



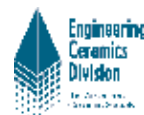
MEETING GUIDE

36TH INTERNATIONAL CONFERENCE AND EXPOSITION ON ADVANCED CERAMICS AND COMPOSITES

January 22-27, 2012

Hilton Daytona Beach Resort and Ocean Center
Daytona Beach Florida, USA

www.ceramics.org/daytona2012



Organized by The American Ceramic Society and The American Ceramic Society's Engineering Ceramics Division

Welcome

On behalf of the Engineering Ceramics Division and the American Ceramic Society, I warmly welcome you to the 36th International Conference & Exposition on Advanced Ceramics & Composites (ICACC). ICACC is the most prominent international meeting in the area of advanced structural and functional ceramics, composites, and other emerging ceramic materials and technologies. This prestigious conference has been organized by the Engineering Ceramics Division (ECD) and The American Ceramic Society since 1977.

Topical areas at this conference include advanced structural, functional and nanocrystalline ceramics, composites, and other emerging ceramic materials and integration technologies. The technical program of ICACC 2012 consists of fourteen Symposia, three Focused Sessions, the EU-USA Ceramics Summit and Industry Exhibit that will provide an open forum for scientists, researchers and engineers from around the world to present and exchange recent advances on various aspects related to ceramic science and technology.

The well-established symposia at this conference include Mechanical Properties and Performance of Engineering Ceramics and Composites, Advanced Ceramic Coatings, Solid Oxide Fuel Cells, Armor Ceramics, Bioceramics, Nanostructured Materials & Nanotechnology, Advanced Processing & Manufacturing Technologies (APMT), and Porous Ceramics. The 2012 APMT symposium will be held in honor of Professor R.J. Diefendorf, Clemson University for his innumerable contributions to the field. For the third year in row, three key symposia namely, Ceramics for Electric Energy Generation, Storage, and Distribution, Thermal Management Materials and Technologies, and Advanced Sensor Technology will be held addressing the current energy and environmental challenges. Two new symposia launched at ICACC 2011: Materials for Extreme Environments: Ultrahigh Temperature Ceramics and Nanolaminated Ternary Carbides and Nitrides and Advanced Materials and Technologies for Rechargeable Batteries, will again form part of the technical program.

ICACC 2012 will include four Focused Sessions on emerging technologies: Geopolymers and Other Inorganic Polymers (FS1) and Computational Design, Modeling, Simulation and Characterization of Ceramics and Composites (FS 2) will continue this year. In addition, two new focused sessions on Next Generation Technologies for Innovative Surface Coatings (FS 3) and Advanced Materials for Photonics and Energy (FS 4) will form the part of the technical program.

We are extremely pleased that first European Union – USA Ceramics Summit will be held at ICACC 2012 that will bring together representatives from Engineering Ceramics Divisions and experts from the two continents to foster information exchange on current status and emerging trends in innovative and sustainable ceramic technologies. It deserves special mention that the first Global Young Investigator Forum, which is a symposium by and for early careers researchers will be a part of ICACC 2012.

Our special thanks go to our sponsors including American Elements, University of Cologne, ARO, UBE Industries, LTD, Rio Tinto (GARD-ALUMINIUM PECHINEY), Fraunhofer Institute for Ceramic Technology & Systems, RD Webb, SCIOMSYN, KITECH, NETZSCH, A-Tech-System, Ineos-Manufacturing, PlasmaChem, CSIR, ChemCologne, Currenta, InfraserV Knapsack, Lanxess, Netzwerk Innovative Werkstoffe, PLASMA ELECTRONIC, Pfeiffer Vacuum, Stoe & Cie whose generous support facilitates a more successful meeting.



The ECD Executive Committee and volunteer organizers, together with The American Ceramic Society, thank you for joining us in Daytona Beach, Florida for what should be a stimulating and beneficial experience.

Sanjay Mathur
2012 Program Chair
University of Cologne



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MEETING REGULATIONS

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Schedule At A Glance

Sunday, January 22, 2012

	Time	Room
Conference Registration	2 p.m. – 7 p.m.	Hilton – Coquina Foyer
Speaker Ready Room	2 p.m. – 7 p.m.	Hilton – Manatee
Welcome Reception	5 p.m. – 7 p.m.	Hilton – Coquina Foyer

Monday, January 23, 2012

Conference Registration	7 a.m. – 6 p.m.	Hilton – Coquina Foyer
Member and Publication Center	7 a.m. – 6 p.m.	Hilton – Coquina Foyer
Speaker Ready Room	8 a.m. – 4 p.m.	Hilton – Manatee
Companion Coffee	8 a.m. – 10 a.m.	Hilton – Oceanview Room
Opening Awards Ceremony & Plenary Session	8:30 a.m. – 12 p.m.	Hilton – Coquina D and E
Coffee Break	10:20 a.m. – 10:40 a.m.	Hilton – Coquina Foyer
Lunch On Own	12 p.m. – 1:30 p.m.	
Concurrent Technical Sessions	1:30 p.m. – 6 p.m.	Hilton
Coffee Break	3 p.m. – 3:20 p.m.	Hilton – Coquina Foyer
Student & Young Professional Mixer	7 p.m. – 9 p.m.	Hilton – Oceanview

Tuesday, January 24, 2012

Conference Registration	7 a.m. – 6 p.m.	Hilton – Coquina Foyer
Member and Publication Center	7 a.m. – 6 p.m.	Hilton – Coquina Foyer
Speaker Ready Room	8 a.m. – 4 p.m.	Hilton – Manatee
Concurrent Technical Sessions	8 a.m. – 12 p.m.	Hilton
Coffee Break	9:40 a.m. – 10 a.m.	Hilton – Coquina Foyer
Exhibitor Move-In	12 p.m. – 4 p.m.	Ocean Center
Lunch On Own	12 p.m. – 1:30 p.m.	
Concurrent Technical Sessions	1:30 p.m. – 5:20 p.m.	Hilton
Coffee Break	3 p.m. – 3:20 p.m.	Hilton – Coquina Foyer
Poster Session A Move-In	3 p.m. – 4:30 p.m.	Ocean Center
Exhibits & Poster Session A – Including Reception	5 p.m. – 8 p.m.	Ocean Center

Wednesday, January 25, 2012

Conference Registration	7:30 a.m. – 5:30 p.m.	Hilton – Coquina Foyer
Member and Publication Center	7:30 a.m. – 5:30 p.m.	Hilton – Coquina Foyer
Speaker Ready Room	8 a.m. – 4 p.m.	Hilton – Manatee
Concurrent Technical Sessions	8 a.m. – 12 p.m.	Hilton
Coffee Break	9:40 a.m. – 10 a.m.	Hilton – Coquina Foyer
Lunch On Own	12 p.m. – 1:30 p.m.	
Concurrent Technical Sessions	1:30 p.m. – 5 p.m.	Hilton
Poster Session B Move-In	3 p.m. – 4:30 p.m.	Ocean Center
Coffee Break	3 p.m. – 3:20 p.m.	Hilton – Coquina Foyer
Exhibits & Poster Session B – Including Reception	5 p.m. – 7:30 p.m.	Ocean Center

