammad Reza Nilforoushan, Shahrekord University, Islamic Republic of Iran

(ICACC-S7-P091-2013) Sol-Gel Approach to the Calcium Phosphate Nanocomposites

Aldona Beganskiene*, Zivile Stankeviciute, Milda Malakauskaite, Irma Bogdanoviciene, Vilnius University, Lithuania; Kaia Tõnsuaadu, Tallinn University of Technology, Estonia; Aivaras Kareiva, Vilnius University, Lithuania

(ICACC-S7-P092-2013) Surface modification of SnO₂ nanoparticles by Ti⁴⁺

Joice Miagava*, Douglas Gouvea, Universidade de Sao Paulo, Brazil; Alexandra Navrotsky, Ricardo Castro, University of California - Davis, USA; Annick Rubbens, Pascal Roussel, Universite de Lille, France

(ICACC-S7-P093-2013) Preparation and Photoelectric Properties of ZnO/a-Si_{1-x}C_x:H Heterojunctions

Ting Zhao*, Yi Qin, Jianfeng Yang, State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, China

(ICACC-S7-P094-2013) Effect of Incorporation of Clay and Zinc Oxide Nanoparticles on Oxygen Barrier Properties of Polypropylene Films

Mualla Oner*, Parahat Atayev, Yildiz Technical University, Turkey

(ICACC-S7-P095-2013) Polymeric gels and colloidal route of the sol-gel process -alternatives to produce Fe-ZrSiO₄

Guillermo Herrera*, Noemi Montoya, Javier Alarcón, Universidad de Valencia, Spain

(ICACC-S7-P096-2013) Eddy Current and Microwave Characterization of Fe-based Alloy Synthesized by Mechanical Alloying

Zineb Hamlati*, Said Bergheul, University of Saad

Dahleb, Algeria; Mohamed Azzaz, U.S.T.H.B, Algeria

(ICACC-S7-P097-2013) Inkjet Printed Fractal-Connected Electrodes with Silver Nanoparticle Ink

Mohammad Vaseem*, A-Ra Hong, Yoon-Bong Hahn, Chonbuk National University, Republic of Korea

(ICACC-S7-P098-2013) The Effect of Silicon Carbide Nano-Dispersants on the Hardness and Indentation Size Effect of Alumina/Silicon Carbide Nanocomposites

James Wade*, Houzheng Wu, Loughborough University, United Kingdom

(ICACC-S7-P099-2013) Stoichiometry-Controlled Growth of $BaxSr1-xTiO3$ Nanoparticles and Their Thin Films for Heterojunction Devices Application

Daan Liu, A-Ra Hong*, Hyo-Jin Bae, Soumen Das, Yoon-Bong Hahn, Chonbuk National University, Republic of Korea

(ICACC-S7-P100-2013) Investigation of multilayer superhard Ti-Hf-Si-N/NbN/ Al_2O_3 coatings for high performance protection

Alexander D Pogrebnyak*, Alisa S Kaverina, Sumy State University, Ukraine; Vyacheslav M Beresnev, Kharkov National University, Ukraine; Yoshihiko Takeda, Keiji Oyoshi, Hideyuki Murakami, National Institute for Material Science, Japan

(ICACC-S7-P101-2013) Nanostructured Multicomponent Coatings (Ti-Zr-Hf-V-Nb) N and their Properties

Alexander D Pogrebnyak*, Sumy State University, Ukraine; Vyacheslav M Beresnev, Kharkov National University, Ukraine; Dmitriy A Kolesnikov, Belgorod State University, Russian Federation; Yoshihiko Takeda, National Institute for Material Science (NIMS), Japan; Mikhail V Kaverin, Sumy State University, Ukraine; Guintautas Abrasonis, Helmholtz-Zentrum Dresden-Rossendorf, Germany; Reinhard Krause-Rehberg, Universität Halle, Germany

(ICACC-S7-P102-2013) Effect of raw materials and

fabrication parameters on the structure and morphology of Nanocrystalline magnesium aluminate spinel powders fabricated by gel combustion method

Arman Sedghi*, Imam Khomeini International University, Islamic Republic of Iran; Somayeh Poostian, Azad University, Saveh Branch, Islamic Republic of Iran; Pooyan Sedghi, Azad University, Science and research campus, Islamic Republic of Iran; Mohamad Reza Salmani, Azad University, Saveh Branch, Islamic Republic of Iran

(ICACC-S7-P103-2013) Internal Reduction of Transition Metal Doped Oxides and Perovskites

Amy Morrissey*, Jianhua Tong, Ivar E Reimanis, Colorado School of Mines, USA; Jim R O'Brien, Quantum Design, Inc., USA

(ICACC-S7-P104-2013) Boron Nitride Nanotube Growth on SiC Fiber Surfaces

Diana Santiago*, Janet Hurst, NASA Glenn Research Center, USA

(ICACC-S7-P105-2013) Comparison of thin film WO_3 photoanodes prepared by different methods.

Marta Sarnowska*, Piotr Barczuk, CeNT, Warsaw University, Poland

(ICACC-S7-P106-2013) Preparation and characterization of hydroxyapatite covered biocompatible TiC nanocomposite thin films

Katalin Balazsi*, Istvan Endre Lukacs, Hungarian Academy of Sciences, Hungary; Marta Vandrovцова, Lucie Bacakova, Institute of Physiology, Czech Republic; Csaba Balazsi, Hungarian Academy of Sciences, Hungary

(ICACC-S7-P107-2013) Improved Transparent conducting oxide by Plasma Enhanced Chemical Vapour Deposition

Jai Singh*, Banaras Hindu University, India; T. Singh, S. Mathur, University of Cologne, Germany

(ICACC-S7-P108-2013) Morphological evolution of ZnO nanostructure controlled by Mg doping and

their optical and hydrogenation properties

Jai Singh*, R. S Tiwari, O. N Srivastava, Banaras
Hindu University, India

**(ICACC-S7-P109-2013) Graphene-semiconductor
hybrid materials: electronic and photophysical
properties**

Kasinath Ojha*, Mahima Makkar, Pramit K
Chowdhury, Ashok K. Ganguli, Indian Institute of
Technology, Delhi, India

**(ICACC-S7-P110-2013) Deposition and
Modification of Semiconducting Metaloxides with
Enhanced Photoelectrochemical Properties via PE-
CVD**

Andreas Mettenboerger*, Aadesh P Singh, Peter
Golus, Sanjay Mathur, University of Cologne,
Germany

**(ICACC-S7-P111-2013) PGE nano structures in
magmatic systems**

Marian Tredoux*, Bianca Kennedy, University of
the Free State, South Africa

Symposium 8: 7th
International Symposium
on Advanced Processing
and Manufacturing
Technologies for Structural
and Multifunctional
Materials and Systems
(APMT7)

Monday, January 28, 2013
Novel Processing for
Functional Materials

1:30 PM-6:00 PM

Room: Coquina Salon A

Session Chair(s): Ian Nettleship, Paul Bowen

1:30 PM

(ICACC-S8-001-2013) Fundamental Issues in the Processing of Transparent Aluminas : From Interparticle Forces to Porous Ceramic Coatings and Dense Transparent Ceramics (Invited Speaker)

Paul Bowen*, EPFL, Switzerland

2:00 PM

(ICACC-S8-002-2013) UBE's Functional Ceramics Synthesized from Bountiful Resources (Invited Speaker)

Toshihiro Ishikawa*, Ube Industries, Ltd., Japan

2:30 PM

(ICACC-S8-003-2013) What the difference between Aerosol Deposition and Cold Spray techniques as the kinetic spray coating? (Invited Speaker)

Jun Akedo*, National Institute of Advanced Industrial Science and Technology (AIST), Japan

3:00 PM

Break

3:20 PM

(ICACC-S8-004-2013) High Efficiency Low Temperature Recycling Technology for Lithium Ion Batteries (Invited Speaker)

Yan Wang*, Haiyang Zou, Diran Apelian, Worcester Polytechnic Institute, USA

3:50 PM

(ICACC-S8-005-2013) Processing and Characterization of Multiferroic Composite Films Using Metal-Organic Precursor Solutions (Invited Speaker)

Wataru Sakamoto*, Yoshikatsu Kawabata, Daiki Maeda, Makoto Moriya, Toshinobu Yogo, Nagoya University, Japan

4:20 PM

(ICACC-S8-006-2013) The Design and Processing of Bioreactor Ceramics for In-Vitro Culturing of Human Cells

Ian Nettleship*, Anthony Finoli, Eva Schmelzer, Jorg Gerlach, University of Pittsburgh, USA

4:40 PM

(ICACC-S8-007-2013) Novel approach to produce spherical, porous, multilayer and hollow ceramic beads

Christian J. Espinoza Santos*, Benjamin Walusiak, Samuel Hayes, Elena K Mendoza, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

5:00 PM

(ICACC-S8-008-2013) Effect of Additives on Electrical Resistivity of Liquid-Phase Sintered Silicon Carbide Ceramics

Young-Wook Kim*, Kwang-Young Lim, The UNiversity of Seoul, Republic of Korea; Kwang Joo Kim, Konkuk University, Republic of Korea

5:20 PM

(ICACC-S8-009-2013) Synthesis and Optimization of Conductive Glass Composites with Low

Percolation Thresholds

Timothy Pruyn*, Rosario Gerhardt, Georgia Institute of Technology, USA

5:40 PM

(ICACC-S8-010-2013) Influence of different ions

Co-Doped on the Properties of CaBi₂Nb₂O₉

Ceramics Prepared by molten-salt method

Jianguo Zhu*, Fengkang Huang, Shaoming Bao, Dan Liu, Wen Zhang, Dingquan Xiao, Sichuan University, China

Tuesday, January 29, 2013

Advanced Composite Manufacturing

8:00 AM-12:00 PM

Room: Coquina Salon A

Session Chair(s): Yury Gogotsi, Tatsuki Ohji

8:00 AM

(ICACC-S8-011-2013) Carbon nanotubes in silicon nitride (Invited Speaker)

Csaba Balazsi*, Hungarian Academy of Sciences, Hungary

8:30 AM

(ICACC-S8-012-2013) Manufacturing and Properties of 2-Dimensional Carbides and Carbonitrides (MXenes) (Invited Speaker)

Michael Naguib, Olha Mashtalir, Murat Kurtoglu, Michel W Barsoum, Yury Gogotsi*, Drexel University, USA

9:00 AM

(ICACC-S8-013-2013) Fractals in Ceramic Structure and Properties Higher Integrations

V. Mitic*, V. Paunovic, University of Nis, Serbia; S. Jankovic, Mathematical institute, SASA, Serbia; Lj. Kocic, University of Nis, Serbia; V. Pavlovic, University of Belgrade, Serbia

9:20 AM

(ICACC-S8-014-2013) Slip casting of composite particles prepared by mechanical treatment

Junichi Tatami*, Takuya Uoji, Toru Wakihara, Yokohama National University, Japan

9:40 AM

Break

10:00 AM

(ICACC-S8-015-2013) Evaluation of High Fiber Volume Fraction Fiber Reinforced Polymer Composites Fabricated in an Out-of-Autoclave Resing Infusion Process

Larry R Holmes*, US Army Research Labs, USA

10:20 AM

(ICACC-S8-016-2013) Development and Applications of Ceramic Bonded Carbon Composites

Weibu Chen, Yoshinari Miyamoto*, Joining and Welding Research Institute, Osaka University, Japan

10:40 AM

(ICACC-S8-017-2013) Composite metal oxide particles from chemical vapor synthesis

Andreas Sternig K Sternig, Amir Gheisi, Oliver Diwald*, University of Erlangen Nürnberg, Germany; Simon Klacar, Henrik Groenbeck, Chalmers University of Technology, Sweden

11:00 AM

(ICACC-S8-018-2013) Fabrication and Properties of High Thermal Conductivity Silicon Nitride

You Zhou, Hideki Hyuga, Tatsuki Ohji*, Kiyoshi Hirao, National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:20 AM

(ICACC-S8-019-2013) Structure-Property Relationship of Polymer-Derived Amorphous SiBCN Ceramics

Yaohan Chen*, Linan An, University of Central Florida, USA

11:40 AM

(ICACC-S8-020-2013) Processing and properties of zirconia toughened WC-based cermets

Irina Hussainova*, Nikolai Voltsihhin, Tallinn University of Technology, Estonia; Simo-Pekka Hannula, Erkin Cura, Aalto University Foundation, Finland

Integration & Joining

1:30 PM-3:20 PM

Room: Coquina Salon A

Session Chair(s): Walter Krenkel, Eugene Medvedovski

1:30 PM

(ICACC-S8-021-2013) Lifetime Extension of Metal Pipes by Ceramic Jackets (Invited Speaker)

Walter Krenkel*, Nico Langhof, University of Bayreuth, Germany; Carolin Spatz, Fraunhofer Center for High Temperature Materials and Design, Germany

2:00 PM

(ICACC-S8-022-2013) Interfacial Characterization of Diffusion Bonded Monolithic and Fiber Bonded Silicon Carbide Ceramics

Hiroshi Tsuda*, Shigeo Mori, Michael C Halbig, Osaka Prefecture University, Japan; Mrityunjay Singh, NASA Glenn Research Center, USA

2:20 PM

(ICACC-S8-023-2013) Development of Graphite/AlN Joints with Al-Y-O Phase Penetration

Tomoyuki Okuni*, Yoshinari Miyamoto, Toyo Tanso Co., Ltd., Japan; Hiroya Abe, Makio Naito, Joining and Welding Research Institute, Japan

2:40 PM

(ICACC-S8-024-2013) Joining of alumina by polycarbosilane and siloxane including phenyl groups

Ken'ichiro Kita*, Naoki Kondo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

3:00 PM

Break

Design-Oriented Manufacturing

3:20 PM-5:10 PM

Room: Coquina Salon A

Session Chair(s): Walter Krenkel, Eugene Medvedovski

3:20 PM

(ICACC-S8-025-2013) Manufacturing and Application of Ceramic Membranes for Filtration (Invited Speaker)

Alexander Michaelis*, Ingolf Voigt, Fraunhofer IKTS, Germany

3:50 PM

(ICACC-S8-026-2013) Intelligent processes enable new products in the field of non-oxide ceramics

Jens Eichler*, ESK Ceramics GmbH & Co. KG, Germany

4:10 PM

(ICACC-S8-027-2013) Influence of Manufacturing on Corrosion Resistance of Advanced Ceramics

Eugene Medvedovski*, Consultant, Canada

4:30 PM

(ICACC-S8-028-2013) Numerical Analysis of Microstructural Fracture Behavior in Nano Composites under HVEM

Hisashi Serizawa*, Osaka University, Japan; Tamaki Shibayama, Hokkaido University, Japan; Hidekazu Murakawa, Osaka University, Japan

4:50 PM

(ICACC-S8-029-2013) Study of the effects of an unexpected ceramic phase at the head of the pipe on joining and post processing of a ceramic-lined composite pipe

Reza Mahmoodian*, University of Malaya, Malaysia; Reza Rahbari Ghahnavyeh, University of Toronto, Canada; Mohd. Hamdi, Mohsen Abdel Hassan, Mahdi Sparham, University of Malaya, Malaysia

Wednesday, January 30, 2013

SPS & SHS

8:00 AM-10:00 AM

Room: Coquina Salon A

Session Chair(s): Eugene Olevsky, Hisayuki Suematsu

8:00 AM

(ICACC-S8-030-2013) Spark-Plasma Sintering (SPS) and High Voltage Electrical Discharge Consolidation (HVEDC): Fundamental Aspects and Scalability (Invited Speaker)

Eugene Olevsky*, San Diego State University, USA;
Evgeny Grigoryev, Moscow Engineering Physics University, Russian Federation

8:30 AM

(ICACC-S8-031-2013) Combustion Synthesis (SHS) of Complex Ceramic Materials (Invited Speaker)

Jerzy Lis*, AGH University of Science and Technology, Poland

9:00 AM

(ICACC-S8-032-2013) Spark Plasma Sintering of UO₂: An investigation of densification and microstructure evolution

Lihao Ge*, Ghatu Subhash, Ronald H Baney, James S Tulenko, University of Florida, USA

9:20 AM

(ICACC-S8-033-2013) Spark Plasma Sintering Induced Grain Refining in Al₂O₃ Ceramics

Jinling Liu*, Linan An, University of Central Florida, USA; Fuqian Yang, University of Kentucky, USA

9:40 AM

Break

Novel Sintering Technologies

10:00 AM-12:00 PM

Room: Coquina Salon A

Session Chair(s): Eugene Olevsky, Hisayuki Suematsu

10:00 AM

(ICACC-S8-034-2013) High voltage flash sintering in cubic zirconia

John Axel Downs*, Vincenzo M Sglavo, University of Trento, Italy

10:20 AM

(ICACC-S8-035-2013) Flash Sintering of Electroceramic Devices

Bala Vaidhyanathan*, Loughborough University, United Kingdom

10:40 AM

(ICACC-S8-036-2013) Development of Pulsed Wire Discharge Apparatus to Produce Metal Nanosized Powders

Hisayuki Suematsu*, S. Ishihara, T. Suzuki, T. Nakayama, K. Niihara, Nagaoka University of Technology, Japan

11:00 AM

(ICACC-S8-037-2013) Fabrication of anisotropic nanostructured materials using the atmospheric non-equilibrium plasma

Tadachika Nakayama*, Shin Endo, Akira Tokuchi, Weihua Jiang, Hisayuki Suematsu, Tsuneo Suzuki, Koichi Niihara, Nagaoka Univ of Tech, Japan

11:20 AM

(ICACC-S8-038-2013) Development of Transparent Ceramics by Laser Fusing

Firas Hmood*, Carina Oelgardt, Görke Reinhard, Jürgen G Heinrich, Clausthal University of Technology, Germany