Schedule At A Glance

Thursday, January 26, 2012

Conference Registration	7:30 a.m. – 6 p.m.	Hilton – Coquina Foyer
Member and Publication Center	7:30 a.m. – 6 p.m.	Hilton – Coquina Foyer
Speaker Ready Room	8 a.m. – 4 p.m.	Hilton – Manatee
Concurrent Technical Sessions	8 a.m. – 12 p.m.	Hilton
Coffee Break	9:40 a.m. – 10 a.m.	Hilton – Coquina Foyer
Lunch On Own	12 p.m. – 1:30 p.m.	
Concurrent Technical Sessions	1:30 p.m. – 6 p.m.	Hilton
Coffee Break	3 p.m. – 3:20 p.m.	Hilton – Coquina Foyer

Friday, January 27, 2012

Conference Registration	7:30 a.m. – 12:30 p.m.	Hilton – Coquina Foyer
Concurrent Technical Sessions	8 a.m. – 12 p.m.	Hilton
Coffee Break	9:40 a.m. – 10 a.m.	Hilton – Coquina Foyer

Directions from the Hilton to Ocean Center Exhibit Hall

To walk to the Ocean Center from the Hilton, exit the Hilton through the South Tower Lobby. Turn left on the sidewalk to the crosswalk. Proceed across the street to the Ocean Center south entrance and walk to the Exhibit Hall. Note: Exhibit is in the Exhibit Hall, not in Ocean Center Arena this year.

Bus service will be provided between the Hilton and the Ocean Center Exhibit Hall as follows:

Tuesday, January 24 4:30-8:30 p.m.
 Wednesday, January 25 4:30-8:00 p.m.

The bus will pick up at both the North and South Tower lobbies and drop off at the Ocean Center's South entrance. The bus will run in a continuous loop.



Hilton:

Welcome Reception
 Registration
 Technical Sessions
 Member and Publications
 Center

Ocean Center:

Exhibit & Reception
 Poster Session

Special Events

Welcome Reception

Sunday, January 22

5 p.m. – 7 p.m.

Hilton – Coquina Foyer

Shot Glass Contest

Tuesday, January 24

5:30 p.m. – 7:30 p.m.

The Ocean Center, Exhibit Show Floor

Organized by ACerS President's Council of Student Advisors (PCSA)

Don't miss this design contest! Students are given one shot glass and have 45 minutes to build their protection devices with drinking straws. Then, the glasses are dropped from varying levels until the breaking threshold is reached. The glass with the highest successful drop distance wins!

ACerS Engineering Ceramics Division Leadership

Trustee: Mrityunjay Singh

Chair: Dileep Singh

Chair-Elect: Sanjay Mathur

Vice Chair/Treasurer: Sujanto Widjaja

Secretary: Michael Halbig

Past Chair: Tatsuki Ohji

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P172HPB is perfectly suited for applications requiring the highest levels of wear and corrosion resistance, mechanical strengths and stability.



Abrasive



Glass



Ceramic



Refractory

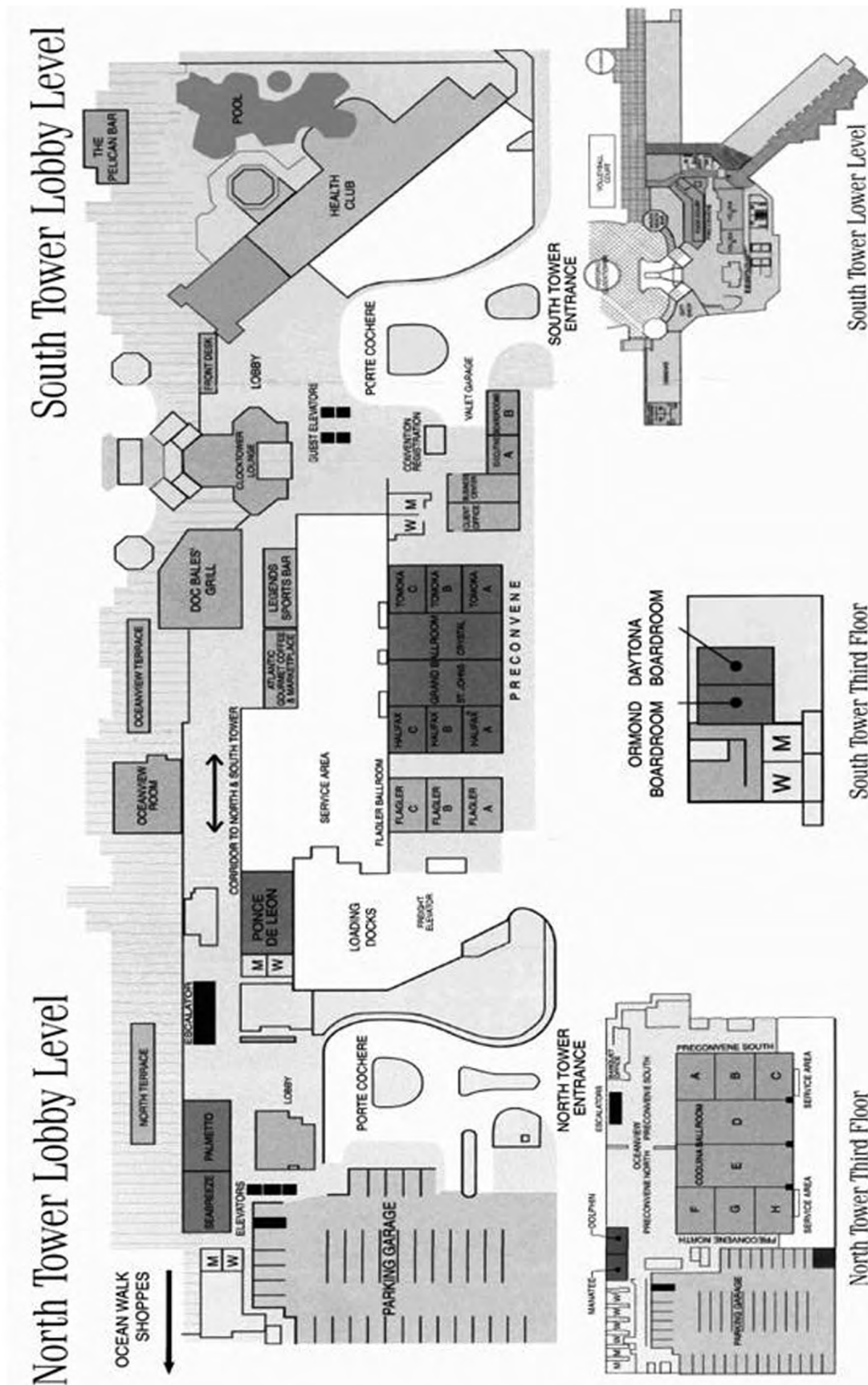
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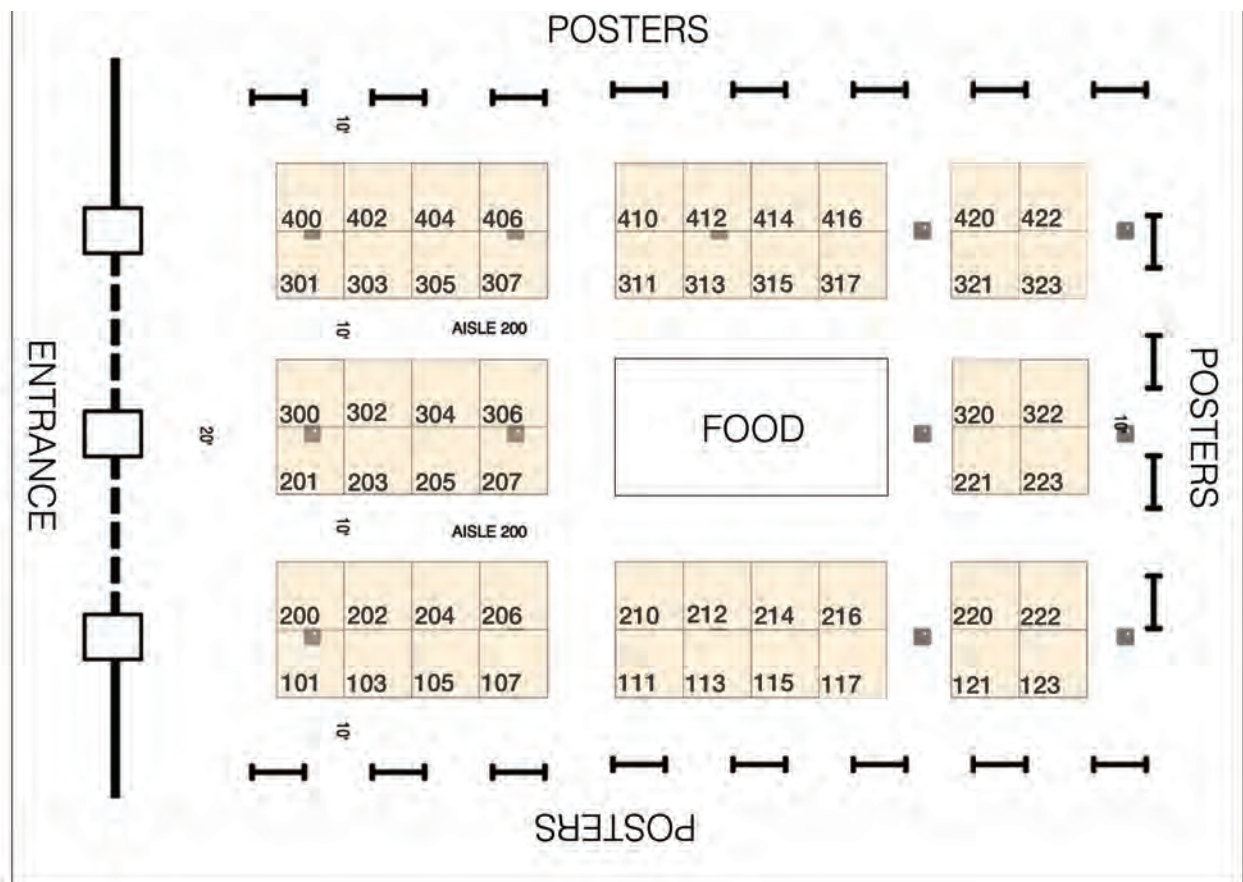
RioTinto Alcan

Hilton Meeting Room Floor Plan

Hilton Daytona Beach Oceanfront Resort Floor Plan



Expo Floor Plan & Booth Information



Exhibitor	Booth #	Exhibitor	Booth #
AACCM	305	Maney	T1
Alfred University	323	MEL Chemicals	121
American Ceramic Society	T2	Microtrac	303
AVS, Inc.	210	MTI	214
Buhler Inc.	301	Munich Int'l Trade Fairs (Ceramitec)	402
Carbolite, Inc.	206	Nabertherm	307
Centorr Vacuum Industries	416	Netsch Instruments N.A. LLC	201
CM Furnaces, Inc.	311	Netsch Premier Technologies LLC	203
Croda	222	New Lenox Machine Co. Inc.	306
Deltech, Inc.	422	NIST	111
Dorst America	220	NIST	113
Dunhua Zhengxing Abrasives Co., Ltd.	205	Oxy-Gon Industries, Inc.	320
Eirich Machines, Inc.	202	Powder Processing & Technology	412
ENrG Incorporated	300	PremaTech Advanced Ceramics	410
ESL ElectroScience	212	PSC, Inc	223
Evans Analytical Group	315	Quantachrome	313
fuelcellmaterials.com	107	R.D. Webb Co.	216
Gasbarre Products (PTX-Pentronix)	302	Resodyn Acoustic Mixers, Inc.	105
H.C. Starck Inc.	317	Robocasting Enterprises	304
Haiku Tech, Inc.	400	Sonoscan Inc.	221
Harper International	103	Swindell Dressler International	406
Harrop Industries	200	TA Instruments	404
Heraeus Materials Technology	204	TEAM by Sacmi (Riedhammer)	321
Hockmeyer Equipment Corp.	414	TevTech	207
IBU-tec Advanced Materials AG	115	Thermal Wave Imaging	420
Keith Company	322	Thermaltek, Inc.	117
Kennametal Sintec	101	Wiley	123

Plenary Speakers

2012 James I. Mueller Award

Title: "Ceramic Composites for High Temperature Aerospace Structures and Propulsion Systems"

9:00 AM



David B. Marshall

*Teledyne Scientific Company
USA*

Marshall received his BSc in 1971, and his PhD in 1975 in Physics from Monash University, Melbourne, Australia. Before joining Rockwell Science Center (now Teledyne Scientific Co.) in 1983, he held research positions at the University of New South Wales, Australia and at the University of California, Berkeley. His research background includes strengthening, toughening and reliability of advanced materials, especially fiber reinforced composites and structural ceramics.

2012 Bridge Building Award

Title: "Ceramics for Innovative Energy and Storage Systems"

9:40 AM



Alexander Michaelis

*Fraunhofer Institute for Ceramic Technology & Systems
Germany*

Michaelis studied physics at Heinrich-Heine University Düsseldorf. He earned his Ph.D. in electrochemistry. He spent one year as a faculty member at the University of North Carolina at Chapel Hill. In 1996, he changed towards industry and took a position as a process integration engineer at Siemens AG working in the field of microelectronics. He was delegated to the DRAM Development Alliance in East Fishkill, New York. After four years he returned to Germany and changed to Bayer AG in Leverkusen and then to the Bayer subsidiary H.C. Starck GmbH, where he was head of the departments Electroceramics and New Business Development.

Plenary Speaker

Title: "Advanced Battery Materials and Technologies for Next Generation Automobiles: Beyond Li-ion Batteries"

10:40 AM



Yoshio Ukyo

*Toyota Central R&D Laboratories, Inc.
Japan*

Ukyo is a Senior Fellow at the Toyota Central Research & Development Laboratories Inc., Japan. He received his B.S. degree in Metallurgy from Tokyo Institute of Technology (TIT) in Tokyo, Japan, in 1976 and M.S. degree in Metallurgy from TIT in 1978. He received Doctor of Engineering in Metallurgy in 1981 from TIT. From 1982 to 1983, he spent his time in the School of Chemical Engineering and Industrial Chemistry at the University of New South Wales in Sydney, Australia. Since 1984, he has been at Toyota Central Research & Development Laboratories Inc. His research interests are in materials development for electrochemical energy storage applications, which include lithium or lithium ion batteries for hybrid vehicles, and catalyst for automotive exhaust gas. He won the Excellent Paper Award from the Ceramics Society of Japan in 2004 for his work on catalyst materials. He has authored over 50 research publications and has more than 100 patents.