11:40 AM

(ICACC-S8-039-2013) Additive Manufacturing: Lasers Interacting with Ceramic Powders

Thomas Mühler*, Jürgen G. Heinrich, TU Clausthal, Germany; Jens Günster, BAM - Federal Institute for Materials Research and Testing, Germany

Prototyping, Patterning & Shaping

3:20 PM-5:20 PM

Room: Coquina Salon A

Session Chair(s): Nahum Travitzky, Soshu Kiriara

3:20 PM

(ICACC-S8-040-2013) Three-dimensional printing of SiSiC graded macro-cellular lattice structures

Zongwen Fu, Lorenz Schlier, Nahum Travitzky*, Peter Greil, University of Erlangen-Nuremberg, Germany

3:40 PM

(ICACC-S8-041-2013) Utilization of Nano-Constituents in Thermoplastics for High Strength, Low Loss Tangent Fused Deposition Three-Dimensionally Printed Structures

Zachary James Larimore*, USA Army Research Labs, USA

4:00 PM

(ICACC-S8-042-2013) Creation of Surface Geometric Structures by Thermal Micro-lines Patterning Techniques

Soshu Kiriara*, Yousuke Itakura, Satoko Tasaki, Osaka University, Japan

4:20 PM

(ICACC-S8-043-2013) Mechanical Properties and Cracking Behavior of 3D Printed Refractory Ceramics

James F Bredt*, Massachusetts Institute of Technology, USA

4:40 PM

(ICACC-S8-044-2013) Optimized Shaping Process for Transparent Spinel Ceramic

Alfred Kaiser*, LAEIS GmbH, Luxembourg; Thomas Hutzler, Andreas Krell, Fraunhofer Institute for Ceramic Technologies and Systems, Germany; Robert Kremer, ALPHA CERAMICS GmbH, Germany

5:00 PM

(ICACC-S8-045-2013) Fabricating complex-shaped ceramic components by injection molding ceramic suspension gels at room temperature

Valerie L Wiesner*, Jeffrey P Youngblood, Rodney W Trice, Purdue University, USA

Tuesday, January 29, 2013

S8 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-S8-P112-2013) Evaluation of ceramic/ceramic (SiC/SiC & Al₂O₃/Al₂O₃) joint interface prepared via brazing

Amirhossein Ghazi daryani*, Ali Nemati, Alireza Tasdighi, Sharif university of technology, Islamic Republic of Iran

(ICACC-S8-P113-2013) Investigation of composites of packed porous alumina with polymer blend

Ken'ichiro Kita*, Naoki Kondo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

(ICACC-S8-P114-2013) Fracture Toughness of Thin Ceramic Substrates for Power Modules

Hiroyuki Miyazaki*, Yu-ichi Yoshizawa, Kiyoshi Hirao, Tatsuki Ohji, National institute of Advanced Industrial Science and Technology, Japan

(ICACC-S8-P115-2013) Round Robin on Indentation Fracture Resistance of Silicon Carbide for Small Ceramic Products

Hiroyuki Miyazaki*, Yu-ichi Yoshizawa, National institute of Advanced Industrial Science and Technology, Japan; Kouichi Yasuda, Tokyo Institute of Technology, Japan

(ICACC-S8-P116-2013) Sintering of silicon nitride from beta powder at lower temperatures

Naoki Kondo*, Mikinori Hotta, AIST, Japan

(ICACC-S8-P117-2013) SiBOC ceramic fibers via pyrolysis of hybrid borosiloxane gel fibers

Gian Domenico Soraru*, Van-Lam Nguyen,
University of Trento, Italy; V. Proust, C. Quievryn,
Samuel Bernard, Philippe Miele, IEM/Université
Montpellier 2, France

**(ICACC-S8-P118-2013) Wear and Reactivity Studies
of Melt Infiltrated Ceramic Matrix Composite**

David Jarmon, United Technologies Research
Center, USA; Greg Ojard*, Pratt & Whitney, USA;
David Brewer, NASA-Langley Research Center, USA

**(ICACC-S8-P119-2013) Effects of Grain Growth
Behavior on Texture Development in Bismuth
Layer-Structured Ferroelectrics**

Masatoshi Saba*, Toshio Kimura, Keio University,
Japan

**(ICACC-S8-P120-2013) The Rare-Earth Additives
Influence on BaTiO₃-Ceramics Properties**

V. Mitic*, V. Paunovic, I. Antolovic, D. Rancic, Lj.
Zivkovic, University of Nis, Serbia

**(ICACC-S8-P121-2013) Microstructure and joining
strength of silicon nitride long pipes fabricated by
local-heating joining technique**

Mikinori Hotta*, Naoki Kondo, Hideki Kita, Tatsuki
Ohji, National Institute of AIST, Japan

**(ICACC-S8-P122-2013) Electrode Manufacturing of
Solid Oxide Fuel Cells**

Jonathan Torres*, Nina Orlovskaya, University of
Central Florida, USA; Kirk Gerdes, Shiwoo Lee,
National Energy Technology Laboratory, USA

Symposium 9: Porous Ceramics: Novel Developments and Applications

Monday, January 28, 2013 Processing Methods for Porous Ceramics I

1:30 PM-3:20 PM

Room: Coquina Salon C

Session Chair(s): Paolo Colombo

1:30 PM

(ICACC-S9-001-2013) Particle-stabilized ceramic foams: from discovery to invention to innovation (Invited Speaker)

Urs T Gonzenbach*, de Cavis Ltd., Switzerland; Philip N Sturzenegger, Benedikt S Seeber, ETH Zürich, Switzerland; Urs Ebnetter, de Cavis Ltd., Switzerland; Pierre Elser, Matthias Heer, Ludwig J Gauckler, ETH Zürich, Switzerland

2:00 PM

(ICACC-S9-002-2013) Development of highly closed porous ceramics for thermal insulator
Manabu Fukushima*, Yu-ichi Yoshizawa, National Institute of AIST, Japan

2:20 PM

(ICACC-S9-003-2013) High Performance Porous Si₃N₄ Ceramics with Microstructural Design (Invited Speaker)

JianFeng Yang*, Xi'an Jiaotong University, China

2:50 PM

Break

Processing Methods for Porous Ceramics II

3:20 PM-6:00 PM

Room: Coquina Salon C

Session Chair(s): Alberto Ortona

3:20 PM

(ICACC-S9-004-2013) Foaming methods for the production of porous ceramics based on ZrB₂ and SiC (Invited Speaker)

Valentina Medri*, Mauro Mazzocchi, Andrea Ruffini, Diletta Sciti, Elena Landi, CNR-ISTEC, Italy

3:50 PM

(ICACC-S9-005-2013) Formation mechanism of porous zirconia with a high volume fraction of fine closed pores

Shinobu Hashimoto*, Tomoya Umeda, Nagoya Institute of Technology, Japan; Kiyoshi Hirao, Naoki Kondo, You Zhou, Hideki Hyuga, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Sawao Honda, Yuji Iwamoto, Nagoya Institute of Technology, Japan

4:10 PM

(ICACC-S9-006-2013) Fabrication and filtration behavior of ceramic foams decorated with ceramic nanowires

Manabu Fukushima*, National Institute of AIST, Japan; Murilo Innocentini, Universidade de Ribeirão Preto, Brazil; Jose Coury, Universidade Federal de São Carlos, Brazil; Yu-ichi Yoshizawa, National Institute of AIST, Japan; Paolo Colombo, Università di Padova, Italy

4:30 PM

(ICACC-S9-007-2013) Possible Mechanisms to Wet Foam Stabilization Forming Porous Ceramics

Ashish Pokhrel*, Seo Dong Nam, Ik Jin Kim, Hanseo University, Republic of Korea

4:50 PM

(ICACC-S9-008-2013) Silicon Oxycarbide Foams from Silicone Precursors

Haibiao Chen*, Triplicane Parthasarathy, Michael Cinibulk, Ming-Yung Chen, AFRL, USA

5:10 PM

(ICACC-S9-009-2013) The Synthesis of Mesoporous SiC Ceramics from Block Copolymer Precursors

Xueping Yang*, Linan An, University of Central Florida, USA

5:30 PM

(ICACC-S9-010-2013) Superparamagnetic single phase cubic mesoporous CuFe₂O₄ synthesized by nanocasting from vinyl-functionalized Cubic mesoporous silica

Najmeh Najmoddin, Muhammet S Toprak*, KTH - Royal Institute of Technology, Sweden; Ali Beitollahi, Hamidreza Rezaie, IUST - Iran University of Science and Technology, Islamic Republic of Iran; Mamoun Muhammed, KTH - Royal Institute of Technology, Sweden

Tuesday, January 29, 2013

Membranes and High SSA Ceramics

8:00 AM-10:10 AM

Room: Coquina Salon C

Session Chair(s): Gian Domenico Soraru

8:00 AM

(ICACC-S9-011-2013) Structuring of Porous Powders into Hierarchically Porous Macroscopic Adsorbents for Gas separation (Invited Speaker)

Farid Akhtar*, Arto Ojuva, Neda Keshavarzi, Lennart Bergström, Stockholm University, Sweden

8:30 AM

(ICACC-S9-012-2013) Pore size control of amorphous silica membrane synthesized by chemical vapor deposition

Takayuki Nagano*, Koji Sato, Japan Fine Ceramics Center, Japan

8:50 AM

(ICACC-S9-013-2013) Gas permeation properties

of microporous amorphous silica-based membranes

Yuji Iwamoto*, Akito Mori, Hidenori Mizuno, Akinori Kimura, Koji Hataya, Sawao Honda, Graduate School of Engineering, Nagoya Institute of Technology, Japan

9:10 AM

(ICACC-S9-014-2013) Permeability and Fracture Properties of Porous Alumina for Support Substrates of Ceramic Membranes

Sawao Honda*, Norimasa Nishihara, Shinobu Hashimoto, Nagoya Institute of Technology, Japan; Tomokazu Eda, Hirokazu Watanabe, Keita Miyajima, Noritake Corporation Limited, Japan; Yuji Iwamoto, Nagoya Institute of Technology, Japan

9:30 AM

(ICACC-S9-015-2013) Hydrogen permeation properties of sol-gel derived amorphous silica membranes fabricated at high temperatures

Masakoto Kanezashi*, Takanori Sasaki, Hiroshima University, Japan; Hiromasa Tawarayama, Sumitomo Electric Industries Ltd, Japan; Tomohisa Yoshioka, Toshinori Tsuru, Hiroshima University, Japan

9:50 AM

Break

Processing Methods for Porous Ceramics III

10:10 AM-12:00 PM

Room: Coquina Salon C

Session Chair(s): Yuji Iwamoto

10:10 AM

(ICACC-S9-016-2013) Microstructure evaluation and simulation of micro cellular ceramics (Invited Speaker)

Tobias Fey*, Peter Greil, Martin Stumpf, University of Erlangen-Nuremberg, Germany

10:40 AM

(ICACC-S9-017-2013) Colloidal processing of

advanced ceramics for applications in purification technology

Kurosch Rezwani*, Advanced Ceramics, University of Bremen, Germany

11:00 AM

(ICACC-S9-018-2013) SiC aerogels from preceramic polymers

Gian Domenico Soraru*, Emanuele Zera, Renzo Campostrini, University of Trento, Italy; Yigal Blum, SRI International, USA

11:20 AM

(ICACC-S9-019-2013) Processing of microporous membranes for H₂/CO₂ and CO₂/N₂ separation

Tim Van Gestel*, Jan Hoffmann, Jan Eiberger, Martin Bram, Wilhelm Meulenberg, Hans Peter Buchkremer, Forschungszentrum Jülich, Germany

11:40 AM

(ICACC-S9-020-2013) Synthesis of Cubic-shaped ZnO Particles through Controlling Crystal Growth of Metal-Organic Frameworks

Yu Kimitsuka*, Keio University, Japan; Eiji Hosono, National Institute of Advanced Industrial Science and Technology, Japan; Shintaro Ueno, Keio University, Japan; Haoshen Zhou, National Institute of Advanced Industrial Science and Technology, Japan; Shinobu Fujihara, Keio University, Japan

Processing Methods for Porous Ceramics IV

1:30 PM-3:20 PM

Room: Coquina Salon C

Session Chair(s): Tobias Fey

1:30 PM

(ICACC-S9-021-2013) Structure Control, Processing and Properties of Porous Ceramics with High Porosity and High Strength (Invited Speaker)

Chang-An Wang*, Tsinghua University, China

2:00 PM

(ICACC-S9-022-2013) Controlling the formation of particle-stabilized water-in-oil emulsions

Philip Noah Sturzenegger*, Urs T Gonzenbach, ETH Zurich, Switzerland; Sebastian Koltzenburg, BASF SE, Germany; Ludwig J Gauckler, ETH Zurich, Switzerland

2:20 PM

(ICACC-S9-023-2013) Tailoring Network

Characteristics of Freeze-Cast Porous Ceramics

Sarah M Miller*, Northwestern University, USA; Xianghui Xiao, Argonne National Laboratory, USA; Katherine Faber, Northwestern University, USA

2:40 PM

(ICACC-S9-024-2013) Boron-Modified Polysilylcarbodiimides-Derived Highly Porous Si-B-C-N Ceramics

Lujiao Yang*, Linan An, University of Central Florida, USA

3:00 PM

Break

Mechanical Properties of Porous Ceramics

3:20 PM-6:00 PM

Room: Coquina Salon C

Session Chair(s): Tom Watkins

3:20 PM

(ICACC-S9-025-2013) Uniaxial Tensile Response of Microcracked Porous Ceramics (Invited Speaker)

Amit Pandey*, Amit Shyam, Thomas R Watkins, Edgar Lara-Curzio, ORNL, USA; R. J Stafford, Cummins Inc., USA

3:50 PM

(ICACC-S9-026-2013) Influence of specimen preparation on the double torsion fracture toughness results for two extruded porous microcracked cordierite compositions

Kyle Hoff*, Giovanni Bruno, Tony Montigny, Xiaoming Luo, Corning, USA; Amit Shyam, Thomas Watkins, Randy Parten, Oak Ridge National Lab, USA

4:10 PM

(ICACC-S9-027-2013) Non-linear stress-strain relations in porous microcracked ceramics, and their interpretation

Giovanni Bruno*, Yassine Kilali, Mark L Kachanov, Corning Incorporated, USA

4:30 PM

(ICACC-S9-028-2013) Impact of Biodiesel on the Mechanical Properties of Diesel Particulate Filter Ceramics (Invited Speaker)

Michael J Lance*, Andrew A Wereszczak, Matt K Ferber, Ethan E Fox, Todd J Toops, Bruce G Bunting, Eric J Nafziger, Aaron Williams, Oak Ridge National Laboratory, USA; Jonathan Burton, Robert L McCormick, National Renewable Energy Laboratory, USA

5:00 PM

(ICACC-S9-029-2013) Mechanical properties of highly porous alumina foams investigated with different testing methods

Benedikt SM Seeber*, Urs T Gonzenbach, Ludwig J Gauckler, ETH Zurich, Switzerland

5:20 PM

(ICACC-S9-030-2013) Ceramic Foams by Emulsion Templating

Esther García-Tuñón*, Robert Bell, Suelen Barg, Jon Weaver, Eduardo Saiz, Imperial College London, United Kingdom

Wednesday, January 30, 2013

Applications of Porous Ceramics I

8:00 AM-9:50 AM

Room: Coquina Salon C

Session Chair(s): James Zimmermann

8:00 AM

(ICACC-S9-031-2013) Pt coated porous SiC foams for catalytical hydrogen combustion (Invited Speaker)

Ulrich F. Vogt*, Benjamin Fumey, Michael

Bielmann, Andreas Zuetzel, Empa, Switzerland

8:30 AM

(ICACC-S9-032-2013) Heterogeneous heteroporous ceramics

Alberto Ortona*, Claudio D'angelo, SUPSI, Switzerland; Volker Liedtke, Aerospace & Advanced Composites, Austria; Christian Wilhelmi, EADS Innovation Works, Germany; Daniele Gaia, Erbicol, Switzerland; Claudio Badini, Politecnico di Torino, Italy; Wolfgang Fischer, Astrium, Germany

8:50 AM

(ICACC-S9-033-2013) Dead-end silicon carbide micro-filters for liquid filtration

Ronald Neufert, Malte Moeller, Abhaya Bakshi*, Saint-Gobain, USA

9:10 AM

(ICACC-S9-034-2013) Perovskite Catalysts Enhanced Combustion on Porous Media

Manuel David Robayo*, Nina Orlovskaya, Ruey-Hung Chen, University of Central Florida, USA

9:30 AM

Break

Applications of Porous Ceramics II

9:50 AM-11:30 AM

Room: Coquina Salon C

Session Chair(s): James Zimmermann

9:50 AM

(ICACC-S9-035-2013) Development of new silica foam for thermal insulation

Elodie Prud'homme*, Philippe Michaud, GEMH-ENSCI, France; Emmanuel Joussein, GRESE, France; Sylvie Rossignol, GEMH-ENSCI, France

10:10 AM

(ICACC-S9-036-2013) Si-SiC heat exchangers with highly structured surface elements for recuperative gas burners

Alberto Ortona*, SUPSI, Switzerland; Sandro

Gianella, Erbicol, Switzerland; Dimosthenis Trimis, Volker Uhlig, Robert Eder, TU Bergakademie Freiberg, Germany; Emmanuel Boulet, Claire Chazelas, Institut Français du textile et de l'habillement, France; Tobias Grämer, NOXMAT, Germany; Giuseppe D'Amico, Paolo Fino, Politecnico di Torino, Italy; Enrico Cresci, Joachim G Wüning, WS Wärmeprozessestechnik, Germany; Herwig Altena, Aichelin, Austria; Franz Beneke, Michel Debier, European Committee of Industrial Furnace and Heating Equipment Associations CECOF, Belgium

10:30 AM

(ICACC-S9-037-2013) The Influence of Calcination and Milling on Microstructure and Colloidal Properties of 8 YSZ Used in Ceramic Fuel Cells
Amir Reza Hanifi*, Thomas H Etsell, University of Alberta, Canada; Partha Sarkar, Alberta Innovates - Technology Futures, Canada

10:50 AM

(ICACC-S9-038-2013) Development of alkali-resistant controlled pore glass based on (65-x) SiO₂-25B₂O₃-10 Na₂O-xZrO₂/ ZrSiO₄ system
Muhammad Hasanuzzaman*, Abdul G Olabi, Dublin City University, Ireland

11:10 AM

(ICACC-S9-039-2013) Preparation of Spherical Shaped Mullite Powders and Microstructural Evaluation During Sintering
Cem Ozgur*, Remzi Gören, Dumlupinar University, Turkey

Joint S8 & S9: Rapid Prototyping of Porous Ceramics

1:30 PM-3:20 PM

Room: Coquina Salon A

Session Chair(s): Paolo Colombo

1:30 PM

(ICACC-S9-040-2013) Commercialization of

Robocasting for the Production of Porous Structures (Invited Speaker)

Joe Cesarano*, Robocasting Enterprises LLC, USA

2:00 PM

(ICACC-S9-041-2013) 3D printing of Porous Polymer-Derived-Ceramics

Andrea Zocca*, Cynthia M Gomes, Jens Guenster, BAM Federal Institute for Materials Research and Testing, Germany; Paolo Colombo, Enrico Bernardo, University of Padova, Italy

2:20 PM

(ICACC-S9-042-2013) Cellular Si-SiC ceramics by indirect rapid prototyping

Claudio D'Angelo*, Alberto Ortona, SUPSI, Switzerland; Daniele Gaia, Sandro Gianella, Erbicol, Switzerland

2:40 PM

(ICACC-S9-043-2013) Highly-porous LAS glass-ceramics by 3D Printing

Cynthia Morais Gomes*, Andrea Zocca, Jens Guenster, BAM Federal Institute for Materials Research and Testing, Germany; Paolo Colombo, University of Padova, Italy

3:00 PM

Break

Tuesday, January 29, 2013

S9 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-S9-P123-2013) Preparation and characterization of ZrCO/C composite aerogels

Li Ye*, Tong Zhao, Institute of Chemistry, Chinese Academy of Science, China

(ICACC-S9-P124-2013) Determination of fractal nature of porous ceramic materials

Irena Georgieva Markovska*, Fila Yovkova, Lubchev Lubcho, Dimitar Rusev, Assen Zlatarov University, Bulgaria

(ICACC-S9-P125-2013) Effect of Enclosed Gas Pressure of Closed Pores on the Mechanical Properties of Cellular Borosilicate Glass

Bo Wang*, Jian-Feng Yang, Xi'an Jiaotong University, China; Matsumaru Koji, Nagaoka University of Technology, Japan; Ishizaki Kozo, Xi'an Jiaotong University, China; Niihara Koichi, Nagaoka University of Technology, Japan

(ICACC-S9-P126-2013) Particle-stabilized ceramic foams: properties and applications

Philip Noah Sturzenegger*, Benedikt Seeber, ETH Zurich, Switzerland; Urs T Gonzenbach, de Cavis, Switzerland

(ICACC-S9-P127-2013) Study of High Temperature Structural Stabilization of Sepiolite and Its Rehydration Behavior

Ilknur Kara*, Sibel Tunali Akar, Adnan Ozcan, Anadolu University, Turkey

(ICACC-S9-P128-2013) Processing of Low Cost Ceramic Membranes from Clay Minerals

Jung-Hye Eom, Sung-Ho Yun, Young-Wook Kim*, The UNiversity of Seoul, Republic of Korea; In-Hyuck Song, Korea Institute of Materials Science, Republic of Korea

(ICACC-S9-P129-2013) Use of cellular ceramic-supported SrO as a catalyst for the synthesis of biodiesel

Fábio B Bassetti, Andréia A Morandim, Fernando Santos Ortega*, FEI, Brazil

(ICACC-S9-P130-2013) Zeorite-geopolymer hybrid materials derived from metakaolin

Shinobu Hashimoto*, Hayami Takeda, Sawao Honda, Yuji Iwamoto, Nagoya Institute of Technology, Japan

(ICACC-S9-P131-2013) Self-Assembly of ZSM-5 Zeolite Crystals

Kavitha Hari, Yekaterina Lin, Lisa M Cole-Burnett, James R Brenner*, Florida Tech, USA

(ICACC-S9-P132-2013) Silicon Nitride Foams from Emulsions

Paolo Colombo*, Elisangela Guzi de Moraes, University of Padova, Italy

(ICACC-S9-P133-2013) Effects of Fe₂O₃ on properties of novel heat insulation materials synthesized by molten salt method

Chengji Deng*, Jun Ding, Wenjie Yuan, Jun Li, Hongxi Zhu, Wuhan University of Science and Technology, China

Symposium 10: Virtual Materials (Computational) Design and Ceramic Genome

Tuesday, January 29, 2013
Prediction and Modeling of
Properties of Ceramics and
Composites

8:00 AM-12:00 PM

Room: Oceanview

Session Chair(s): Hans Seifert, Yanwen Zhang

8:00 AM

(ICACC-S10-001-2013) First Principles Calculation of Electronic, Optical, and Mechanical Properties of a Large Random Network model of α -SiO₂ Glass (Invited Speaker)

Wai-Yim Ching*, Neng Li, University of Missouri-Kansas City, USA

8:30 AM

(ICACC-S10-002-2013) Genome Approach for Advanced Ceramics with Extremely Low Thermal Conductivity (Invited Speaker)

Jingyang Wang*, Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, China

9:00 AM

(ICACC-S10-003-2013) A numerical method for the simulation of coupled radiative/conductive heat transfer

Gerard L. Vignoles*, University Bordeaux, France

9:20 AM

(ICACC-S10-004-2013) Structure, Phonon, Bonding, and Hardness of a series of TMB₄, TMB₆ and TMB₁₂ (TM = transition metal)

Peitao Liu*, Xiyue Cheng, Haiyang Niu, Xingqiu Chen, Dianzhong Li, Yiyi Li, Institute of Metal Research, China

9:40 AM

Break

10:00 AM

(ICACC-S10-005-2013) Kinetic Monte Carlo Simulation of Cation Diffusion in Low-K Ceramics (Invited Speaker)

Brian Good*, NASA Glenn Research Center, USA

10:30 AM

(ICACC-S10-006-2013) Elastic, Electronic Structure and Optical Properties Change with Increasing Alumina Content in Mullite (Invited Speaker)

Sita Ram Aryal*, Paul Rulis, Wai-Yim Ching, University of Missouri Kansas City, USA

11:00 AM

(ICACC-S10-007-2013) First-principles calculation of temperature dependent thermal and mechanical properties of layered ternary carbides, Ti₂AlC and Cr₂AlC

Jiemin Wang*, Jingyang Wang, Institute of Metal Research, China; Yanchun Zhou, Aerospace Research Institute of Material & Processing Technology, China

11:20 AM

(ICACC-S10-008-2013) Theoretical investigations of the ferroelectric domain walls in LiNbO₃ by first-principles calculations

Eita Tochigi*, Lawrence Berkeley National Laboratory, USA; Atsutomo Nakamura, Nagoya University, Japan; Teruyasu Mizoguchi, The University of Tokyo, Japan

11:40 AM

(ICACC-S10-009-2013) The Effective Elastic Properties of the C/C Composites calculated Using 3D Unit Cell Presentation of the Microstructure

Romana Piat*, Galyna Stasiuk, Karlsruhe Inst of Technology, Germany

Innovative Modeling and Simulation Methods

1:30 PM-5:20 PM

Room: Oceanview

Session Chair(s): Wai-Yim Ching, John Lawson

1:30 PM

(ICACC-S10-010-2013) Grain Boundary "Phase" Diagrams -- A Useful Component for "Materials Genome"? (Invited Speaker)

Naixie Zhou, Yuanyao Zhang, Jian Luo*, Clemson University, USA

2:00 PM

(ICACC-S10-011-2013) Computational ELNES Spectral Imaging Incorporating Signal Contrast

James Currie*, Paul Rulis, University of Missouri - Kansas City, USA

2:20 PM

(ICACC-S10-012-2013) Families of Superhard Crystalline Carbon Allotropes Constructed via Cold-compressed Graphite and Nanotubes

Haiyang Niu*, Xingqiu Chen, Dianzhong Li, Yiyi Li, Institute of Metal Research, China

2:40 PM

(ICACC-S10-013-2013) A Multi-method Approach to Modeling Amorphous Boron Carbide

Rachel Cramm Horn*, Anthony Caruso, Michelle Paquette, Andrew Kitahara, Paul Rulis, University of Missouri - Kansas City, USA

3:00 PM

Break

3:20 PM

(ICACC-S10-014-2013) Ab initio MD simulations of the response of ceramics to extreme conditions (Invited Speaker)

Haiyan Xiao*, University of Tennessee, USA; Yanwen Zhang, Oak ridge National Lab, USA; William J Weber, University of Tennessee, USA

3:50 PM

(ICACC-S10-015-2013) A Neural Network Approach to Non Self Consistent Total Energy Calculations for Complex Materials (Invited Speaker)

Paul Rulis*, University of Missouri - Kansas City, USA

4:20 PM

(ICACC-S10-016-2013) Multiscale extraction of morphological features in woven CMCs

Cédric Chapoullié, Jean-Pierre Da Costa, Christian Germain, University Bordeaux, France; Michel Cataldi, Herakles, France; Gerard L. Vignoles*, University Bordeaux, France

4:40 PM

(ICACC-S10-017-2013) Electronic Structure and Interatomic Bonding in Cement Crystals

Chamila Chathuranga Dharmawardhana*, University Of Missouri - Kansas City, USA; Anil Misra, University of Kansas, USA; Sita R Aryal, Paul M Rulis, Wai-Yim Ching, University Of Missouri - Kansas City, USA

5:00 PM

(ICACC-S10-018-2013) Simulations of Anisotropic Grain Growth in Single Phase Materials Using Q-State Monte Carlo

Jeffrey Allen*, Charles Cornwell, Bryce Devine, Charles Welch, US Army Corps of Engineers, USA

Wednesday, January 30, 2013

Modeling of Defects and Diffusion in Ceramics

8:00 AM-12:00 PM

Room: Oceanview

Session Chair(s):Jingyang Wang, Brian Good

8:00 AM

(ICACC-S10-019-2013) Irradiation Effects in Fluorite-Structured Oxides (Invited Speaker)

Yanwen Zhang*, Oak Ridge National Laboratory, USA; Haiyan Xiao, University of Tennessee, USA; Philip Edmondson, Oak Ridge National Laboratory,

USA; Tamas Varga, Pacific Northwest National Laboratory, USA; Fereydoon Namavar, University of Nebraska Medical Center, USA; William J Weber, Oak Ridge National Laboratory, USA

8:30 AM

(ICACC-S10-020-2013) Conductive path formation in insulating oxide using dislocations and interfaces (Invited Speaker)

Atsutomo Nakamura*, Katsuyuki Matsunaga, Nagoya University, Japan; Teruyasu Mizoguchi, University of Tokyo, Japan; Eita Tochigi, Lawrence Berkeley National Laboratory, USA; Naoya Shibata, Yuichi Ikuhara, University of Tokyo, Japan

9:00 AM

(ICACC-S10-021-2013) Interaction of CSL boundaries with displacement cascades in β -SiC

Prithwish K Nandi*, Ajay V Annamareddy, Xiaojun Mei, Anant Raj, Jacob Eapen, North Carolina State University, USA

9:20 AM

(ICACC-S10-022-2013) Particle Swarm Optimization for Modeling Defect Regions in Crystalline Systems

Naseer A. Dari*, Paul M Rulis, University of Missouri-Kansas City, USA

9:40 AM

Break

10:00 AM

(ICACC-S10-023-2013) Materials Thermodynamics and Phase Modeling in Lithium Ion Battery Systems (Invited Speaker)

Hans J. Seifert*, Maren Lepple, Damian M Cupid, Peter Franke, Karlsruhe Institute of Technology, Germany

10:30 AM

(ICACC-S10-024-2013) Lithium ion diffusion in fast ion conducting lithium lanthanum titanate ceramics (Invited Speaker)

Jincheng Du*, University of North Texas, USA

11:00 AM

(ICACC-S10-025-2013) Theoretical Prediction of Charge Induced Point Defect Behavior of Cubic Zirconia

Bin Liu*, Yanwen Zhang, Oak Ridge National Laboratory, USA; William J Weber, The University of Tennessee, USA

11:20 AM

(ICACC-S10-026-2013) Surface structure and oxygen adsorption on Cr₂AlC (0001): Density functional characterization

Neng Li*, UMKC, USA

11:40 AM

(ICACC-S10-027-2013) Surface and mechanical properties of zinc titanate crystals from first principles calculations

Wei Sun*, Jincheng Du, University of North Texas, USA

Virtual Materials Design and Modeling

1:30 PM-5:00 PM

Room: Oceanview

Session Chair(s): Jian Luo, Paul Rulis

1:30 PM

(ICACC-S10-028-2013) Multiscale Modeling of Ablative Composites for Atmospheric Entry Applications (Invited Speaker)

John W Lawson*, Charles W Bauschlicher, Thomas H Squire, Joshua D Monk, NASA Ames Research Center, USA

2:00 PM

(ICACC-S10-029-2013) Thermomechanical simulation of C/C composites from X-ray CMT images (Invited Speaker)

Gerard L. Vignoles*, Olivier Caty, University Bordeaux, France; Guillaume Couégnat, CNRS, France; Morgan Charron, Thomas Agulhon, University Bordeaux, France

2:30 PM

(ICACC-S10-030-2013) Inelastic Design of MMCs with Lamellar Microstructure

Romana Piat*, Yuriy Sinchuk, Karlsruhe Inst of Technology, Germany

3:00 PM

Break

3:20 PM

(ICACC-S10-031-2013) Explicit modelling of crack initiation and propagation in the microstructure of a ceramic material generated with Voronoi tessellation

Simone Falco*, Noor A Yahya, Richard I Todd, Nik Petrinic, University of Oxford, United Kingdom

3:40 PM

(ICACC-S10-032-2013) Multi-scale modeling of textile reinforced ceramic composites

Michal Sejnoha*, Jan Vorel, CTU in Prague, Faculty of Civil Engineering, Czech Republic

4:00 PM

(ICACC-S10-033-2013) The self-healing matrix composites: Numerical approach of dynamic behavior of a self-healing fluid and the composite in a rotational system

Louiza Benazzouk*, Eric Arquis, Nathalie Bertrand, University of Bordeaux 1, France; Cédric Descamps, Snecma, France; Marc Valat, University of Bordeaux 1, France

4:20 PM

(ICACC-S10-034-2013) Numerical estimation of the infiltrability of woven CMC preforms

Gerard L. Vignoles*, William Ros, Christian Germain, University Bordeaux, France

4:40 PM

(ICACC-S10-035-2013) First Principles Calculations of Boron Suboxide

Jennifer Synowczynski Dunn*, Todd Beudet, Army Research Laboratory, USA; John R Smith, University of Michigan, USA

Symposium 11: Next Generation Technologies for Innovative Surface Coatings

Thursday, January 31, 2013
Low Friction Coating for Automobile Applications

1:30 PM-3:40 PM

Room: Coquina Salon E

Session Chair(s): Ali Erdemir, Taejin Hwang

1:30 PM

(ICACC-S11-001-2013) Frontiers of Surface Engineering for Friction and Wear Control in Engines (Invited Speaker)

Ali Erdemir*, Osman Eryilmaz, Argonne Nat'l Lab, USA

2:00 PM

(ICACC-S11-002-2013) Hard nanocomposite coatings: Thermal stability, oxidation protection and resistance to cracking (Invited Speaker)

Jindrich Musil*, University of West Bohemia, Czech Republic

2:30 PM

(ICACC-S11-003-2013) Structure and properties of nc-Zr(Al)N/Cu thin films synthesized by multi-component single target with the Zr-based bulk metallic glass alloy

Kyoung Il Moon*, Ju Hyun Sun, Chang Hun Lee, Seung Yong Shin, KITECH, Republic of Korea

2:50 PM

(ICACC-S11-004-2013) Customized Coating Systems for Products with Added Value from Development to High Volume Production (Invited Speaker)

Tim Hosenfeldt*, Schaeffler Technologies GmbH &

Co. KG, Germany

3:20 PM

(ICACC-S11-005-2013) Diamond-like Carbon Coatings for Low Friction Applications: Clean and Large Area Coating

Do-Geun Kim*, Seunghun Lee, Jong-Kuk Kim, KITECH, Republic of Korea

Advanced Coating for Energy Process

3:40 PM-6:30 PM

Room: Coquina Salon E

Session Chair(s): Hosenfeldt Tim, Do-Suck Han

3:40 PM

(ICACC-S11-006-2013) Vapor-phase Synthesis of Metal Oxide Films and Nanowires for Energy Applications (Invited Speaker)

Sanjay Mathur*, University of Cologne, Germany

4:10 PM

(ICACC-S11-007-2013) Carbon Nanomaterials For High Efficiency Energy Applications (Invited Speaker)

Wonbong Choi*, University of North Texas, USA

4:40 PM

(ICACC-S11-008-2013) Novel Metallic Interconnect Protective Coatings for Hermetic Sealing and Elimination of Cr Volatility in Planar SOFC Stacks (Invited Speaker)

Jung-Pyung Choi*, Jeffrey W Stevenson, Y.S. Matt Chou, Pacific Northwest National Lab, USA