Plenary Speaker

Title: "Overview of Brazilian Ceramics R&D Activities and Challenges in Design and Processing of Multifunctional Ceramic Materials and Systems"

11:20 AM



Jose A. Varela

*Chemistry Institute, University of São Paulo State
Brazil*

Varela also directs the University Technological Transfer Office and the Laboratory of Advanced Ceramic Materials. His main research area is functional ceramics and thin films with special interest on varistors, gas sensors, dielectric and ferroelectric properties. He is author of over 500 publications and 10 patents and his work has been cited over 6,000 times (h-factor 34). He participated in several International Conferences as invited speaker and gave seminars at many prestigious institutions in USA and worldwide (Chile, Serbia, France, Colombia, Venezuela, Spain, Portugal, Slovenia, Mexico). He has received several awards including the Epon de Oro of the Ceramic Society of Spain, the Scopos award of the Elsevier, and the São Paulo State Governor award of technological invention. He received his doctoral degree in Materials Science at the University of Washington (USA). He is a member of the World Academy of Ceramics (WAC) and currently serving in the Advisory Board as well as the President of Prize Committee. He is Fellow of The American Ceramic Society and currently serving as President of Brazilian Materials Research Society (MRS-Brazil).

Technical Sessions By Symposium

Sessions	Date	Time	Location
S1: Mechanical Behavior and Performance of Ceramics & Composites			
Fracture, Mechanical Properties I	Jan. 23	1:30 – 5:40 p.m.	Coquina Salon D
Fracture, Mechanical Properties II	Jan. 24	8:00 a.m. – Noon	Coquina Salon D
Ceramic Fiber Reinforced Composites	Jan. 24	1:30 – 5:10 p.m.	Coquina Salon D
In-Situ Evaluations Using X-rays/Neutrons and NDE	Jan. 25	8:00 a.m. – Noon	Coquina Salon D
Environmental Effects of Ceramics and Composites	Jan. 25	1:30 – 3:20 p.m.	Coquina Salon D
Reliability	Jan. 25	3:20 – 5:00 p.m.	Coquina Salon D
Processing-Microstructures-Properties Correlations I	Jan. 26	8:00 a.m. – Noon	Coquina Salon D
Processing-Microstructure-Properties Correlations II	Jan. 26	1:30 - 6:00 p.m.	Coquina Salon D
Tribological Applications	Jan. 27	8:30 – 10:40 a.m.	Coquina Salon D
Characterization	Jan. 27	10:40 a.m. – 12:20 p.m.	Coquina Salon D
S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications			
Thermal Barrier Coatings I	Jan. 25	8:00 a.m. – Noon	Ponce de Leon
Thermal Barrier Coatings II	Jan. 25	1:30 – 5:20 p.m.	Ponce de Leon
Environmental Barrier Coatings and Protective Coating-Component Systems for Extreme Environments	Jan. 26	8:00 a.m. – Noon	Ponce de Leon
Coatings to Resist Wear, Erosion and Extreme Environments	Jan. 26	1:30 – 5:30 p.m.	Ponce de Leon
Advanced Processing and Protective Coating Systems for Extreme Environments	Jan. 27	8:20 – 11:20 a.m.	Ponce de Leon
S3: 9th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology			
SOFC Applications and Technology Overview	Jan. 25	1:30 – 3:20 p.m.	Coquina Salon H
SOFC Applications and IC Development	Jan. 25	3:20 – 5:50 p.m.	Coquina Salon H
Electrode Materials and Microstructural Engineering I	Jan. 26	8:00 – 10:00 a.m.	Coquina Salon H
Electrode Materials and Microstructural Engineering II	Jan. 26	10:00 a.m. – 12:10 p.m.	Coquina Salon H
Mechanical and Thermal Properties	Jan. 26	1:30 – 3:10 p.m.	Coquina Salon H
SOFC Electrolyte and Seal	Jan. 26	3:10 – 6:10 p.m.	Coquina Salon H
Novel Processing Approaches for Cell and Stack Materials	Jan. 27	8:00 – 10:00 a.m.	Coquina Salon H
Cell Component, Cell Design and Reliability	Jan. 27	10:00 a.m. – 12:20 p.m.	Coquina Salon H
S4: Armor Ceramics			
Impact, Penetration and Material Modeling	Jan. 23	1:30 – 6:00 p.m.	Coquina Salon E
Dynamic Behavior	Jan. 24	8:00 a.m. – Noon	Coquina Salon E
Transparent Materials I	Jan. 24	1:20 – 5:10 p.m.	Coquina Salon E
Transparent Materials II	Jan. 25	8:00 – 8:40 a.m.	Coquina Salon E
Opaque Materials I	Jan. 25	8:40 a.m. – Noon	Coquina Salon E
Opaque Materials II	Jan. 25	1:20 – 5:00 p.m.	Coquina Salon E
S5: Next Generation Bioceramics			
Porous Bioceramics - Joint Session with Symposium 9 on Porous Ceramics	Jan. 25	10:00 a.m. – 12:10 p.m.	Coquina Salon C
Advanced Processing of Bioceramics I	Jan. 25	1:30 – 3:10 p.m.	Coquina Salon C
Advanced Processing of Bioceramics II	Jan. 25	3:10 – 5:00 p.m.	Coquina Salon C
Bioinspired, Biomimetic, and Biologically-derived Ceramics I	Jan. 26	8:00 – 10:00 a.m.	Coquina Salon C
Bioinspired, Biomimetic, and Biologically-derived Ceramics II	Jan. 26	10:00 – 11:40 a.m.	Coquina Salon C
Advanced Processing of Bioceramics III	Jan. 26	1:30 – 3:30 p.m.	Coquina Salon C
Advanced Processing of Bioceramics IV	Jan. 26	3:30 – 5:50 p.m.	Coquina Salon C
Medical and Dental Applications of Bioceramics I	Jan. 27	8:00 – 9:50 p.m.	Coquina Salon C
Medical and Dental Applications of Bioceramics II	Jan. 27	9:50 – 11:30 a.m.	Coquina Salon C
S6. International Symposium on Ceramics for Electric Energy Generation, Storage and Distribution			
Combined with Symposium 14			
S7: 6th International Symposium on Nanostructured Materials and Nano-Composites			
Nanomaterials for Photocatalysis, Solar Hydrogen and Thermoelectrics I	Jan. 23	1:30 – 3:20 p.m.	Coquina Salon B
Nanomaterials for Photocatalysis, Solar Hydrogen and Thermoelectrics II	Jan. 23	3:20 – 6:00 p.m.	Coquina Salon B
Nanodevices and Industrial Application	Jan. 24	8:00 – 10:00 a.m.	Coquina Salon B
Synthesis and Industrial Development of Nanoparticles	Jan. 24	10:00 a.m. – Noon	Coquina Salon B
Industrial Application of Nanomaterials and One Dimensional Structures	Jan. 24	1:30 – 3:20 p.m.	Coquina Salon B
Nanostructured Membranes, Functional Coatings and Nanocomposites	Jan. 24	3:20 – 6:00 p.m.	Coquina Salon B
Nanotubes, Nanowires and Other One-dimensional Structures	Jan. 25	8:00 – 10:00 a.m.	Coquina Salon B