5:10 PM

(ICACC-S11-009-2013) Corrosion and electrical properties of the Zr-based metallic glass bipolar plate for proton exchange membrane fuel cell

JuHyun Sun*, ChangHun Lee, kyoung-II Moon, Seung-Yong Shin, KITECH, Republic of Korea

5:30 PM

(ICACC-S11-010-2013) Fabrication of piezoelectric MEMS vibration energy harvester with low

resonant frequency

Shuichi Murakami*, Takayuki Nagataki, Takuo Nakade, Technology Research Institute of Osaka Prefecture, Japan; Hiroki Miyabuchi, Takeshi Yoshimura, Norifumi Fujimura, Osaka Prefecture University, Japan

5:50 PM

(ICACC-S11-011-2013) Design and Synthesis of Hybrid Functional Noble Metal based Ternary Nitride Thin Films

Won-Sub Kwack, Se-Hun Kwon*, Pusan National University, Republic of Korea

6:10 PM

(ICACC-S11-012-2013) A self-healing scheme of biomimetic surface

Taejin Hwang*, Hohyoung Kim, Jae Young Park, KITECH, Republic of Korea

Friday, February 1, 2013

NEXT Generation Coating

8:00 AM-10:20 AM

Room: Coquina Salon E

Session Chair(s): Jun Akedo, Sang Sub Kim

8:00 AM

(ICACC-S11-013-2013) Grain orientation control of bismuth layer-structured ferroelectrics and bismuth based perovskite oxides thick films prepared by aerosol deposition method (Invited Speaker)

Muneyasu Suzuki*, Jun Akedo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

8:30 AM

(ICACC-S11-014-2013) Atomic layer deposition of buffer and transparent conducting oxide layer for CIGS solar cell (Invited Speaker)

Jin-hyock Kim*, Hye-ri Kim, Jin-woong Kim, Hong Yu, SK innovation, Republic of Korea

9:00 AM

(ICACC-S11-015-2013) Linearly aligned diamond

fillers in polysiloxane/diamond composite films with enhanced thermal conductivity

Tadachika Nakayama*, Nagaoka Univ of Tech, Japan

9:20 AM

(ICACC-S11-016-2013) Highly Sensitive Chemiresistive Sensors Using Oxide Fibers Based on Interface Engineering

Sang Sub Kim*, Inha University, Republic of Korea

9:40 AM

(ICACC-S11-017-2013) Development of Porous TBC Systems with Enhanced Durability using TriplexPro 210 Technology

Mitchell Roy Dorfman*, Chris Dambra, Juan Medrano, Dianying Chen, Montia Nestler, Sulzer Metco (US) Inc, USA

10:00 AM

(ICACC-S11-018-2013) Enhancement of energy conversion efficiency of porous TiO₂ thin films for DSSC application

Hohyoung Kim*, Taejin Hwang, KITECH, Republic of Korea

Innovative Surface Coating

10:20 AM-12:10 PM

Room: Coquina Salon E

Session Chair(s): Masahiro Yoshimura, Do-Geun Kim

10:20 AM

(ICACC-S11-019-2013) Growing Integration Layer [GIL] Strategy: Direct Fabrication of Hierarchically Structured Ceramic Coatings on Metallic Materials in Solution (Invited Speaker)

Masahiro Yoshimura*, National Cheng Kung University, Taiwan

10:50 AM

(ICACC-S11-020-2013) Influence of oxygen content on the hardness and electrical resistivity of Cr(N,O) thin films

Aoi Sato*, Toshiyuki Endo, Kazuma Suzuki, Tsuneo

Suzuki, Tadachika Nakayama, Hisayuki Suematsu, Koichi Niihara, Nagaoka University of Technology, Japan

11:10 AM

(ICACC-S11-021-2013) XPS analysis for tribological behavior of CrMoN film prepared by hybrid PVD

Yoon-Suk Oh*, Young-Hwan Yang, KICET, Republic of Korea; In-Woong Lyo, Hyundai & Kia, Republic of Korea; Sang-Jin Park, Hyundai Hysco, Republic of Korea; Dae-soon Lim, Korea University, Republic of Korea

11:30 AM

(ICACC-S11-022-2013) Preparation of Cr-Si-N single crystal thin film with epitaxial growth by pulsed laser deposition

Toshiyuki Endo*, Kazuma Suzuki, Aoi Sato, Tsuneo Suzuki, Tadachika Nakayama, Hisayuki Suematsu, Koichi Niihara, Nagaoka University of Technology, Japan

11:50 AM

(ICACC-S11-023-2013) Fabrication and characterization of porous TiO₂ films for photocatalytic removal of VOC

Jae Young Park*, Taejin Hwang, KITECH, Republic of Korea

Wednesday, January 30, 2013

S11 Poster Session

5:00 PM-7:50 PM

Room: Ocean Center

(ICACC-S11-P134-2013) The properties of Ti-doped ZnO films deposited by Atomic Layer Deposition

Won-Sub Kwack*, Se-Hun Kwon, National Core Research Center, Pusan National University, Republic of Korea

(ICACC-S11-P135-2013) Formation of S-phase layer on AISI 304 stainless steel by low pressure gas nitriding

Jin Ki Kim, Hanbat National University, Republic of Korea; Kyoung Il Moon, Korea Institute of Industrial

Technology, Republic of Korea; Yoon Kee Kim*, Hanbat National University, Republic of Korea

(ICACC-S11-P136-2013) Fabrication of Highly Ordered Freestanding ZnO-based Nanostructure Arrays and its Application

Won-Sub Kwack, Hyun-Jin Choi, Se Hun Kwon*, Pusan National University, Republic of Korea

(ICACC-S11-P137-2013) Influence of oxidation-reduction process on the low-pressure gas nitriding of stainless steel

Kyoung Il Moon*, Hyun Jun Park, Chul Woong Byun, KITECH, Republic of Korea

(ICACC-S11-P138-2013) The effects of the elements (Ti, Cr, Mo, N, F) on the properties of DLC films prepared by PECVD process

Kyoung Il Moon*, Jun Hyung Kim, Duck Hyeong Jung, KITECH, Republic of Korea; Jong Wan Park, Hanyang University, Republic of Korea

(ICACC-S11-P139-2013) Characteristic studies on the Zr-based metallic glass thin films by magnetron sputtering process

Chang Hun Lee, Seung Yong Shin, Ju Hyun Sun*, Kyoung Il Moon, Korea Institute of Industrial Technology, Republic of Korea

(ICACC-S11-P140-2013) PECVD of Ti-Ru-N nanocomposite films on stainless steel as bipolar plates for PEMFC

Won-Sub Kwack, Hyun-Jin Choi, Se-Hun Kwon*, Pusan National University, Republic of Korea

(ICACC-S11-P141-2013) Residual stress and elastic properties of CrMoN films deposited by hybrid PVD

Yoon-Suk Oh*, Young-Hwan Yang, KICET, Republic of Korea; In-Woong Lyo, Hyundai & Kia, Republic of Korea; Sang-Jin Park, Hyundai Hysco, Republic of Korea; Dae-soon Lim, Korea University, Republic of Korea

(ICACC-S11-P142-2013) Anode Linear Ion Source for Large Area Surface Treatments: Simulation and

Process Development

Seunghun Lee*, Jong-Kuk Kim, Do-Geun Kim,
KITECH, Republic of Korea

(ICACC-S11-P143-2013) PEO on Eco-Al as a tool for lightweight metal protection against corrosion and surface decoration

Jae Young Park*, Taejin Hwang, KITECH, Republic of Korea

(ICACC-S11-P144-2013) Study on the Probability of Gas selectivity on single device of Sol-gel prepared porous TiO₂ thin film by a concurrent AC/DC electrical investigation

Jae Young Park*, Taejin Hwang, KITECH, Republic of Korea

(ICACC-S11-P145-2013) Multi-phase nano composite coating for high power engine component

In-woong Lyo*, Woong-pyo Hong, Kwang-hoon Choi, Hyuk Kang, Do-suck Han, KITECH, Republic of Korea

(ICACC-S11-P146-2013) Tribological behaviors of ternary amorphous B-C-N coatings

Doo-In Kim*, Dawoon Jeong, Pusan National University, Republic of Korea; Jong-Keuk Park, Korea Institute of Science and Technology, Republic of Korea; Kwang-Ho Kim, Pusan National University, Republic of Korea

(ICACC-S11-P147-2013) The characterization of MoN-Cu-Cr nano-composite coatings deposited by magnetron sputtering process with single alloying target

Duck Hyeong Jung*, Kyoung Il Moon, Han Chan Lee, SunYong C Lee, Korea Institute of Industrial Technology, Republic of Korea

(ICACC-S11-P148-2013) Enhancement of electrochemical properties of thin films containing composite nanoparticles synthesized from microemulsion medium

Myeongwhun Pyeon*, Taejin Hwang, KITECH, Republic of Korea

Symposium 12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nano-Laminated Ternary Carbides and Nitrides (MAX Phases)

Tuesday, January 29, 2013

Materials Design: MAX Phases and UHTCs

1:30 PM-3:20 PM

Room: Coquina Salon F

Session Chair(s): Sylvain Dubois

1:30 PM

(ICACC-S12-001-2013) The application of Axial Next-Nearest-Neighbor Ising model to the description of the MAX phases (Invited Speaker)

Thierry Ouisse*, Didier Chaussende, Grenoble INP, France

2:00 PM

(ICACC-S12-002-2013) Discovery of the new MAX phase Nb₂GeC by a systematic theoretical-experimental approach

Per Eklund*, Martin Dahlgqvist, Olof Tengstrand, Lars Hultman, Jun Lu, Linköping University, Sweden; Nils Nedfors, Ulf Jansson, Uppsala University, Sweden; Johanna Rosén, Linköping University, Sweden

2:20 PM

(ICACC-S12-003-2013) Thin films of Ga-based MAX phases: Cr₂GaC and (Cr,Mn)₂GaC

Andrejs Petruhins*, Arni Sigurdur Ingason, Aurelija Mockute, Per Persson, Johanna Rosen, Linköping University, Sweden

2:40 PM

(ICACC-S12-004-2013) Synthesis of epitaxial (Cr,Mn)₂AlC - a potential magnetic MAX phase

Aurelija Mockute*, Martin Dahlgqvist, Linköping University, Sweden; Jens Emmerlich, RWTH-Aachen University, Germany; Lars Hultman, Linköping University, Sweden; Jochen M Schneider, RWTH-Aachen University, Germany; Per Persson, Johanna Rosen, Linköping University, Sweden

3:00 PM

Break

Materials Design II

3:20 PM-4:40 PM

Room: Coquina Salon F

Session Chair(s): Per Eklund

3:20 PM

(ICACC-S12-005-2013) Design of High Emissivity Coatings for Hypersonic Applications using Plasma Spray

Winnie Tan*, Alejandro H Strachan, Rodney W Trice, Purdue University, USA

3:40 PM

(ICACC-S12-006-2013) Synthesis of Novel Hafnium-Containing Ultrahigh-Temperature Ceramic Nanocomposites

Emanuel Ionescu*, Jia Yuan, Bernd Mainzer, Hans-Joachim Kleebe, Ralf Riedel, Technische Universitaet Darmstadt, Germany

4:00 PM

(ICACC-S12-007-2013) Graphene NanoPlatelets Reinforced Tantalum Carbide Consolidated by Spark Plasma Sintering

Andy Nieto*, Debrupa Lahiri, Arvind Agarwal, Florida International University, USA

4:20 PM

(ICACC-S12-008-2013) First Steps into Near-Net-Shape Manufacture of UHTC components: Colloidal Processing Revolution

Carolina Tallon*, University of Melbourne,
Australia; George V Franks, Defence Materials
Technology Centre, Australia

Structure-Property Relationships I

4:40 PM-5:40 PM

Room: Coquina Salon F

Session Chair(s): Thierry Ouisse

4:40 PM

(ICACC-S12-009-2013) Plasmon excitations in MAX phases: evidence of atomic scale superlattice-like behavior

Vincent Mauchamp*, Institut Pprime, France;
Matthieu Bugnet, Mc Master University, Canada;
Patrick Chartier, Thierry Cabioc'h, Michel Jaouen,
Institut Pprime, France

5:00 PM

(ICACC-S12-010-2013) Evidence for anisotropic transport properties of Ti₂AlC

Wenbo Yu, Vincent Mauchamp, Véronique Gauthier-Brunet, Thierry Cabioc'h, Institut PPRIME, France; Loïk Gence, Luc Piraux, Université catholique de Louvain, Belgium; Per Eklund, Linköping University, Sweden; Sylvain Dubois*, Institut PPRIME, France

5:20 PM

(ICACC-S12-011-2013) The electronic-structure origin of the anisotropic thermopower of nanolaminated Ti₃SiC₂ determined by polarized x-ray spectroscopy and Seebeck measurements

Martin Magnuson*, Department of Physics, Chemistry and Biology (IFM), Sweden; Maurizio Mattesini, Astronomía y Astrofísica I, Universidad Complutense de Madrid, Spain; Ngo Van Nong, Technical University of Denmark, Denmark; Per Eklund, Lars Hultman, Department of Physics, Chemistry and Biology (IFM), Sweden

Wednesday, January 30, 2013

Structure-Property Relationships II

8:00 AM-9:50 AM

Room: Coquina Salon F

Session Chair(s): Ji Zou

8:00 AM

(ICACC-S12-012-2013) Computational modeling of grain boundaries in ZrB₂: implications for lattice thermal conductivity

John W Lawson*, NASA Ames Research Center, USA; Murray S Daw, Clemson University, USA; Thomas H Squire, Charles W Bauschlicher, NASA Ames Research Center, USA

8:20 AM

(ICACC-S12-013-2013) Processing and Thermal Properties of ZrB₂ with Varying Boron Isotope Ratios

Jason Michael Lonergan*, William Fahrenholtz, Gregory Hilmas, Missouri University of Science & Technology, USA

8:40 AM

(ICACC-S12-014-2013) Correlation between magnetic state and bulk modulus of Cr₂AlC

Martin Dahlqvist*, Björn Alling, Johanna Rosén, Linköping University, Sweden

9:00 AM

(ICACC-S12-015-2013) Study of deformation mechanisms of the Ti₂AlN MAX phase at room temperature

Antoine Guitton*, Anne Joulain, Ludovic Thilly, Christophe Tromas, Pprime Institute, France; Steven Van Petegem, Helena Van Swygenhoven, Paul Scherrer Institute, Switzerland

9:20 AM

(ICACC-S12-016-2013) Influence of Precursors

Stoichiometry on SHS Synthesis of Ti₂AlC Powders
Leszek Chlubny*, Jerzy Lis, AGH-University of Science and Technology, Poland

9:40 AM

Break

Structure-Property Relationships III

9:50 AM-12:00 PM

Room: Coquina Salon F

Session Chair(s): John Lawson

9:50 AM

(ICACC-S12-017-2013) Influence of compositions and processing on the elastic modulus and internal friction of ZrB₂ based Ultra-high Temperature Ceramics (Invited Speaker)

Ji Zou*, Akhilesh Kumar Swarnakar, Jef Vleugels, Omer Van der Biest, Katholieke Universiteit Leuven, Belgium; Guo-Jun Zhang, Shanghai Institute of Ceramics, China

10:20 AM

(ICACC-S12-018-2013) Effects of Processing and Oxide Contaminants on the Densification of ZrB₂ Ultra-High Temperature Ceramics Using Spark Plasma Sintering

David Pham*, Luke S Walker, Erica L Corral, University of Arizona, USA

10:40 AM

(ICACC-S12-019-2013) The ZrB₂+C Solid Solution Limit and Its Effect on Thermal and Electrical Properties

Gregory John Kenneth Harrington*, Greg E Hilmas, William G Fahrenholtz, Missouri University of Science and Technology, USA

11:00 AM

(ICACC-S12-020-2013) The effect of chemical composition on the densification, thermal and oxidation behaviour of different stoichiometries of zirconium and hafnium oxycarbides

Doni D Jayaseelan*, Song Wang, Xin Yanda,

Imperial College, United Kingdom; Peter Brown, DSTL Porton Down, United Kingdom; William (Bill) Lee, Imperial College, United Kingdom

11:20 AM

(ICACC-S12-021-2013) Fabrication on thermal stability of HfB₂ matrix composite at severe oxidation condition

Ali Goodarzi*, Hailey Taylor, Harvard University, USA

Structural Stability under Extreme Environments I

1:30 PM-3:20 PM

Room: Coquina Salon F

Session Chair(s): Matthieu Bugnet

1:30 PM

(ICACC-S12-022-2013) Arc-jet testing of LaB₆-containing ZrB₂-SiC materials under high enthalpy supersonic air flows (Invited Speaker)

Frederic Monteverde*, National Research Council of Italy, Italy

2:00 PM

(ICACC-S12-023-2013) Testing and Predictive Modelling of Ultra High Temperature Structural Ceramics

Michele Pettina*, Doni D Jayaseelan, Imperial College London, United Kingdom; Andrew Heaton, Peter M Brown, DSTL Porton Down, United Kingdom; Kamran Nikbin, Imperial College London, United Kingdom

2:20 PM

(ICACC-S12-024-2013) Oxidation behavior of Graphene NanoPlatelets Reinforced Tantalum Carbide composites in High Temperature Plasma Flow

Andy Nieto*, Debrupa Lahiri, Cheng Zhang, Arvind Agarwal, Florida International University, USA

2:40 PM

(ICACC-S12-025-2013) Modelling of oxidation effects in the Ultra High Temperature Ceramic

structures

Michele Pettina^{*}, Imperial College London, United Kingdom; Frank Abdi, Alpha STAR Corporation, USA; Kamran Nikbin, Imperial College London, United Kingdom

3:00 PM

Break

Structural Stability under Extreme Environments II

3:20 PM-5:10 PM

Room: Coquina Salon F

Session Chair: Shaoming Dong

3:20 PM

(ICACC-S12-026-2013) Behavior of MAX phase thin films under ion irradiation (Invited Speaker)