Technical Sessions By Symposium

Sessions	Date	Time	Location
S7: 6th International Symposium on Nanostructured Materials and Nano-Composites (continued)			
Nanostructured Materials and their Application	Jan. 25	10:00 a.m. – 12:10 p.m.	Coquina Salon B
Bio-active Nanomaterials and Nanostructured Materials for Bio-medical Applications	Jan. 25	1:30 – 3:20 p.m.	Coquina Salon B
Synthesis and Characterization Techniques for Nanostructures	Jan. 25	3:20 – 6:00 p.m.	Coquina Salon B
Synthesis, Functionalization, Processing and Self-assembly of Nanoparticles I	Jan. 26	8:00 – 10:00 a.m.	Coquina Salon B
Synthesis, Functionalization, Processing and Self-assembly of Nanoparticles II	Jan. 26	10:00 a.m. – Noon	Coquina Salon B
S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf			
In Honor of Professor R. Judd Diefendorf	Jan. 23	1:30 – 5:50 p.m.	Coquina Salon A
Advanced Forming and Powder Technology	Jan. 24	8:10 a.m. – Noon	Coquina Salon A
Advanced Composite Manufacturing	Jan. 24	1:30 – 3:20 p.m.	Coquina Salon A
SPS and Micro-Wave Assisted Technology	Jan. 24	3:20 – 5:20 p.m.	Coquina Salon A
Green Manufacturing	Jan. 25	8:00 – 10:00 a.m.	Coquina Salon A
Joining and Integration	Jan. 25	10:00 a.m. – Noon	Coquina Salon A
Novel Processing	Jan. 25	1:30 – 5:20 p.m.	Coquina Salon A
Processing, Structure and Properties	Jan. 26	8:10 a.m. – Noon	Coquina Salon A
S9: Porous Ceramics: Novel Developments and Applications			
Processing Methods for Porous Ceramics I	Jan. 23	1:30 – 3:20 p.m.	Coquina Salon C
Processing Methods for Porous Ceramics II	Jan. 23	3:20 – 6:20 p.m.	Coquina Salon C
Membranes and High SSA Ceramics	Jan. 24	8:00 – 10:10 a.m.	Coquina Salon C
Structure and Properties of Porous Ceramics I	Jan. 24	10:10 a.m. – 12:10 p.m.	Coquina Salon C
Structure and Properties of Porous Ceramics II	Jan. 24	1:30 – 3:10 p.m.	Coquina Salon C
Mechanical Properties of Porous Ceramics	Jan. 24	3:10 – 5:20 p.m.	Coquina Salon C
Applications of Porous Ceramics	Jan. 25	8:00 – 10:00 a.m.	Coquina Salon C
S10: Thermal Management Materials and Technologies			
Characterization of Thermal Management Materials	Jan. 26	1:30 – 3:10 p.m.	Coquina Salon B
Processing and Integration Strategies for Thermal Management Materials	Jan. 26	3:10 – 4:50 p.m.	Coquina Salon B
S11: Nanomaterials for Sensing Applications: From Fundamentals to Device Integration			
Sensing Devices I	Jan. 26	8:00 – 11:30 a.m.	Oceanview
Sensing Devices II	Jan. 26	1:30 – 3:00 p.m.	Oceanview
S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)			
Structural Stability under Extreme Environments I	Jan. 25	8:00 – 10:00 a.m.	Coquina Salon F
Structural Stability under Extreme Environments II and Novel Processing Methods I	Jan. 25	10:00 a.m. – Noon	Coquina Salon F
New Methods for Joining	Jan. 25	1:30 – 3:30 p.m.	Coquina Salon F
Novel Processing Methods II	Jan. 25	3:30 – 6:10 p.m.	Coquina Salon F
Processing, Structure and Property Relationships	Jan. 26	8:00 – 10:00 a.m.	Coquina Salon F
Novel Characterization Methods	Jan. 26	10:00 a.m. – Noon	Coquina Salon F
Design of New Compositions/Composites with Fascinating Properties	Jan. 26	1:30 – 3:30 p.m.	Coquina Salon F
Fundamental Understanding and Novel Processing Methods	Jan. 26	3:30 – 6:10 p.m.	Coquina Salon F
Methods for Improving Mechanical, Oxidation and Thermal Shock Resistance	Jan. 27	8:00 – 10:00 a.m.	Coquina Salon F
Fundamental Understanding of the Structure-Property Relationships	Jan. 27	10:00 – 11:40 a.m.	Coquina Salon F
S13: Advanced Ceramics and Composites for Nuclear Applications			
Ceramics for Nuclear Reactors and Fuels	Jan. 26	8:00 a.m. – Noon	Coquina Salon E
Advanced Non-oxide Ceramics: Fabrication, Characterization, and Radiation Damage Tolerance	Jan. 26	1:30 – 6:10 p.m.	Coquina Salon E
Ceramics and Glass for Waste Immobilization	Jan. 27	8:00 – 10:00 a.m.	Coquina Salon E
Joining and Coating	Jan. 27	10:00 – 11:20 a.m.	Coquina Salon E
S14: Advanced Materials and Technologies for Rechargeable Batteries			
Advanced Materials and Designs for Lithium Batteries	Jan. 23	1:30 – 6:10 p.m.	Coquina Salon H
Materials Characterization and Diagnostics For Lithium Batteries	Jan. 24	8:00 – 11:50 a.m.	Coquina Salon H
Ceramics for Electric Energy Generation, Storage, and Distribution	Jan. 24	1:30 – 5:10 p.m.	Coquina Salon H
Lithium Metal Air Batteries and Beyond Lithium Batteries	Jan. 25	8:00 a.m. – 12:10 p.m.	Coquina Salon H