Matthieu Bugnet^{*}, Vincent Mauchamp, Thierry Cabioc'h, CNRS-Université de Poitiers-ENSMA, France; Erwan Oliviero, CNRS-IN2P3-Université Paris-Sud, France; Florian Mortreuil, CNRS-Université de Poitiers-ENSMA, France; Per Eklund, Linköping University, IFM, Sweden; Michel Jaouen, CNRS-Université de Poitiers-ENSMA, France

3:50 PM

(ICACC-S12-027-2013) Ultra High Temperature Mechanical Testing of ZrB₂ Based Ceramics

Eric W Neuman^{*}, Gregory E Hilmas, William G Fahrenholtz, Missouri University of Science and Technology, USA

4:10 PM

(ICACC-S12-028-2013) Hafnia polycrystals with a polymer-derived amorphous HfSiCNO interfacial phase for Ultrahigh Temperature Structural Applications

Ilya Lisenker^{*}, Rishi Raj, University of Colorado, USA

4:30 PM

(ICACC-S12-029-2013) Thermal Stability of Cr₂AlC and Ta₄AlC₃ in Argon Atmosphere at Elevated

Temperature

Jim Low^{*}, Curtin University, Australia

Thursday, January 31, 2013

Novel Characterization Methods and Lifetime Assessment I

8:00 AM-10:00 AM

Room: Coquina Salon F

Session Chair: Guojun Zhang

8:00 AM

(ICACC-S12-030-2013) High Temperature Oxidation Induced Crack Healing of MAX phases (Invited Speaker)

Wim G. Sloof^{*}, Lu Shen, Delft University of Technology, Netherlands; Shibo Li, Beijing Jiaotong University, China; Gui-Ming Song, Cees Kwakernaak, Sybrand van der Zwaag, Delft University of Technology, Netherlands

8:30 AM

(ICACC-S12-031-2013) Synthesis and characterization of Ti₂Al(C(1-x)N_x)_y MAX phase solid solutions

Wenbo Yu, Véronique Gauthier-Brunet, Christophe Tromas, Thierry Cabioc'h, Sylvain Dubois^{*}, Institut PPRIME, France

8:50 AM

(ICACC-S12-032-2013) Critical analysis of effects from geometry and size on oxidation behavior of ultra-high temperature ceramics in tube and thermogravimetric furnace

Melia Miller-Oana^{*}, Luke Walker, Erica Corral, University of Arizona, USA

9:10 AM

(ICACC-S12-033-2013) Effects of hyperthermal and thermal oxygen beam exposures on oxidation behavior of ultra-high temperature ceramics

Melia Miller-Oana^{*}, Luke Walker, University of Arizona, USA; Vanessa Murray, Timothy Minton, Montana State University, USA; Erica Corral,

University of Arizona, USA

9:30 AM

(ICACC-S12-034-2013) XRD and TG-DSC Analysis of the Silicon Carbide-Palladium Reaction

Marialuisa Gentile*, Ping Xiao, The University of Manchester, United Kingdom

9:50 AM

Break

Novel Characterization Methods and Lifetime Assessment II

10:00 AM-11:50 AM

Room: Coquina Salon F

Session Chair(s): Wim G. Sloof

10:00 AM

(ICACC-S12-035-2013) High-Temperature Strength Measurements and Arc-Jet Testing of Cf-HfB₂ UHTC Composites

Anish Paul*, Jon Binner, Bala Vaidhyanathan, Loughborough University, United Kingdom; Andrew Heaton, Peter Brown, Dstl, United Kingdom

10:30 AM

(ICACC-S12-036-2013) Effect of air exposure temperature and time on room temperature strength of ZrB₂ and ZrB₂-SiC composite

Manish Patel*, J. J Reddy, V. V Bhanu Prasad, Defence Metallurgical Research Laboratory, India; Vikram Jayaram, Indian Institute of Science, India; A. A Ghokhale, Defence Metallurgical Research Laboratory, India

10:50 AM

(ICACC-S12-037-2013) Repeatability of Measurements and Initial Stage Oxidation in ZrB₂-30vol%SiC

Kathleen N. Shugart*, Elizabeth J Opila, University of Virginia, USA

11:10 AM

(ICACC-S12-038-2013) Studies on Oxidation of C-ZrB₂-SiC at 1800°C Using a Novel Ultra-high Temperature Oxidation Testing Apparatus

Zenghua Gao*, Jingjun Xu, Meishuan Li, Institute of Metal Research, Chinese Academy of Sciences, China

11:30 AM

(ICACC-S12-039-2013) In-situ observation of the growth kinetics of SiO₂ during passive oxidation of SiC under various Ar/O₂, Ar/CO₂, Ar/CO₂/O₂ gas mixtures at very high temperatures

Francis Teyssandier*, Mathieu Brisebourg, Francis Rebillat, CNRS-LCTS, France

Novel Methods for Joining and Machining of Components

1:30 PM-3:20 PM

Room: Coquina Salon F

Session Chair(s): Zenghua Gao

1:30 PM

(ICACC-S12-040-2013) Advances in Spark Plasma Joining of Ultra-High Temperature Ceramics: An Investigation into Direct Current Assisted Joining Mechanisms & Properties (Invited Speaker)

William Pinc, Luke S Walker, Erica L Corral*, University of Arizona, USA

2:00 PM

(ICACC-S12-041-2013) Welding of Ultra High Temperature ZrB₂ Ceramics

Derek King*, Greg Hilmas, William Fahrenholtz, Missouri University of Science and Technology, USA

2:20 PM

(ICACC-S12-042-2013) High Temperature Joining Solution For Thermal Protection Systems Based On Intermetallic Alloys

Jorge Barcena*, Cristina Jimenez, Miguel Lagos, Tecnalia Research & Innovation, Spain; Konstantina Mergia, N.C.S.R. "Demokritos, Greece; Inigo Agote,

Tecnalia Research & Innovation, Spain; Claudio Badini, Politecnico di Torino, Italy; Christian Wilhelmi, EADS Innovation Works, Germany

2:40 PM

(ICACC-S12-043-2013) Joining of ZrB₂-based ultra-high-temperature ceramic composites using Pd-based braze alloys

Ali Goodarzi*, Hailey Taylor, Harvard University, USA

3:00 PM

Break

Novel Processing Methods

3:20 PM-6:00 PM

Room: Coquina Salon F

Session Chair(s): Erica Corral

3:20 PM

(ICACC-S12-044-2013) Zirconium carbide ceramics for potential applications in extreme environments of ultra high temperature or strong radiation

Guo-Jun Zhang*, Shanghai Institute of Ceramics, China

3:40 PM

(ICACC-S12-045-2013) Si-SiC-ZrB₂ ceramics produced by reactive silicon infiltration

Alberto Ortona*, SUPSI, Switzerland; Sara Biamino, Politecnico di Torino, Italy; Claudio D'Angelo, SUPSI, Switzerland; Giuseppe D'Amico, Paolo Fino, Politecnico di Torino, Italy

4:00 PM

(ICACC-S12-046-2013) Ultra-Low Temperature Sintering of Ultra-High Temperature Ceramics

Hiroshi Kimura*, Natl Defense Academy, Japan

4:20 PM

(ICACC-S12-047-2013) Synthesis and Sintering of TaC-HfC ceramics by SHS and RSPS techniques

Omar Cedillos*, Doni D Jayaseelan, William E Lee, Imperial College London, United Kingdom

4:40 PM

(ICACC-S12-048-2013) Synthesis of HfB₂ Powders for Aerospace Applications

Pengxiang Zheng*, Saranya Venugopal, Anish Paul, Bala Vaidhyanathan, Jon Binner, Loughborough University, United Kingdom

5:00 PM

(ICACC-S12-049-2013) Erosion-resistant Cr₂AlC and Ti₂AlC coatings

Christoph Leyens*, Technische Universität Dresden, Germany

5:20 PM

(ICACC-S12-050-2013) Synthesis of epitaxial MAX phase thin films by thermal annealing

Thierry Cabioch*, Alexia Drevin-Bazin, Marie-France Beaufort, Malaz Alkazaz, University of Poitiers, France; Per Eklund, IFM Linköping University, Sweden; Jean-Francois Barbot, University of Poitiers, France

5:40 PM

(ICACC-S12-051-2013) Study the parameters of Ti₂AlC and Ti₃AlC₂ MAX phases fabrication by Mechanically Activated Self-propagating High temperature Synthesis

Arman Sedghi*, Rezvan Vahed, Ahmad Razaghian Arani, Imam Khomeini International University, Islamic Republic of Iran

Friday, February 1, 2013 Methods for Improving Damage Tolerance, Oxidation and Thermal Shock Resistance I

8:00 AM-9:50 AM

Room: Coquina Salon F

Session Chair(s): Luke Walker

8:00 AM

(ICACC-S12-052-2013) Behaviors of Ceramic

Matrix Composites (CMCs) and ultrahigh temperature ceramic (UHTC) Coatings at High Temperature Environments (Invited Speaker)
Shaoming Dong*, Xiangyu Zhang, Yusheng Ding, Le Gao, Haijun Zhou, Zhen Wang, Ping He, Yanmei Kan, Shanghai Institute of Ceramics, CAS, China

8:30 AM

(ICACC-S12-053-2013) Development of Novel Processing Methods for Next Generation Ultra-High Temperature ZrB₂-SiC Fiber Reinforced Composites

Benjamin J Lai*, Jeremy L Watts, Gregory E Hilmas, William G Fahrenholtz, Missouri University of Science and Technology, USA

8:50 AM

(ICACC-S12-054-2013) Fabrication and Characterization of Continuous SiC Fiber Reinforced HfB₂-SiC Composites

Clifford James Leslie*, Emmanuel Boakye, Kristin Keller, Michael Cinibulk, AFRL, USA

9:10 AM

(ICACC-S12-055-2013) Development and Evaluation of SiC Fiber Reinforced ZrB₂ Based Composites for use in Extreme Environments

Jeremy Watts*, Gregory Hilmas, William Fahrenholtz, Missouri S & T, USA

9:30 AM

Break

Methods for Improving Damage Tolerance, Oxidation and Thermal Shock Resistance II

9:50 AM-11:30 AM

Room: Coquina Salon F

Session Chair(s): Jeremy Watts

9:50 AM

(ICACC-S12-056-2013) Study of SiC fiber-matrix

interaction in ultra-high temperature ceramics by transmission electron microscopy

Laura Silvestroni*, Sciti Diletta, CNR, Italy

10:10 AM

(ICACC-S12-057-2013) High temperature oxidation resistant ceramic matrix composites by reverse infiltrated ultra high temperature ceramic-coated carbon-carbon composites.

Luke Sky Walker*, Erica L Corral, The University of Arizona, USA

10:30 AM

(ICACC-S12-058-2013) Sub-micron HfB₂ Powder Protected Cf - Preform

Saranya Venugopal*, Anish Paul, Loughborough university, United Kingdom; Pengxiang Zheng, Bala Vaidhyanathan, Jon Binner, Loughborough University, United Kingdom; Andrew Heaton, Peter Brown, DSTL, United Kingdom

10:50 AM

(ICACC-S12-059-2013) The Effect of WO₃ on Sinterability and Properties of ZrO₂ Ceramics

Maryam Kazemzadeh Dehdashti*, William G Fahrenholtz, Gregory E Hilmas, Missouri University of Science and Technology, USA

11:10 AM

(ICACC-S12-060-2013) Influence of precursor ZrC powders on the properties of the spark plasma sintered ceramic composite materials

Nikolai Voltsihhin*, Irina Hussainova, Der-Liang Yung, Tallinn University of Technology, Estonia; Erkin Cura, Simo-Pekka Hannula, Aalto University, Finland

Wednesday, January 30, 2013

S12 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-S12-P149-2013) Improved processing of carbon nanotube/magnesium alloy composites

Ali Goodarzi*, Hailey Taylor, Harvard University,

USA

(ICACC-S12-P150-2013) ZrC-based composites for high temperature applications

Irina Hussainova*, Der-Liang Yung, Lauri Kollo, Nikolai Voltsihhin, Rainer Traksmäa, Tallinn University of Technology, Estonia

(ICACC-S12-P151-2013) Chromium-alloyed MoSi₂-composite

Erik O Strom*, Qin Lu, Anders Magnusson, Sandvik Heating Technology, Sweden

(ICACC-S12-P152-2013) Processing and Characterization of Porous Ti₂AlC with Controlled Porosity and Pore Size

Liangfa Hu*, Rogelio Benitez, Sandip Basu, Ibrahim Karaman, Miladin Radovic, Texas A&M University, USA

(ICACC-S12-P153-2013) High temperature oxyacetylene torch testing and oxidation behavior of graphite, ZrB₂, and ZrB₂-SiC at temperatures greater than 1500°C

Paul Neff*, University of Arizona, USA; Amber Powell, Missouri University of Science & Technology, USA; Luke S Walker, Erica L Corral, University of Arizona, USA

(ICACC-S12-P154-2013) A Testing Facility for Root Cause Analysis of Failure Under Extreme Temperatures

Julius Chatterjee, Hsin-Lun Chen, Michael Mooty, John Reali, James R Brenner*, Florida Tech, USA

(ICACC-S12-P155-2013) Spark Plasma Sintered ZrB₂-SiC Composites

Richard Stadelmann*, University of Central Florida, USA; Vincenzo M Sglavo, University of Trento, Italy; Nina Orlovskaya, University of Central Florida, USA

Symposium 13: Advanced Ceramics and Composites for Sustainable Nuclear Energy and Fusion Energy

Wednesday, January 30, 2013
**Radiation Defects in Ceramics
/ Codes and Standards**

1:30 PM-5:00 PM

Room: Ponce DeLeon

Session Chair: TBA

1:30 PM

(ICACC-S13-001-2013) Defect Stability and Mobility in Nano-engineered Silicon Carbide (Invited Speaker)

Takuji Oda*, University of Tennessee, USA; Yanwen Zhang, Oak Ridge National Laboratory, USA; William J Weber, University of Tennessee, USA

2:00 PM

(ICACC-S13-002-2013) Off-stoichiometric Sintering of Oxide Fuel and Fuel Surrogates

J. B Henderson*, Netzsch Instruments North America LLC, USA

2:20 PM

(ICACC-S13-003-2013) Effects of Ionization on Irradiation Damage in Silicate Ceramics

William J Weber*, Marie Backman, University of Tennessee, USA; Yanwen Zhang, Oak Ridge National Laboratory, USA; Marcel Toulemonde, University of Caen, France

2:40 PM

(ICACC-S13-004-2013) A Hybrid Model on Low Energy Ion Beam Induced Quantum Dot Structuring in GaAs

Efrain Hernandez*, University of Michigan, USA; Veena Tikare, Sandia National Laboratory, USA;

LuMin Wang, University of Michigan, USA

3:00 PM

Break

3:20 PM

(ICACC-S13-005-2013) Test Methods for Hoop Tensile Strength of Ceramic Composite Tubes for Light Water Nuclear Reactor Applications (Invited Speaker)

Michael G Jenkins*, Bothell Engineering and Science Technologies, USA; Jonathan A Salem, NASA Glenn Research Center, USA

3:40 PM

(ICACC-S13-006-2013) Test Methods for Flexural Strength of Ceramic Composite Tubes for Small Modular Reactor Applications

Michael G Jenkins*, Bothell Engineering and Science Technologies, USA; Thomas L Nguyen, Levitas Consultants, USA

4:00 PM

(ICACC-S13-007-2013) Advanced Cladding Inspection Using Innovative Optical Morphological Analysis

John E Garnier*, Michael V Glazoff, Sergey Rashkeev, Isabella J Van Rooyen, George W Griffith, Idaho National Laboratory, USA

4:20 PM

(ICACC-S13-008-2013) New ASTM Committee C28 Material Specifications for Carbon-Carbon and SiC-SiC Composite for Nuclear Applications

Stephen T. Gonczy*, Gateway Materials Technology, USA; Yutai Katoh, Oak Ridge National Laboratory, USA

4:40 PM

(ICACC-S13-009-2013) Round-Robin Interlaboratory Study for the Precision of Uniaxial Tensile Testing of Ceramic Composite Tubes

Stephen T. Gonczy*, Gateway Materials Technology, USA; Yutai Katoh, Oak Ridge National Laboratory, USA; Michael Jenkins, California State University, USA

Thursday, January 31, 2013
**Ceramic Technology for Light
Water Reactor Fuels**

8:00 AM-12:10 PM

Room: Ponce DeLeon

Session Chair: TBA

8:00 AM

(ICACC-S13-010-2013) Advanced LWR Nuclear Fuel Cladding Development Status (Invited Speaker)

Shannon Bragg-Sitton*, Idaho National Laboratory, USA

8:30 AM

(ICACC-S13-011-2013) Probabilistic Failure Analysis for Wound Composite Ceramic Cladding Assembly

James Hemrick*, Edgar Lara-Curzio, Oak Ridge National Laboratory, USA

8:50 AM

(ICACC-S13-012-2013) Spark Plasma Sintering of high Thermal Conductivity UO₂ and UO₂-SiC Composites

Ghatu Subhash*, Lihao Ge, James Tulenko, Sungwan Yeo, Ronald Baney, University of Florida, USA

9:10 AM

(ICACC-S13-013-2013) Enhanced Thermal Conductivity of Uranium Dioxide-Silicon Carbide Composite Fuel

Sunghwan Yeo*, Edward McKenna, Ronald Baney, Ghatu Subhash, James Tulenko, University of Florida, USA

9:30 AM

(ICACC-S13-014-2013) Model Development of Advanced Nuclear Fuel Cladding with Reduced Hydrogen Pick-up