Technical Sessions By Symposium

Sessions	Date	Time	Location
FS1: Geopolymers, Inorganic Polymers, Hybrid Organic-Inorganic Polymer Materials			
Chemistry, Processing and Microstructure	26-Jan. 26	1:30 – 6:00 p.m.	Coquina Salon A
Fiber-reinforced Geopolymer Composites	27-Jan. 27	8:00 – 10:00 a.m.	Coquina Salon A
Bioapplications, Inorganic-organic Hybrids, and Phosphate-based Inorganic Polymers	27-Jan. 27	10:00 a.m. – Noon	Coquina Salon A
FS2: Computational Design, Modeling, and Simulation of Ceramics and Composites			
Simulation of Structure and Properties of Advanced Ceramics	Jan. 23	1:30 – 5:40 p.m.	Ponce de Leon
Characterization and Modeling of Surfaces, Interfaces and Grain Boundaries at Multiple Scales	Jan. 24	8:00 – 11:40 a.m.	Ponce de Leon
Novel Simulation Method and Virtual Material Design	Jan. 24	1:30 – 5:10 p.m.	Ponce de Leon
FS3: Next Generation Technologies for Innovative Surface Coatings			
Technology for Innovative Surface Engineering	Jan. 23	1:30 – 6:20 p.m.	Coquina Salon G
Next Generation Production Methods for Surface Engineering	Jan. 24	8:20 a.m. – Noon	Coquina Salon G
Longer Life Solution, Technological Problems and Solutions, and Mass Production	Jan. 24	1:30 – 4:40 p.m.	Coquina Salon G
Low Friction Coating	Jan. 25	8:20 a.m. – 12:10 p.m.	Coquina Salon G
FS4: Advanced (Ceramic) Materials and Processing for Photonics and Energy			
Multifunctional Materials for Biological Applications	Jan. 24	8:00 – 10:10 a.m.	Oceanview
Optical Properties of Nanomaterials	Jan. 24	10:10 a.m. – 12:10 p.m.	Oceanview
Advanced Materials for Environmental Applications I	Jan. 24	1:30 – 3:20 p.m.	Oceanview
Solid State Ionics	Jan. 24	3:20 – 5:20 p.m.	Oceanview
Photoelectrochemical Systems	Jan. 25	8:00 – 10:00 a.m.	Oceanview
Photovoltaics	Jan. 25	10:00 a.m. – 12:20 p.m.	Oceanview
Multiferroics for Photovoltaics	Jan. 25	1:30 – 3:20 p.m.	Oceanview
Advanced Materials for Environmental Applications II	Jan. 25	3:20 – 5:20 p.m.	Oceanview
European Union - USA Engineering Ceramics Summit			
EU/USA Summit I	Jan. 23	1:30 – 3:20 p.m.	Coquina Salon F
EU/USA Summit II	Jan. 23	3:20 – 5:50 p.m.	Coquina Salon F
EU/USA Summit III	Jan. 24	8:00 – 9:50 a.m.	Coquina Salon F
EU/USA Summit IV	Jan. 24	9:50 – 11:50 a.m.	Coquina Salon F
EU/USA Summit V	Jan. 24	1:30 – 3:20 p.m.	Coquina Salon F
EU/USA Summit VI	Jan. 24	3:20 – 5:50 p.m.	Coquina Salon F
Global Young Investigators Forum			
Frontiers in Ceramic Sensors I	Jan. 25	1:30 – 3:10 p.m.	Coquina Salon G
Frontiers in Ceramic Sensors II	Jan. 25	3:10 – 4:50 p.m.	Coquina Salon G
Frontiers in Ceramic Hybrid Materials and Composites for Biomedical Applications	Jan. 26	8:00 – 10:00 a.m.	Coquina Salon G
Frontiers in Ceramic Chemistry and Biomedical Applications	Jan. 26	10:00 a.m. – Noon	Coquina Salon G
Frontiers in Ceramic Energy Generation and Storage	Jan. 26	1:30 – 3:30 p.m.	Coquina Salon G
Frontiers in Ceramic Characterization and Catalytical Properties	Jan. 26	3:30 – 5:50 p.m.	Coquina Salon G
Frontiers in Hybrid Materials and Composites	Jan. 27	8:00 – 10:00 a.m.	Coquina Salon G
Frontiers in Precursor and Ceramic Chemistry	Jan. 27	10:00 a.m. – Noon	Coquina Salon G

Symposia

2012 Program Chair: Sanjay Mathur University of Cologne

Symposium 1: Mechanical Behavior and Performance of Ceramics & Composites

Organizers: Dileep Singh, Argonne National Lab, USA; Jonathan A. Salem, NASA Glenn Research Center, USA; Jon Almer, Argonne National Laboratory, USA; Shaoming Dong, Shanghai Institute of Ceramics, China; Monica Ferraris, Politecnico di Torino, Italy; Y. Zhou, Harbin Institute of Technology, Harbin, China; Michael Halbig, NASA Glenn Research Center, USA; Greg Hilmas, Missouri Science & Technology Institute, USA; Juergen Heinrich, TU Clausthal, Clausthal University of Technology, Germany; Andrew Wereszczak, Oak Ridge National Laboratory, USA; J. G. Sun, Argonne National Laboratory, USA

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

Organizers: Dongming Zhu, NASA Glenn Research Center, USA; H. T. Lin, Oak Ridge National Laboratory, USA; Uwe Schulz, German Aerospace Center, Germany; Yutaka Kagawa, University of Tokyo, Japan; Rishi Raj, University of Colorado at Boulder, USA; David Marshall, Teledyne Scientific and Imaging Company, USA; Irene T. Spitsberg, Kennametal Inc., USA; Layo Ajayi, Argonne National Laboratory, USA; Yong-Ho Sohn, University of Central Florida, USA; Robert Vaßen, Forschungszentrum Jülich GmbH, Germany; Rodney W. Trice, Purdue University, USA; Ping Xiao, University of Manchester, UK; Jow-Lay Huang, National Cheng Kung University, Taiwan; Kyoung Il Moon, Korea Institute of Industrial Technology, Korea; Douglas E. Wolfe, Pennsylvania State University, USA

Symposium 3: 9th International Symposium on Solid Oxide Fuel Cells: Materials, Science, and Technology

Organizers: Prabhakar Singh, Center for Clean Energy Engineering, University of Connecticut, USA; Narottam P. Bansal, NASA Glenn Research Center, USA; J. S. Chung, POSTECH, Korea; Tatsumi Ishihara, Kyushu University, Japan; Mihails.Kusnezoff, Fraunhofer IKTS, Germany; Nguyen. Q. Minh, Consultant, USA; Mogens Mogensen, Risoe National Laboratory, Denmark; J. O'Brien, INL, USA; Jeffrey W. Stevenson, Pacific Northwest National Laboratory, USA; A. K. Suri, BARC, India; Toshio Suzuki, AIST, Japan; Eric D. Wachsman, University of Maryland, USA

Symposium 4: Armor Ceramics

Organizers: James Campbell, US Army Research Laboratory, USA; Lisa Prokurat Franks, US Army TARDEC, USA; Todd L. Jessen, US Army Research Laboratory; Jerry LaSalvia, US Army Research Laboratory, USA; Brian Leavy, US Army Research Laboratory, USA; James McCauley, US Army Research Laboratory, USA; David Stepp, US Army Research Office, USA; Jeffrey J. Swab, US Army Research Laboratory, USA; Andrew Wereszczak, Oak Ridge National Laboratory, USA

Symposium 5: Next Generation Bioceramics and Biocomposites

Organizers: Roger Narayan, University of North Carolina, USA; Chikara Ohtsuki, Nagoya University, Japan; Markus Reiterer, Medtronic, Inc., USA; Bikramjit Basu, Indian Institute of Technology, India; Akiyoshi Osaka, Okayama University, Japan

Symposium 6: International Symposium on Ceramics for Electric Energy Generation, Storage, and Distribution

Organizers: H. T. Lin, Oak Ridge National Laboratory, USA; Terry Tritt, Clemson University, USA; Franziska Scheffler, Otto-von-Guericke-Universität, Germany; Anke Weidenkaff, EMPA, Switzerland; Tohru Sekino, Tohoku University, Japan; Kuan-Zong Fung, National Cheng Kung University, Taiwan; Kunihito Koumoto, Nagoya University, Japan; Lidong Chen, Shanghai Institute of Ceramics, China; Tseung-Yuen Tseng, National Chiao-Tung University, Taiwan; Hai-Doo Kim, Korea Institute of Materials Science, Korea

Symposium 7: 6th International Symposium on Nanostructured Materials and Nanocomposites

Organizers: Sanjay Mathur, University of Cologne, Germany; Suprakas Sinha Ray, DST/CSIR- National Centre for Nanomaterials, South Africa; Yoon-Bong (Y.B.) Hahn, Chonbuk National University, Korea; Yasuhiro Tachibana, Osaka University, Japan; Alberto Vomiero; Yoshitake Masuda

Symposium 8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf

Organizers: Tatsuki Ohji, AIST, Japan; Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center, USA; Walter Krenkel, University of Bayreuth, Germany; Soshu Kirihaara, Osaka University, Japan; Tomaz Kosmac, Josef Stefan Institute, Slovenia; Hejun Li, Northwestern Polytechnical University, P. R. China; Kun-Lin Lin, National Nano Device Laboratories (NDL), Taiwan; Eugene Medvedovski, Umicore Indium Products, USA; Robert J. Shinavski, Hyper-Therm High-Temperature Composites, USA; Richard D. Sisson, Jr., Worcester Polytechnic Institute, USA; Roland Weiss, Schunk Kohenstofftechnik GmbH, Germany