Sergey Rashkeev*, John E Garnier, Kevin M McHugh, George G Griffith, Michael V Glazoff, Idaho National Laboratory, USA

9:50 AM

Break

10:10 AM

(ICACC-S13-015-2013) Accident Tolerance of SiC-matrix based Fuels (Invited Speaker)

Lance Snead*, Kurt Terrani, Ting Cheng, Karren L More, ORNL, USA

10:40 AM

(ICACC-S13-016-2013) Silicon Carbide Recession Kinetics in High-Pressure Steam at Elevated Temperature

Ting Cheng*, Peter F Tortorelli, Karren L More, Oak Ridge National Lab, USA

11:10 AM

(ICACC-S13-017-2013) High Temperature Steam Corrosion of Complex Silicates for Nuclear Applications: I. Theory/Modeling Study

Sergey Rashkeev*, John E Garnier, Kevin M McHugh, George G Griffith, Michael V Glazoff, Idaho National Laboratory, USA

11:30 AM

(ICACC-S13-018-2013) High Temperature Steam Corrosion of Cladding for Nuclear Applications: II. Experimental

Kevin M McHugh*, John E Garnier, Sergey Rashkeev, Michael V Glazoff, George W Griffith, Shannon M Bragg-sitton, Idaho National Laboratory, USA

11:50 AM

(ICACC-S13-019-2013) NITE SiC Processing for Nuclear Applications

Kurt Terrani*, Jim Kiggans, Yutai Katoh, Lance Snead, Oak Ridge National Laboratory, USA

**Joining / Irradiation and
Environmental Effects I /
Fabrication and Processing of
Ceramic Functional Materials**

1:30 PM-6:10 PM
Room: Ponce DeLeon
Session Chair: TBA

1:30 PM
(ICACC-S13-020-2013) Glass-ceramics as joining materials for nuclear applications (Invited Speaker)

Monica Ferraris*, Valentina Casalegno, Stefano Rizzo, Milena Salvo, Politecnico di Torino, Italy; Darina Blagoeva, NRG, Netherlands

2:00 PM
(ICACC-S13-021-2013) A Novel Composite Brazing Approach for Joining Silicon Carbide

Edward D Herderick*, EWI, USA

2:20 PM
(ICACC-S13-022-2013) Evaluation of Engineered Microstructures for Enhanced Reliability in Nuclear Grade Joints

Hesham Khalifa*, Christian P Deck, Christopher Hill, Christina A Back, General Atomics, USA

2:40 PM
(ICACC-S13-023-2013) Radiation Stability of Silicon Carbide Joints Made by Various Bonding Methods

Yutai Katoh*, Oak Ridge National Laboratory, USA; Tatsuya Hinoki, Kyoto University, Japan; Monica Ferraris, Politecnico di Torino, Italy; Charles H Henager, Pacific Northwest National Laboratory, USA

3:00 PM
Break

3:20 PM
(ICACC-S13-024-2013) Effect of irradiation and chemical interaction on select MAX phases for Gen IV reactors (Invited Speaker)

Darin Joseph Tallman*, Grady W Bentzel, Drexel University, USA; Elizabeth Hoffman, Robert Sindelar, Gordon Kohse, Savannah River National Lab, USA; Michel W Barsoum, Drexel University, USA

3:50 PM
(ICACC-S13-025-2013) Displacive Radiation-Induced Structural Contraction in Nanocrystalline ZrN

Fengyuan Lu, RPI, USA; Mengbing Huang, The University at Albany-The State University of New York, USA; Fereydoon Namavar, University of Nebraska Medical Center, USA; Rodney C Ewing, University of Michigan, USA; Jie Lian*, RPI, USA

4:10 PM
(ICACC-S13-026-2013) Thermal gas conductance model based on the Thermal Diffusion Column Separation (TDCS) mechanism

Sergey Rashkeev*, John E Garnier, George W Griffith, Michael V Glazoff, Kevin M McHugh, Idaho National Laboratory, USA

4:30 PM
(ICACC-S13-027-2013) Oxidation behavior of UO₂ in air

Kiichi Suzuki*, Japan Atomic Energy Agency, Japan; Andrew T Nelson, Los Alamos National Laboratory, USA; Takeo Sunaoshi, Inspection Development Company, Japan; Kenneth J McClellan, Los Alamos National Laboratory, USA; Masato Kato, Japan Atomic Energy Agency, Japan

4:50 PM
(ICACC-S13-028-2013) Spark Plasma Sintering Fabrication of Urania/Carbo Nanotube Composites

Andrew Robert Cartas*, Lihao Ge, Sungwan Yeo, Jim Tulenko, Ron Bane, Ghatu Subhash, University of Florida, USA

5:10 PM
(ICACC-S13-029-2013) Silver-functionalized silica aerogel: A novel benchmark for capturing and immobilization of iodine-129 from fuel reprocessing off-gas

Josef Matyas*, Glen Fryxell, Pacific Northwest National Lab, USA

5:30 PM
(ICACC-S13-030-2013) Mechanical Properties of

Porous Silicon Carbide Composites Following Exposure at Elevated Temperature in Air

Tatsuya Hinoki*, Kazuya Shimoda, Kyoto University, Japan; Susumu Maeta, Norifumi Konishi, GUNZE LIMITED, Japan; Kazuoki Toyoshima, Kyoto University, Japan; Taichi Kawahara, Akihiro Sato, GUNZE LIMITED, Japan

5:50 PM

(ICACC-S13-031-2013) Modifications of Microstructure and Pore Morphology of Lithium Orthosilicate Pebbles during Sintering

D. Mandal*, D. Sen, S. Mazumder, S. Ramnathan, Bhabha Atomic Research Centre, India

Friday, February 1, 2013

Irradiation and Environmental Effects II & III

8:00 AM-12:00 PM

Room: Ponce DeLeon

Session Chair: TBA

8:00 AM

(ICACC-S13-032-2013) Environmental Effect on the Oxidation of CVD SiC Ceramics and Composites (Invited Speaker)

Weon-Ju Kim*, Daejong Kim, Ji Yeon Park, Korea Atomic Energy Research Institute, Republic of Korea

8:30 AM

(ICACC-S13-033-2013) Biaxial mechanical behavior of SiC_f/SiC composite tubes

Fabien Bernachy-Barbe*, Lionel Gelebart, CEA, France; Jerome Crepin, Mines ParisTech, France; Michel Bornert, Ecole des Ponts ParisTech, France

8:50 AM

(ICACC-S13-034-2013) Dimensional changes and flexural behavior of neutron irradiated 2D carbon fiber reinforced SiC matrix composite

Chunghao Shih*, Yutai Katoh, Oak Ridge National Laboratory, USA; John Steinbeck, Physical Sciences Inc., USA

9:10 AM

(ICACC-S13-035-2013) Tensile and Interfacial Properties of Unidirectional Advanced SiC/SiC Minicomposites

Kazumi Ozawa*, Takashi Nozawa, Hiroyasu Tanigawa, Japan Atomic Energy Agency, Japan; Yutai Katoh, Lance L Snead, Oak Ridge National Laboratory, USA

9:30 AM

(ICACC-S13-036-2013) The Use of Additives to Improve SiC-SiC Composites for Nuclear Applications

Christian P Deck*, Hesham E Khalifa, Christopher Hill, Christina A Back, General Atomics, USA

9:50 AM

Break

10:10 AM

(ICACC-S13-037-2013) Microstructural behavior of SiC/SiC composites under ion irradiation environment (Invited Speaker)

Nihed Chaabane*, Marion Le Flem, Thierry Vandenberghe, Stéphane Urvoy, CEA Saclay, France; Paul Dumas, Synchrotron SOLEIL, France; Yves Serruys, CEA Saclay, France

10:40 AM

(ICACC-S13-038-2013) Radiation effects in thick Gd₂O₃ films used for neutron detection

Daniel Grave*, Zachary Hughes, Joshua Robinson, Douglas Wolfe, Penn State University, USA

11:00 AM

(ICACC-S13-039-2013) Magnesium phosphate cements for nuclear waste encapsulation

William Montague*, Imperial College London, United Kingdom; Martin Hayes, National Nuclear Laboratory, United Kingdom; Luc Jean Vandeperre, Imperial College London, United Kingdom

11:20 AM

(ICACC-S13-040-2013) Dimensional stability of graphite under ion-irradiation

Makoto Nonaka*, Sosuke Kondo, Tatsuya Hinoki,
Kyoto University, Japan

11:40 AM

**(ICACC-S13-041-2013) Temperature dependence
of the contraction rates of the nuclear-grade
graphite**

Sosuke Kondo*, Tatsuya Hinoki, Kyoto University,
Japan; Masatoshi Okuda, Takashi Takagi, IBIDEN
CO., LTD., Japan

Wednesday, January 30, 2013

S13 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

**(ICACC-S13-P156-2013) Ab initio molecular
dynamics simulations of recoil events in thoria**

Bin Liu*, Oak Ridge National Laboratory, USA;
Haiyan Xiao, The University of Tennessee, USA;
Yanwen Zhang, Oak Ridge National Laboratory,
USA; William J Weber, The University of Tennessee,
USA

**(ICACC-S13-P157-2013) Effects of Size and
Geometry on the Equibiaxial Flexural Test of Fine
Grained Nuclear Graphite**

Chunghao Shih*, Yutai Katoh, Oak Ridge National
Laboratory, USA; Takashi Takagi, Ibiden, Japan

**(ICACC-S13-P158-2013) Effect of Neutron
Irradiation on Bonded Fiber Silicon Carbide
Composite**

Yutai Katoh*, Kazumi Ozawa, Sosuke Kondo, Oak
Ridge National Laboratory, USA; Yoshiyuki
Kawaharada, Shinichi Higuchi, Toshiba, Japan

Focused Session 1: Geopolymer and Chemically Bonded Ceramics

Thursday, January 31, 2013
**Microstructure, Synthesis and
Processing**

8:00 AM-11:00 AM

Room: Coquina Salon A

Session Chair(s): Hubert Rahier

8:00 AM

(ICACC-FS1-001-2013) Influence of the Interaction between Various Metakaolins and Alkaline Solutions on Geopolymer Formation (Invited Speaker)

Sylvie Rossignol*, CEC GEMH ENSCI, France

8:30 AM

(ICACC-FS1-002-2013) The Effects of Water Content and Chemical Composition on the Structure and Compressive Strength of K- and Na-Activated Geopolymers (Invited Speaker)

Matthew J Westwick, Texas A&M University, USA; Maricela Lizcano, NASA Glenn Research Center, USA; Miladin Radovic*, Texas A&M University, USA

9:00 AM

(ICACC-FS1-003-2013) Mechanical strength development of geopolymer binder: the effect of quartz content

Claus H Rüscher*, Leibniz University Hannover, Germany; Mousa H Gougazeh, Tafila Technical University, Jordan; Attila Ritzmann, GNf e.V., Germany; Alexander Schulz, Leibniz University Hannover, Germany

9:20 AM

(ICACC-FS1-004-2013) What is the Role of Calcium

in Geopolymers?

Gina Marie Canfield*, Jeffery Eichler, Kara Griffith, John Hearn, Universal Technology Corporation, USA

9:40 AM

Break

10:00 AM

(ICACC-FS1-005-2013) The role of SiO₂ & Al₂O₃ on the properties of geopolymers with and without Calcium (Invited Speaker)

Pre De Silva*, Australian Catholic University, Australia

10:30 AM

(ICACC-FS1-006-2013) Synthesis of Thermostable Geopolymer from Waste Glass (Invited Speaker)

Jianping Zhai, Zengqing Sun*, Dejing Tao, Hao Cui, Qin Li, Nanjing University, China

Porosity I

11:00 AM-12:00 PM

Room: Coquina Salon A

Session Chair(s): Sylvie Rossignol

11:00 AM

(ICACC-FS1-007-2013) Geopolymer Mesoporosity Control Using Alkoxysilane Additives (Invited Speaker)

Brayden Edward Glad*, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

11:30 AM

(ICACC-FS1-008-2013) Effective thermal conductivity of porous inorganic polymer cements: effects of the bulk composition and the microstructure (Invited Speaker)

Elie Kamseu*, University of Modena, Italy; Benoit Nait-Ali, Centre Europeen de la Céramique, France; Maria C Bignozzi, University of Bologna, Italy; Cristina Leonelli, University of Modena, Italy; Sylvie Rossignol, David Smith, Centre Europeen de la Céramique, France

Porosity II

1:30 PM-3:20 PM

Room: Coquina Salon A

Session Chair(s): Sylvie Rossignol

1:30 PM

(ICACC-FS1-009-2013) The influence of curing conditions on mechanical strength and porosity of geopolymers (Invited Speaker)

Håkan Engqvist*, Bing Cai, Torbjörn Mellgren, Engineering Sciences, Sweden; Susanne Bredenberg, Orexo AB, Sweden

2:00 PM

(ICACC-FS1-010-2013) Effects of pore evolution on the mechanical properties and microstructure of Inorganic Polymer Cement-Aggregate systems

Elie Kamseu*, University of Modena, Italy; Cristina Leonelli, University of Modena and Reggio Emilia, Italy; Vincenzo M Sglavo, University of Trento, Italy

2:20 PM

(ICACC-FS1-011-2013) Use of industrial sludges to produce geopolymer foam

Elodie Prud'homme*, Philippe Michaud, GEMH-ENSCI, France; Emmanuel Joussein, GRESE, France; Sylvie Rossignol, GEMH-ENSCI, France

2:40 PM

(ICACC-FS1-012-2013) Optimization of Gas Adsorption Porosimetry for Geopolymer Analysis

Brayden Edward Glad*, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

3:00 PM

Break

Mechanical Properties

3:20 PM-5:40 PM

Room: Coquina Salon A

Session Chair(s): Miladin Radovic

3:20 PM

(ICACC-FS1-013-2013) Chemically Bonded Phosphate Ceramics Subject to Temperatures up

to 1000 C

Henry A Colorado*, Jenn-Ming Yang, UCLA, USA; Clem Hiel, Composite Support and Solutions Inc., USA

3:40 PM

(ICACC-FS1-014-2013) Mechanical Properties and Microstructure of Potassium-based Geopolymer with Chamotte Particulate Reinforcement

Sean Musil*, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

4:00 PM

(ICACC-FS1-015-2013) Optimized cesium substitution in potassium-based geopolymers for enhanced mechanical properties

Andrew Jacob Steveson*, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA

4:20 PM

(ICACC-FS1-016-2013) Geopolymer-bonded alumina microplatelets for refractory applications

Gregory Kutyla*, Waltraud Kriven, University of Illinois at Urbana-Champaign, USA

4:40 PM

(ICACC-FS1-017-2013) Static and Dynamic Properties of Potassium-Based Geopolymer as Measured by Different Techniques

Shinhu Cho*, University of Illinois at Urbana-Champaign, USA

5:00 PM

(ICACC-FS1-018-2013) Influence of the interaction between different metakaolins and reinforcements on the mechanical properties of geopolymers

Alexandre Autef*, Emmanuel Joussein, CEC-GEMH, France; Gilles Gasgnier, Imerys Ceramic Center, France; Sylvie Rossignol, CEC-GEMH, France

5:20 PM

(ICACC-FS1-019-2013) Evaluation of Geopolymer Concretes at Elevated Temperatures

Kunal Kupwade-Patil*, Sufian Badar, Erez N Allouche, Louisiana Tech University, USA

Friday, February 1, 2013

Novel Applications

8:00 AM-10:30 AM

Room: Coquina Salon A

Session Chair(s): Claus Rüscher

8:00 AM

(ICACC-FS1-020-2013) Basic research on geopolymer gels for production of green binders and hydrogen storages (Invited Speaker)

Claus H Rüscher*, Lars Schomborg, Alexander Schulz, Josef C Buhl, Leibniz University Hannover, Germany

8:30 AM

(ICACC-FS1-021-2013) Low density geopolymers containing silver nanoparticles with biocide activity (Invited Speaker)

Belén Cabal*, Nanomaterials and Nanotechnology Research Center (CINN-CSIC-UO-PA), Spain; Brayden E Glad, Waltraud M Kriven, University of Illinois at Urbana-Champaign, USA; Fernando Rojo, National Center for Biotechnology (CNB-CSIC), Spain; Ramón Torrecillas, Nanomaterials and Nanotechnology Research Center (CINN-CSIC-UO-PA), Spain; José S Moya, Materials Science Institute of Madrid (ICMM-CSIC), Spain

9:00 AM

(ICACC-FS1-022-2013) Mechanical Characteristics of Natural Fiber-Reinforced Geopolymer Composites

Jim Low*, Thamer Alomayri, Curtin University, Australia

9:20 AM

(ICACC-FS1-023-2013) Green Composite: Processing, Mechanical Properties and Microstructure of Sodium-based Geopolymer Reinforced with Chemically Extracted Corn Husk Fibers (Invited Speaker)

Sean Musil*, University of Illinois at Urbana-Champaign, USA; Patrick Keane, Waltraud M Kriven, Keanetech LLC, USA

9:40 AM

Break

10:00 AM

(ICACC-FS1-024-2013) Ceramic Wall Tile Development by Geopolymerization (Invited Speaker)

Ferhat Kara*, Gunes Korc, Monica Vicent, Kerem G Suzuk, Torsten Seiffarth, Anadolu University, Turkey

Construction Materials

10:30 AM-12:00 PM

Room: Coquina Salon A

Session Chair(s): Kwesi Sagoe-Crentsil

10:30 AM

(ICACC-FS1-025-2013) Use of local geomaterials for water harvesting in Jordan (Invited Speaker)

Hubert Rahier*, Muayad Esaifan, Jan Wastiels, Vrije Universiteit Brussel, Belgium; Hani Houry, University of Jordan, Jordan

11:00 AM

(ICACC-FS1-026-2013) Serviceability, durability and chemical factors governing Geopolymer concrete performance (Invited Speaker)

Kwesi Sagoe-Crentsil*, Shiqin Yan, Trevor Brown, CSIRO, Australia

11:30 AM

(ICACC-FS1-027-2013) Optimization and Characterization of Geopolymer Concrete using Response Surface Methodology (Invited Speaker)

Milap Dhakal, Kunal Kupwade-Patil*, Louisiana Tech University, USA; Arjun Agarwal, Indian Institute of Technology (IIT), India; Erez N Allouche, Louisiana Tech University, USA

Wednesday, January 30, 2013

FS1 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-FS1-P159-2013) Use of silica waste in metakaolin-based geopolymers

Elisa Vega*, Lauren Gomez, UANL, Mexico

Focused Session 2: Thermal Management Materials and Technologies

Monday, January 28, 2013

Thermal Management Materials and Technologies

1:30 PM-2:50 PM

Room: Coquina Salon H

Session Chair(s): Andrew Gyekenyesi

1:30 PM

(ICACC-FS2-001-2013) Evaluation of Graphite Foam in Thermal Energy Storage Applications

Peter G Stansberry*, Edwin Pancost, GrafTech International Holdings, USA

1:50 PM

(ICACC-FS2-002-2013) Joining and Characterization of Graphite Foam-to-Metal Joints

Mrityunjay Singh, Rajiv Asthana*, Craig E Smith, Andrew L Gyekenyesi, University of Wisconsin-Stout, USA

2:10 PM

(ICACC-FS2-003-2013) High-Temperature Foam-Reinforced Thermal Insulation

Jacob J Stiglich*, Brian Williams, Ultramet, USA

2:30 PM

(ICACC-FS2-004-2013) Anisotropic Thermal Conductivity of Graphene and Graphite

Anant Raj*, North Carolina State University, USA;
Jacob Eapen, North Carolina State University, USA

Tuesday, January 29, 2013

FS2 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-FS2-P160-2013) Effects of matrix precursor, graphitization temperature and graphitization timing on properties of fast-carbonized carbon-carbon composite

Chien-Ping Ju*, Yen-Ming Chen, Ming-Hung Sun, Chuan-Yu Chu, Hsun-Yu Lin, National Cheng-Kung University, Taiwan; Kuo-Jung Lee, I-Shou University, Taiwan; Jiin-Huey Chern Lin, National Cheng-Kung University, Taiwan

(ICACC-FS2-P161-2013) Effect of heat treatment on structure and properties of Ti-7.5Mo alloy

Jiin-Huey Chern Lin*, Chin-Chin Chung, Yen-Chun Chen, Yuan-Sen Tsai, Chien-Ping Ju, National Cheng-Kung University, Taiwan

Focused Session 3: Nanomaterials for Sensing Applications: Fundamental Material Designs to Device Integration

Monday, January 28, 2013

Nanomaterials for Sensing Applications

3:20 PM-5:50 PM

Room: Coquina Salon H

Session Chair(s): Francisco Hernandez-Ramirez

3:20 PM

(ICACC-FS3-001-2013) The surface chemistry effects on the gas response of metal oxide nanocrystals. A combined experimental and theoretical investigation (Invited Speaker)

Mauro Epifani*, CNR-IMM, Italy

3:50 PM

(ICACC-FS3-002-2013) New nanostructured SiOC aerogels for gas sensing applications

Gian Domenico Soraru*, University of Trento, Italy; Aravind Parakkulam Ramaswamy, German Aerospace Research Centre [DLR], Germany; Aylin Karakuscu, Andrea Ponzoni, Elisabetta Comini, Guido Faglia, Giorgio Sberveglieri, University of Brescia, Italy

4:10 PM

(ICACC-FS3-003-2013) Synthesis, Dispersion and Functionalization of SiO₂ Nanowires for Biosensing Applications

Praveen Sekhar*, Hamid Sarraf, Hanna Mekonen, Washington State University Vancouver, USA

4:30 PM

(ICACC-FS3-004-2013) Polymer derived ceramic

sensors for ultra-high temperature application

Gang Shao*, University of Central Florida, USA; Douglas Freese, Renan Gongora, Chengying Xu, University of Central Florida, USA; Linan An, University of Central Florida, USA

4:50 PM

(ICACC-FS3-005-2013) A Novel Platform of Solar-Driven Self-Powered Gas Sensors

Alaa Eldin Abd eltawab Gad*, Martin Hoffmann, Chair of Inorganic Chemistry, Germany; Joan Daniel Prades, University of Barcelona, Spain; Francisco Hernandez-Ramirez, Catalonia Institute for Energy Research (IREC), Spain; Hao Shen, Sanjay Mathur, Chair of Inorganic Chemistry, Germany

5:10 PM

(ICACC-FS3-006-2013) Development of single-, few- and multiple-nanowire gas-FET devices on ceramic substrates

Bonex Wakufwa Mwakikunga*, Council for Scientific and Industrial Research, South Africa; Trilok Singh, Irina Giebelhaus, Thomas Fischer, Ashish Lepcha, Alaa E Gad, Sanjay Mathur, University of Cologne, Germany

5:30 PM

(ICACC-FS3-007-2013) Synthesis and Structural Studies of Some Lanthanide Complexes of Mesogenic Schiff-base, N,N'-di-(4'-octadecyloxybenzoate)salicylidene-I',3''-diamino-2''-propanol

Sanyucta Singh*, Banaras Hindu University, India

Tuesday, January 29, 2013

FS3 Poster Session

5:30 PM-8:00 PM

Room: Ocean Center

(ICACC-FS3-P162-2013) The Effects of Polydispersity and Lack of Reproducibility on the Optical Properties and Sensing Performance of Gold Nanoparticles and DNA Aptamer-Coated Gold Nanoparticles

Jackie Kindred, Julius Chatterjee, Allison Marshall,

Manish Khandelwal, Mitchell Solomon, Fabian Lopez, Danielle Roy, Eric Henrich, Elliott Fowler, Andrew Knight, Kurt J Winkelmann, James R Brenner*, Florida Tech, USA

Focused Session 4: Advanced Ceramic Materials and Processing for Photonics and Energy

Thursday, January 31, 2013
**Advanced and
Nanostructured Materials
for Photonics**

8:00 AM-11:20 AM

Room: Oceanview

Session Chair: TBA

8:00 AM

(ICACC-FS4-001-2013) Uncovering band edge ultraviolet light emission in oxide nanomaterials with forbidden band gaps (Invited Speaker)

Tom Wu*, Nanyang Technological University, Singapore

8:20 AM

(ICACC-FS4-002-2013) Surface ablation of dielectrics with forefront laser technology (Invited Speaker)

Francois Legare*, INRS, Canada; Benoit Chimier, Olivier Uteza, Nicolas Sanner, Marc Sentis, Université de la Méditerranée, France; Philippe Lassonde, Francois Vidal, Jean-Claude Kieffer, INRS, Canada

8:40 AM

(ICACC-FS4-003-2013) Two photon polymerization of organically modified ceramic materials for biomedical applications (Invited Speaker)

Roger Narayan*, UNC/NCSU Joint Department of Biomedical Engineering, USA

9:00 AM

(ICACC-FS4-004-2013) Towards ZnO large scale

controlable nanostructuring : UV photonics (Invited Speaker)

Gilles Lerondel*, Komla Nomenyo, Roy Aad, Hind Kadiri, Rafael Salas Montiel, Sergei Kostcheev, Christophe Couteau, Anisha Gokarna, University of Technology of Troyes, France

9:20 AM

(ICACC-FS4-005-2013) Calcium-barium-niobate thin-film synthesis and etching for the development of electro-optical waveguide modulators (Invited Speaker)

Mohamed Chaker*, Sébastien Vigne, Ebrahim Mortazy, INRS, Canada

9:40 AM

Break

10:00 AM

(ICACC-FS4-006-2013) Multiphoton Excited Nanoparticles for Luminescence Nanothermometry in Living Cells (Invited Speaker)

Fiorenzo Vetrone*, Université du Québec, Canada

10:20 AM

(ICACC-FS4-007-2013) Hierarchically structured ZnO photoanodes for highly efficient dye sensitized solar cells

Isabella Concina*, CNR-IDASC SENSOR Laboratory & Brescia University, Italy; Nafiseh Memarian, Seyed M Rozati, University of Guilan, Islamic Republic of Iran; Giorgio Sberveglieri, Alberto Vomiero, CNR-IDASC SENSOR Laboratory & Brescia University, Italy

10:40 AM

(ICACC-FS4-008-2013) Investigation of the Effect of Porosities on the Efficiency of DSSCS Produced by Using Nano-sized TiO₂

Nursev Bilgin*, METU, Turkey; Jongee Park, Atilim University, Turkey; Abdullah Ozturk, METU, Turkey

11:00 AM

(ICACC-FS4-009-2013) Low-index waveguides and their applications

Alexandre Horth, Nate Quitariano*, McGill University, Canada

Advanced and Nanostructured Materials for Photovoltaics, including Solar Hydrogen

1:30 PM-4:30 PM

Room: Oceanview

Session Chair: TBA

1:30 PM

(ICACC-FS4-010-2013) Inorganic and organic solar cell degradation mechanisms (Invited Speaker)

Giovanni Fanchini*, University of Western Ontario, Canada

1:50 PM

(ICACC-FS4-011-2013) Photoinduced properties of Multiferroics (Invited Speaker)

Riad Nechache*, University of Rome Tor Vergata, Italy

2:10 PM

(ICACC-FS4-012-2013) One dimensional multiferroic materials for solar energy conversion

Shun Li*, Riad Nechache, Federico Rosei, EMT-INRS, Canada

2:30 PM

(ICACC-FS4-013-2013) Strain Induced Solar Power Conversion Efficiency Enhancement in Periodic Stacking of Multiferroic Bilayers

Joyprokash Chakrabartty*, Riad Nechache, Federico Rosei, INRS, Quebec, Canada, Canada

2:50 PM

(ICACC-FS4-014-2013) Engineering Metal Oxide Structures for Efficient Photovoltaic Devices (Invited Speaker)

Isabella Concina*, Gurpreet S Selopal, CNR-IDASC SENSOR Laboratory & Brescia University, Italy; Nafiseh Memarian, Semnan University, Islamic

Republic of Iran; Vardan Galstyan, Giorgio Sberveglieri, Alberto Vomiero, CNR-IDASC SENSOR Laboratory & Brescia University, Italy

3:10 PM

Break

3:30 PM

(ICACC-FS4-015-2013) Photoelectrochemical water splitting using an all-solid-state cell with gaseous reactants

Kingsley O Iwu, Truls Norby*, Augustinas Galeckas, Andrej Kuznetsov, University of Oslo, Norway

3:50 PM

(ICACC-FS4-016-2013) Carbon nanotube-TiO₂ nanoparticle composite materials for high efficiency dye sensitized solar cells

Therese K Dembele, INRS, Canada; Gurpreet S Selopal, Brescia University, Italy; Isabella Concina, CNR, Italy; Caterina Soldano, Brescia University, Italy; Riad Nechache, INRS, Canada; Clara Santato, École Polytechnique de Montréal, Canada; Alberto Vomiero*, CNR, Italy; Federico Rosei, INRS, Canada; Giorgio Sberveglieri, Brescia University, Italy

4:10 PM

(ICACC-FS4-017-2013) Hydrothermal synthesis of single-phase Cu₂ZnSnS₄ nanoparticles

Shih-Jen Lin*, Jyh-Ming Ting, National Cheng Kung University, Taiwan

Advanced and Nanostructured Materials for Sensing and Electronics

4:30 PM-5:30 PM

Room: Oceanview

Session Chair: TBA

4:30 PM

(ICACC-FS4-018-2013) Tailoring nanoscale sensing devices through chemical functionalization of graphene and ZnO nanowires (Invited Speaker)

Kannan Balasubramanian*, Tetiana Kurkina, Vivek

Pachauri, Subramanian Sundaram, Ravi S Sundaram, Max Planck Institute for Solid State Research, Germany; Francesca Re, Massimo Masserini, Università degli Studi di Milano Bicocca, Italy; Klaus Kern, Max Planck Institute for Solid State Research, Germany; Klaus Kern, Ecole Polytechnique Federale de Lausanne, Switzerland

4:50 PM

(ICACC-FS4-019-2013) Advanced polymer-ceramic nanocomposites for tunable RF and microwave device applications (Invited Speaker)

Hariharan Srikanth*, University of South Florida, USA

5:10 PM

(ICACC-FS4-020-2013) All-alkoxide based solution deposition and properties of spinel and perovskite films, and multi-layer structures (Invited Speaker)

Gunnar Westin*, Anil Kumar, Koroush Lashagari, Annika Pohl, Karis Olof, Uppsala University, Sweden; Kjell Jansson, Stockholm University, Sweden

Friday, February 1, 2013

Multifunctional Materials

8:00 AM-11:30 AM

Room: Oceanview

Session Chair: TBA

8:00 AM

(ICACC-FS4-021-2013) Priorities for Ceramics Education and Research (Invited Speaker)

Lynnette D Madsen*, National Science Foundation, USA

8:30 AM

(ICACC-FS4-022-2013) Core-shell Carbon Nanotubes Structures and its applications (Invited Speaker)

Daniel Chua*, National University of Singapore, Singapore

8:50 AM

(ICACC-FS4-023-2013) Multifunctional inorganic

nanomaterials: from design to energy and environmental applications (Invited Speaker)

Alberto Gasparotto*, Padova University and INSTM, Italy; Davide Barreca, CNR-ISTM and INSTM, Italy; Daniela Bekermann, Giorgio Carraro, Chiara Maccato, Quentin Simon, Padova University and INSTM, Italy

9:10 AM

(ICACC-FS4-024-2013) Si-nanowire devices by controlling Si nanowire growth (Invited Speaker)

Nate Qutoriano*, McGill University, Canada

9:30 AM

Break

9:50 AM

(ICACC-FS4-025-2013) Modification of the Electrical Conduction Properties of the Grain Boundaries of Nanocrystalline Mixed Conducting Ceramics (Invited Speaker)

Giuliano Gregori*, Marcus C Göbel, Piero Lupetin, Joachim Maier, Max Planck Institute for Solid State Research, Germany

10:10 AM

(ICACC-FS4-026-2013) Multifunctional titania materials: from surface modification to nanocrystal inclusion, and related applications (Invited Speaker)

Mauro Epifani*, CNR-IMM, Italy

10:30 AM

(ICACC-FS4-027-2013) Effect of annealing on the dielectric properties of amorphous silicon carbonitrides ceramic

Hongyu Gong*, Linan An, University of Central Florida, USA

10:50 AM

(ICACC-FS4-028-2013) Room temperature multiferroics in doped BiFeO₃ ceramics

Diptiranjan Sahu*, Sangram K Pradhan, Binod K Roul, University of the Witwatersrand, South Africa

11:10 AM

(ICACC-FS4-029-2013) Room temperature ferromagnetism in Cobalt and Europium implanted Zinc Oxide thin films

Jiunn Jieh Lee*, Guozhong Xing, The University of New South Wales, Australia; Tao Chen, The Chinese University of Hong Kong, China; Pat Photongkam, Synchrotron Light Research Institute, Thailand; Mihail Ionescu, Australian Nuclear Science and Technology Organisation, Australia; Yuebin Zhang, Sean Li, The University of New South Wales, Australia

Characteristics for Composite-Antenna-Structures

Jinyul Kim, Dongseob Kim, Dongsik Shin, Weesang Park, Woonbong Hwang*, Pohang University of Science and Technology, Republic of Korea

Wednesday, January 30, 2013

FS4 Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-FS4-P163-2013) Nano Cr-doped crystalline composite in silicate glass host induced by CO₂ laser and thermal heat treatment for broadband applications

Jausheng Wang*, Yu-Chia Chen, National Sun Yat-Sen University, Taiwan

(ICACC-FS4-P164-2013) Design of Multi-Layered Ceramic Devices for Energy Harvesting

Jaesung Song*, Sin-Woong Kim, Juhyeong Jo, In-Sung Kim, Soon-Jong Jeong, Min-Soo Kim, Korea Electrotechnology Research Institute, Republic of Korea

(ICACC-FS4-P165-2013) Fabrication of Nanostructured ZnO films for Plastic Dye-sensitized Solar Cells

Hirokazu Utsunomiya*, Shintaro Ueno, Shinobu Fujihara, Keio University, Japan

(ICACC-FS4-P166-2013) Design and Fabrication of Smart-skin Structures with a Spiral Antenna

Dongseob Kim, Jinyul Kim, Woonbong Hwang*, Pohang University of Science and Technology, Republic of Korea

(ICACC-FS4-P167-2013) Evaluation of Compression

2nd Global Young Investigator Forum

Monday, January 28, 2013

Applications: Ceramic Sensors and Actuators, Energy Generation and Storage, Photo-catalysis I

1:30 PM-3:30 PM

Room: Coquina Salon F

Session Chair(s): Thomas Fischer, Fernando Torres Andon

1:30 PM

(ICACC-GYIF-001-2013) Energetics of $\text{La}_{9.33+x}(\text{SiO}_4)_6\text{O}_{2+3x/2}$: Solid Oxide Fuel Cell Electrolyte Materials

Seyedeh Mahboobeh Hosseini*, Alexandra Navrotsky, UC Davis, USA

1:50 PM

(ICACC-GYIF-002-2013) Grain Boundary Electrical Properties of Ionic Conductors Based on Solid Solutions of Nd, Ga and Ge Oxides

Hugo Joaquín Avila-Paredes*, Hirepan Chávez-Cárdenas, Angélica Deolarte-Carreón, Universidad Autónoma Metropolitana Unidad Iztapalapa, Mexico

2:10 PM

(ICACC-GYIF-003-2013) Carbon/Metal Oxide Nanocomposites as Electrode Materials for Lithium-Ion Batteries