Symposium 9: Porous Ceramics: Novel Developments and Applications

Organizers: Paolo Colombo, University of Padova, Italy; Sujanto Widjaja, Corning Incorporated, USA; Yuji Iwamoto, Nagoya Institute of Technology, Japan; Aldo Boccaccini, University of Erlangen-Nuremberg, Germany; Thomas R. Watkins, Oak Ridge National Laboratory, USA

Symposium 10: Thermal Management Materials and Technologies

Organizers: Andrew L. Gyekenyesi, Ohio Aerospace Institute, NASA Glenn Research Center, USA; Mrityunjay Singh, Ohio Aerospace Institute, NASA Glenn Research Center, USA; Dileep Singh, Argonne National Laboratory, USA; Michiko Kusunoki, Nagoya University, Japan; Rajiv Asthana, University of Wisconsin-Stout, USA; Ajit K. Roy, Air Force Research Laboratory, WPAFB, USA; Walter Krenkel, University of Bayreuth, Germany; Tatsuki Ohji, AIST, Japan

Symposium 11: Nanomaterials for Sensing Applications: From Fundamentals to Device Integration

Organizers: Francisco Hernandez-Ramirez, Catalonia Institute for Energy Research and University of Barcelona Barcelona, Spain; Jia Grace Lu, University of Southern California, USA; Alexander Gaskov, Moscow State University, Russia; Gerhard Müller, EADS Deutschland GmbH - Innovation Works, Munich, Germany; Ignasi Vilajosana, Worldsensing, Spain

Symposium 12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)

Organizers: Yanchun Zhou, Aerospace Research Institute of Materials and Processing Technology, China; Erica L. Corral, University of Arizona, USA; Joyce Deaver, NASA Glenn Research Center, USA; Per Eklund, Linköping University, Sweden; William G. Fahrenholtz, Missouri University of Science and Technology, USA; Frederic Monteverde, Institute of Science and Technology of Ceramics-CNR, Italy; Miladin Radovic, Texas A&M University, USA; Jochen Schneider, Materials Chemistry, RWTH Aachen, Germany; Luc J. Vanpeperre, Imperial College London, UK; Guo-Jun Zhang, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

Symposium 13: Advanced Ceramics and Composites for Nuclear Applications

Organizers: Kevin M. Fox, Savannah River National Laboratory, USA; Yutai Katoh, Oak Ridge National Laboratory, USA; Josef Matyas, Pacific Northwest National Laboratory, USA; Yasuhiro Tachibana, Osaka University, Japan; S.K. Sundaram, Alfred University, USA

Symposium 14: Advanced Materials and Technologies for Rechargeable Batteries

Organizers: Ilias Belharouak, Argonne National Laboratory, USA; Mickael Badding, Corning, Inc, USA; Marca Doeff, Lawrence Berkeley National Laboratory, USA; Dominique Guyomard, Institut des Matériaux Jean Rouxel, France; Shirley Meng, University of California San Diego, USA; Jai Prakash, Illinois Institute of Technology, USA; Dileep Singh, Argonne National Laboratory, USA; Yang-Kook Sun, Hanyang University, Republic of Korea

Focused Session 1: Geopolymers, Inorganic Polymers, Hybrid Organic - Inorganic Polymer Materials

Organizers: Waltraud M. Kriven, University of Illinois at Urbana, USA; Kenneth J.D. MacKenzie, Victoria University of Wellington, New Zealand

Focused Session 2: Computational Design, Modeling, and Simulation of Ceramics and Composites

Organizers: Jingyang Wang, Institute of Metal Research, Chinese Academy of Sciences, China; Brian Good, NASA Glenn Research Center, USA; Jan Hamaekers, Fraunhofer Institute for Algorithms and Scientific Computing SCAL, Germany; Michael J. Hoffmann, University of Karlsruhe, Germany; Jian Luo, Clemson University, USA; Katsuyuki Matsunaga, Kyoto University, Japan; Paul Rulis, University of Missouri-Kansas City, USA; Hans J. Seifert, Technical University of Freiberg, Germany; Yanchun Zhou, Institute of Metal Research, Chinese Academy of Sciences, China

Focused Session 3: Next Generation Technologies for Innovative Surface Coatings

Organizers: Taejin Hwang, Korea Institute of Industrial Technology, Korea; Kyoung Il Moon, Korea Institute of Industrial Technology, Korea; Kostya Ostrikov, CSIRO Materials Science and Engineering, Australia; Alan W. Weimer, University of Colorado, USA; Dileep Singh, Argonne National Laboratory, USA; Peter Oliveira, Leibniz-Institute for New Materials, Germany; Sang Sub Kim, Inha University, Korea; Se Hoon Kwon, Pusan National University, Korea; Seong-Gi Kim, LG Innotek, Korea; Tadachika Nakayama, Nagaoka University of Technology, Japan; Jun Akedo, AIST, Japan; Tim Hosenfeldt, Schaeffler Group, Germany

Focused Session 4: Advanced (Ceramic) Materials and Processing for Photonics and Energy

Organizers: Gunnar Westin, Uppsala University, Ångström Laboratory, Sweden; Federico Rosei, INRS-EMT, University du Quebec, Canada; Alberto Vomiero, CNR – University of Brescia, Italy

European Union - USA Engineering Ceramics Summit

Organizers: Sanjay Mathur, University of Cologne, Germany; Mryityunjay Singh, NASA Glenn Research Center, USA; Alex Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems; Juan Ramon Morante, IREC, Spain; Pavol Sajgalik, Slovak Academy of Sciences, Slovakia; Giorgio Sberveglieri, University of Brescia, Italy; George Kiriakidis, FORTH, Greece; Danilo Suvarov, Institut "Jožef Stefan," Slovenia; Jacques Lamon, University of Bordeaux, France

Global Young Investigators Forum

Organizers: Thomas Fischer, Institute of Inorganic Chemistry, University of Cologne, Germany; K.R.G. Karthik, NTU, Singapore; Sanyucta Kumari, Banaras Hindu University, India; Artem Marikutsa, Moscow State University, Russia; Andrea Ponzoni, University of Brescia, Italy; J. Daniel Prades, University of Barcelona, Spain; Sven Rank, Institute of Physical Chemistry, University of Tübingen, Germany; Diptiranjan Sahu, University of Witwatersrand, South Africa; Kai Zhang, Institute of Physical Chemistry, University of Cologne, Germany; Elena Timofeeva, Argonne National Laboratory, USA; Joaquin Ramirez Rico, University of Seville, Spain; Satoko Tasaki, Joining and Welding Research Institute, Osaka University, Japan

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2012-2013



FEBRUARY 26-MARCH 1, 2012

Materials Challenges in Alternative and Renewable Energy - MCARE 2012
Hilton Clearwater Beach Resort
Clearwater Beach, Florida, USA
www.ceramics.org/mcare2012

MARCH 28-29, 2012

St. Louis Section/RCD 48th Annual Symposium
Hilton St. Louis Airport Hotel
St. Louis, Missouri, USA

APRIL 16-19, 2012

IMAPS/ACerS
8th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT 2012)
Radisson Blu Hotel
Erfurt, Germany
www.imaps.org/ceramics/index.htm