Ralf Mueller*, Sanjay Mathur, Mehtap Büyükyazi, Ashish Lepcha, University of Cologne, Germany

2:30 PM

(ICACC-GYIF-004-2013) Synthesis of 1D-Nanostructures LiFeO_2/C and $\text{Fe-Fe}_3\text{O}_4/\text{C}$ as Anode Materials and their Electrochemical

Measurements in Lithium-Ion Batteries

Mehtap Büyükyazi*, Robin von Hagen, Sanjay Mathur, University of Cologne, Germany

2:50 PM

(ICACC-GYIF-005-2013) Modification of the electric properties in carbonaceous materials by deposition of SnO_2 nanowires via CVD

Antonio Gutierrez-Pardo*, University of Seville, Spain, Spain; Raquel Fiz, Sanjay Mathur, University of Cologne, Germany; Joaquin Ramirez-Rico, University of Seville, Spain, Spain

3:10 PM

Break

Applications: Ceramic Sensors and Actuators, Energy Generation and Storage, Photo-catalysis II

3:30 PM-5:30 PM

Room: Coquina Salon F

Session Chair(s): Seyedeh Mahboobeh Hosseini, Ralf Mueller

3:30 PM

(ICACC-GYIF-006-2013) Nanochemistry: The gigantic growth of a dwarf

Thomas Fischer*, Sanjay Mathur, University of Cologne, Germany

3:50 PM

(ICACC-GYIF-007-2013) Metal oxide/semiconductor decorated multilayer Graphene oxide: photocatalysis and electrocatalysis

Kasinath Ojha*, Pramit K Chowdhury, Ashok K. Ganguli, Indian Institute of Technology, Delhi, India

4:10 PM

(ICACC-GYIF-008-2013) Production and characterization of nanocomposites consisting of electroless deposited Ag on semiconducting oxide

nanostructures

Federico Luis Miguel*, Flavio Soldera, Saarland University, Germany; Thomas Fischer, Ralf Müller, Sanjay Mathur, University of Cologne, Germany; Frank Mücklich, Saarland University, Germany

4:30 PM

(ICACC-GYIF-009-2013) Nb₂O₅ Nanorods and SnO₂/Nb₂O₅ Heterostructures as Humidity Sensors

Raquel Fiz*, Universität zu Köln, Germany; Francisco Hernandez-Ramirez, Catalonia Institute for Energy Research (IREC), Germany; Thomas Fischer, Universität zu Köln, Germany; Lluís Llopez-Conesa, Sonia Estrade, Francisca Peiro, University of Barcelona, Germany; Sanjay Mathur, Universität zu Köln, Germany

4:50 PM

(ICACC-GYIF-010-2013) Dielectric and Piezoelectric Properties of Sr and La co-doped PZT Ceramics

Volkan Kalem*, Selcuk University, Turkey; Muharrem Timuçin, Middle East Technical University, Turkey

5:10 PM

(ICACC-GYIF-011-2013) ZnO-quantum dots-polymer as hybrid nanocomposite for photovoltaics

Abhilash Sugunan*, Yichen Zhao, Xuran Yang, Muhammet Toprak, Mamoun Muhammed, Royal Institute of Technology (KTH), Sweden

Tuesday, January 29, 2013

Ceramic Hybrid Materials and Composites: Ceramic Matrix Composites, Biological and Medical Applications

8:00 AM-9:40 AM

Room: Coquina Salon F

Session Chair(s): Bonex Mwakikunga, Martin Seifert

8:00 AM

(ICACC-GYIF-012-2013) Calculation of the Interlaminar Mode I Crack Growth Energy Release Rate of Carbon/Carbon Composites

Thomas Krause*, Kamen Tushtev, University of Bremen, Germany; Dietmar Krause, German Aerospace Center, Germany; Georg Grathwohl, University of Bremen, Germany

8:20 AM

(ICACC-GYIF-013-2013) Eosinophil peroxidase-mediated biodegradation of single-walled carbon nanotubes

Fernando Torres Andon*, Karolinska Institutet, Sweden; Alexandr A Kapralov, Naveena Yanamala, Weihong Feng, University of Pittsburgh, USA; Arjang Baygan, Benedict J Chambers, Kjell Hultenby, Karolinska Institutet, Sweden; Fei Ye, Muhammet S Toprak, Royal Institute of Technology, Sweden; Birgit D Brander, Andrea Fornara, Institute for Surface Chemistry, Sweden; Judith Klein-Seetharaman, Gregg P Kotchey, Alexander Star, University of Pittsburgh, USA; Anna A Shvedova, NIOSH/CDC and West Virginia University, USA; Bengt Fadeel, Karolinska Institutet, Sweden; Valerian E Kagan, University of Pittsburgh, USA

8:40 AM

(ICACC-GYIF-014-2013) Controlled synthesis of SPIONs for biomedical applications

Gorka Salas*, iMdea Nanoscience, Spain; Macarena Calero, Universidad Autónoma de Madrid, Spain; Cintia Casado, Francisco J Teran, iMdea Nanoscience, Spain; Angeles Villanueva, Julio Camarero, Universidad Autónoma de Madrid, Spain; Rodolfo Miranda, iMdea Nanoscience, Spain; M. Puerto Morales, ICMM-CSIC, Spain

9:00 AM

(ICACC-GYIF-015-2013) Controlled Growth of Selectively Doped ZnO Nanocrystals on Calcium Aluminum Silicate Beads Support under Hydrothermal and Solvothermal Conditions for Enhancing Photocatalytic Activity

K. Byrappa, K. Namratha*, University of Mysore,

India

9:20 AM

Break

Ceramic Processing and Application: Novel Processing and Synthesis Routes

9:40 AM-12:00 PM

Room: Coquina Salon F

Session Chair(s): Federico Miguel, Gorka Salas
Hernandez

9:40 AM

**(ICACC-GYIF-016-2013) Durability of Geopolymer
Fly Ash Building Brick with Respect to Acids**

Surabhi Dipali Muduli*, Bansidhar Nayak, Barada
Kanta Mishra, CSIR-IMMT, India

10:00 AM

**(ICACC-GYIF-017-2013) Brazing of Silicon Carbide
(SiC) to Kovar for the Integration of Metallic Fuel
Tubes into a Ceramic Lean Direct Fuel Injector**

Kyle Alsup*, Case Western Reserve University, USA;
Michael C Halbig, NASA Glenn Research Center,
USA; Mrityunjay Singh, Ohio Aerospace Institute,
USA

10:20 AM

**(ICACC-GYIF-018-2013) Corrosion Behaviour of
Titanium Carbide-Stainless Steel Composites in
Synthetic Seawater**

Chukwuma C Onuoha*, Georges J Kipouros, Zoheir
N Farhat, Kevin Paul Plucknett, Dalhousie
University, Canada

10:40 AM

**(ICACC-GYIF-019-2013) SiCN/Nb-ceramic
composite derived by precursor reaction**

Martin Seifert*, Walter Krenkel, Günter Motz, chair
of ceramic materials engineering, Germany

11:00 AM

(ICACC-GYIF-020-2013) Ink-Jet Printing: An

**Efficient Way for Digitally Controlled Device
Fabrication**

Mohammad Vaseem*, A-Ra Hong, Yoon-Bong
Hahn, Chonbuk National University, Republic of
Korea

11:20 AM

**(ICACC-GYIF-021-2013) Progress in Ultrasonic
Spray Pyrolysis for Ceramic Materials Sciences
Developed From Ultrasonic Nebulization Theories
Since Michael Faraday**

Bonex Wakufwa Mwakikunga*, Council for
Scientific and Industrial Research, South Africa

11:40 AM

**(ICACC-GYIF-022-2013) Morphology Evolution and
Phase Evaluation in MAX Phase - Shape Memory
Alloy Interpenetrating Composites**

Liangfa Hu*, Ankush Kothalkar, Ibrahim Karaman,
Miladin Radovic, Texas A&M University, USA

Engineering Ceramics Summit of the Americas

Wednesday, January 30, 2013

Ceramics for Human Health

1:30 PM-4:50 PM

Room: Coquina Salon G

Session Chair(s): Mrityunjay Singh, Jose Varela

1:30 PM

(ICACC-ECSA-001-2013) Innovative Ceramic Technologies to Transform the World (Invited Speaker)

Larry Hench*, University of Florida, USA

2:00 PM

(ICACC-ECSA-002-2013) Novel Calcium Phosphate Silicate Cements for Dentistry: A Case Study of Successful Commercialization of Bioceramics in Canada (Invited Speaker)

Tom Troczynski*, UBC, Canada

2:30 PM

(ICACC-ECSA-003-2013) New materials for energy and biomedical applications (Invited Speaker)

Bruna Bregadiolli, Douglas Leite, UNESP, Brazil; Alejandra H González, Paulo H D Alpino, UNIBAN, Brazil; Carlos F.O. Graeff*, UNESP, Brazil

3:00 PM

Break

3:20 PM

(ICACC-ECSA-004-2013) Medical Initiatives from the Nuclear Community: Applications of Unique 'Multi-Use Technologies' (Invited Speaker)

George W. Wicks*, Savannah River National Laboratory, USA

3:50 PM

(ICACC-ECSA-005-2013) Tailoring Ceramic Material Systems for Bioreactors used in Regenerative

Medicine (Invited Speaker)

Ian Nettleship*, University of Pittsburgh, USA

4:20 PM

(ICACC-ECSA-006-2013) Chemiosensor Response of Inorganic Oxides (Invited Speaker)

Anderson A Felix, Pedro H Suman, Diogo P Volanti, UNESP- Araraquara, Brazil; Harry L Tuller, Massachusetts Institute of Technology, USA; Marcelo Ornaghi Orlandi, Jose A Varela*, UNESP- Araraquara, Brazil

Thursday, January 31, 2013

Ceramic Education, Training, and Collaboration

8:00 AM-12:00 PM

Room: Coquina Salon G

Session Chair(s): Richard Sisson, Enrique Rocha

8:00 AM

(ICACC-ECSA-007-2013) New Imperatives in Materials Processing Education (Invited Speaker)

Richard D Sisson*, Worcester Polytechnic Institute, USA

8:30 AM

(ICACC-ECSA-008-2013) Integrating Ceramic Education and Research in an Undergraduate Applied Manufacturing Engineering Program (Invited Speaker)

Rajiv Asthana*, University of Wisconsin-Stout, USA

8:50 AM

(ICACC-ECSA-009-2013) Shaping the Ceramics Researchers of Tomorrow Through a Continuum of STEM Experiences (Invited Speaker)

Ann Heyward*, Ohio Aerospace Institute, USA

9:20 AM

(ICACC-ECSA-010-2013) Overview of Scientific Issues and Applications of Ceramics-Glasses in the Silica-Alumina Phase System (Invited Speaker)

Subhash Risbud*, UC Davis, USA

9:50 AM

Break

10:10 AM

(ICACC-ECSA-011-2013) The Rare Earth Elements among the Critical Elements (Invited Speaker)

Gerd Meyer*, University of Cologne, Germany

10:40 AM

(ICACC-ECSA-012-2013) Commercialising University Research: Thoughts on the Challenges Based on Experience Gained in the Field of Ceramic Processing in the UK (Invited Speaker)

Jon Binner*, Loughborough University, United Kingdom

11:10 AM

(ICACC-ECSA-013-2013) Iron Phosphate Glasses and Melts- A US-Brazil Research Collaboration on Novel Materials for Nuclear Waste Remediation (Invited Speaker)

Richard K Brow*, Mark E Schlesinger, Missouri S&T, USA; Edgar D Zanotto, Federal University of Sao Carlos, Brazil

11:40 AM

(ICACC-ECSA-014-2013) Production of Al₂O₃/Ti/TiO₂ Ceramics by Means of Oxidant in Air of Al₂O₃/Ti Ceramics

Sergio J Esparza, Enrique Rocha*, José A Rodríguez-García, Universidad Politécnica de Victoria, Mexico; José G Miranda-Hernández, Universidad Autónoma del Estado de Mexico, Mexico; Elizabeth Refugio-García, Mario Gaeta-Conchas, Universidad Autónoma Metropolitana, Mexico

Ceramics for Energy and Environmental Systems

1:30 PM-5:50 PM

Room: Coquina Salon G

Session Chair(s): Kevin Plucknett, Victor Pandolfelli

1:30 PM

(ICACC-ECSA-015-2013) Reflections on the present and future of the ceramic refractory area (Invited

Speaker)

Victor Carlos Pandolfelli*, UFSCar, Brazil

2:00 PM

(ICACC-ECSA-016-2013) Ceramic Hot-Surface Ignition Systems for Natural Gas Clean Engines: A Case Study of Successful Industry-University R&D in Canada (Invited Speaker)

Tom Troczynski*, UBC, Canada

2:30 PM

(ICACC-ECSA-017-2013) Advanced Ceramics for Mineral Processing and Energy Generation and the Technology Importance for Ceramic Manufacturing (Invited Speaker)

Eugene Medvedovski*, Consultant, Canada

3:00 PM

Break

3:20 PM

(ICACC-ECSA-018-2013) Recent developments on electric-field assisted sintering ceramic materials (Invited Speaker)

R. Muccillo*, E. N Muccillo, IPEN, Brazil

3:50 PM

(ICACC-ECSA-019-2013) Recent Developments in Cermets and Hard Boride Coatings (Invited Speaker)

Kevin Paul Plucknett*, Dalhousie University, Canada

4:20 PM

(ICACC-ECSA-020-2013) Using material science to prepare novel tailored ceramic materials to improve the performance of hydrocarbon processing units (Invited Speaker)

Thomas Szymanski*, Saint-Gobain NorPro, USA

4:50 PM

(ICACC-ECSA-021-2013) Properties and Growth Mechanism of Transparent and Conductive Indium Tin Oxide Nanowires (Invited Speaker)

Elen P Arlindo, Juliana A Lucindo, Marcelo Ornaghi Orlandi*, UNESP- Araraquara, Brazil

5:20 PM

(ICACC-ECSA-022-2013) Magnetoelectric coefficient in oxide electrodes buffered lanthanum modified bismuth ferrite thin films grown by chemical method (Invited Speaker)

Alexandre Zirpoli Simões*, José A Varela, Elson Longo, UNESP, Brazil

Friday, February 1, 2013

Ceramics for Energy and Aerospace Systems

8:00 AM-12:00 PM

Room: Coquina Salon G

Session Chair(s): Hua-Tay Lin, Michael Halbig

8:00 AM

(ICACC-ECSA-023-2013) Automated Creep Rupture Water Vapor Degradation Model for Gas Turbine Hot Section Ceramics (Invited Speaker)

Mattison K Ferber*, Hau-tay Lin, ORNL, USA; Mark van Roode, MvR Institute of Technology, USA

8:30 AM

(ICACC-ECSA-024-2013) A Miniature Ceramic Gas Turbine Engine Architecture Designed for Long Life and High Reliability (Invited Speaker)

Michael Vick*, U.S. Naval Research Lab, USA

9:00 AM

(ICACC-ECSA-025-2013) Ceramic Microturbines for Small-Scale Distributed Energy Applications (Invited Speaker)

Hua-Tay Lin*, Mattisson Ferber, Oak Ridge National Laboratory, USA

9:20 AM

(ICACC-ECSA-026-2013) Thermal Protection Materials and Systems: Successes and Challenges (Invited Speaker)

Sylvia M Johnson*, NASA Ames Research Center, USA

9:50 AM

Break

10:10 AM

(ICACC-ECSA-027-2013) Ceramic Matrix Composite Component Development and Demonstration For Applications in Aircraft Turbine Engines (Invited Speaker)

Michael C Halbig*, Martha H Jaskowiak, James D Kiser, Dongming Zhu, NASA Glenn Research Center, USA

10:30 AM

(ICACC-ECSA-028-2013) SiC/SiC Ceramic Matrix Composite: Challenges and Opportunities in the Turbine Engine Industry (Invited Speaker)

Adam Chamberlain*, Jay Lane, Rolls-Royce Corporation, USA

11:00 AM

(ICACC-ECSA-029-2013) Advanced Non-Oxide Ceramics in Energy Generation and Conservation (Invited Speaker)

Biljana Mikijelj*, Ceradyne Inc., USA

11:30 AM

(ICACC-ECSA-030-2013) Ceramic, gas-separation membranes for advanced energy applications (Invited Speaker)

Charles Lewinsohn*, Ceramatec, Inc., USA

Wednesday, January 30, 2013

ECSA Poster Session

5:00 PM-7:30 PM

Room: Ocean Center

(ICACC-ECSA-P168-2013) Sol-Gel Synthesis of Mullite Starting from Different Inorganic Precursors

Lucia Tellez-Jurado, Rosa M Arévalo-Hernández, Enrique Rocha*, Universidad Politécnica de Victoria, Mexico

(ICACC-ECSA-P169-2013) Alumina Ceramics Reinforced with Silver Particles

Elizabeth Refugio-García, Mario Gaeta-Conchas,

Universidad Autónoma Metropolitana, Mexico;
José G Miranda-Hernández, Universidad Autónoma
del Estado de Mexico, Mexico; Enrique Rocha*,
Universidad Politécnica de Victoria, Mexico

**(ICACC-ECSA-P170-2013) Physical Properties of the
Sr₄Al₆O₁₂SO₄ Ceramic Compound**

José A Rodríguez-García, Enrique Rocha*, Juan
López-Hernández, Enrique Martínez-Peña,
Universidad Politécnica de Victoria, Mexico; José M
Almanza-Robles, Jesús Torres-Torres, CINVESTAV,
Mexico

**(ICACC-ECSA-P171-2013) Mechanism of the
carbothermal synthesis of MgAl₂O₄-SiC refractory
composite powders**

Hongxi Zhu*, Hongjuan Duan, Wenjie Yuan, Chengji
Deng, Wuhan University of Science and
Technology, China