MAY 20-24, 2012

Glass & Optical Materials Division Meeting
Hilton St. Louis at the Ballpark
St. Louis, Missouri, USA
www.ceramics.org/gomd2012

JUNE 10-12, 2012

3rd Advances in Cement-based Materials
The University of Texas at Austin
Austin, Texas, USA
www.ceramics.org/cements2012

JULY 16-19, 2012

4th International Congress on Ceramics, including 3rd Ceramic Leadership Summit Track
Sheraton Chicago Hotel & Towers
Chicago, Illinois, USA
www.ceramics.org/icc4

SEPTEMBER 10-13, 2012

Innovations in Biomedical Materials
Hilton North Raleigh-Midtown
Raleigh, North Carolina, USA
www.ceramics.org/biomaterials2012

OCTOBER 7-11, 2012

MS&T'12 and ACerS 114th Annual Meeting
David L. Lawrence Convention Center
Pittsburgh, Pennsylvania, USA
www.matscitech.org

JANUARY 23-25

Electronic Materials and Applications
DoubleTree Resort Orlando International Drive
Orlando, Florida, USA
www.ceramics.org/ema2013

JANUARY 27-FEBRUARY 1, 2013

37th International Conference and Expo on Advanced Ceramics and Composites - ICACC'13
Hilton Daytona Beach Resort and Ocean Center
Daytona Beach, Florida, USA
www.ceramics.org/daytona2013

JUNE 2-7, 2013

PACRIM 10 - The 10th Pacific Rim Conference on Ceramic and Glass Technology Including GOMD
Hotel Del Coronado
San Diego, California, USA
www.ceramics.org/pacrim10

AUGUST 4-7

ICCPS-13: International Conference on Ceramic Processing Science
Hilton Portland & Executive Tower
Portland, Oregon, USA

SEPTEMBER 10-13, 2013

UNITECR 2013
The Fairmont Empress & Victoria Conference Centre
Victoria, British Columbia, Canada
www.unitecr2013.org

OCTOBER 27-31

MS&T'13: Materials Science & Technology Conference and Exhibition, combined with ACerS 115th Annual Meeting
The Palais des congrès de Montréal
Montréal, Québec, Canada

Oral Presenters

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A														
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Ahmad, M.	27-Jan	11:20AM	Coquina Salon G	68	Cartier, D.	23-Jan	2:30PM	Coquina Salon H	27					
Ahmad, N.	27-Jan	9:50AM	Coquina Salon C	66	Casals Guillen, O.	25-Jan	2:10PM	Coquina Salon G	50					
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Anderson, C.E.	23-Jan	5:20PM	Coquina Salon E	25	Chen, X.	23-Jan	4:30PM	Ponce de Leon	28					
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Angle, J.P.	27-Jan	9:20AM	Coquina Salon H	65	Cheng, Y.	23-Jan	1:30PM	Coquina Salon B	25					
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Aoki, T.	26-Jan	11:20AM	Coquina Salon F	58	Chevalier, J.	25-Jan	2:10PM	Coquina Salon C	48					
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Asthana, R.	26-Jan	3:30PM	Coquina Salon B	61	Cho, H.	23-Jan	2:10PM	Coquina Salon G	28					
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Baik, K.	24-Jan	10:10AM	Coquina Salon G	32	Choi, J.	25-Jan	4:10PM	Coquina Salon H	47					
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Batyrev, I.G.	24-Jan	11:00AM	Ponce de Leon	32	Cicoira, F.	25-Jan	3:20PM	Oceanview	50					
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Bernardo, E.	25-Jan	4:00PM	Coquina Salon A	49	Colombo, P.	24-Jan	11:10AM	Coquina Salon C	31					
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Bhandavat, R.	24-Jan	3:50PM	Coquina Salon B	35	Corral, E.L.	24-Jan	2:00PM	Coquina Salon A	35					
Bhandavat, R.	26-Jan	11:20AM	Coquina Salon B	56	Corral, E.L.	24-Jan	8:00AM	Coquina Salon B	30					
Bhattacharya, S.	24-Jan	11:10AM	Coquina Salon H	31	Couegnat, G.	24-Jan	4:30PM	Ponce de Leon	37					
Birnie, D.P.	25-Jan	11:20AM	Coquina Salon H	45	Cuisinier, M.	24-Jan	10:10AM	Coquina Salon H	31					
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Boccaccini, A.R.	26-Jan	2:50PM	Coquina Salon C	61	Dahotre, N.	25-Jan	4:00PM	Coquina Salon C	48					
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Brennan, R.E.	25-Jan	8:00AM	Coquina Salon E	42	DeLuca, V.	25-Jan	11:20AM	Coquina Salon E	42					
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Saruhan-Brings, B.	26-Jan	2:00PM	Oceanview	62	Tachibana, Y.	24-Jan	10:40AM	Oceanview	33
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Schmidt, K.	25-Jan	11:40AM	Coquina Salon E	42	Tandon, R.	24-Jan	8:20AM	Coquina Salon D	29
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Mettenboerger, A.	24-Jan	5:00PM	Exhibit Hall	40	Wortmann, L.	25-Jan	5:00PM	Exhibit Hall	52
Mettenboerger, A.	25-Jan	5:00PM	Exhibit Hall	52	Wright, J.C.	24-Jan	5:00PM	Exhibit Hall	39
Miller, S.L.	24-Jan	5:00PM	Exhibit Hall	39	Wu, P.	25-Jan	5:00PM	Exhibit Hall	52
Mirelman, L.K.	24-Jan	5:00PM	Exhibit Hall	40	Wu, Y.	24-Jan	5:00PM	Exhibit Hall	39
Mishra, B.K.	25-Jan	5:00PM	Exhibit Hall	52	Xie, Z.	25-Jan	5:00PM	Exhibit Hall	53
Mitic, V.	25-Jan	5:00PM	Exhibit Hall	52	Yan, W.	25-Jan	5:00PM	Exhibit Hall	52
Mitsuhashi, M.	24-Jan	5:00PM	Exhibit Hall	40	Yoon, J.	25-Jan	5:00PM	Exhibit Hall	51
Miyata, K.	25-Jan	5:00PM	Exhibit Hall	53	Yoon, M.	25-Jan	5:00PM	Exhibit Hall	51
Moon, K.	24-Jan	5:00PM	Exhibit Hall	40	Zhang, L.	25-Jan	5:00PM	Exhibit Hall	52
Morante, J.	25-Jan	5:00PM	Exhibit Hall	53	Zhang, Y.	25-Jan	5:00PM	Exhibit Hall	52
Mori, A.	24-Jan	5:00PM	Exhibit Hall	39	Zou, J.	25-Jan	5:00PM	Exhibit Hall	51
Morrissey, A.	25-Jan	5:00PM	Exhibit Hall	52					

Monday, January 23, 2012

Plenary Session

Room: Coquina Salon D

8:30 AM

Opening Remarks

Dileep Singh, Sanjay Mathur

9:00 AM

(ICACC-PL-001-2012) Ceramic Composites for High Temperature Aerospace Structures and Propulsion Systems (Invited)

D. Marshall*, Teledyne Scientific, USA

9:40 AM

(ICACC-PL-002-2012) Ceramics for innovative energy and storage systems (Invited)

A. Michaelis*, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany

10:20 AM

Break

10:40 AM

(ICACC-PL-003-2012) Advanced Battery Materials and Technologies for Next Generation Automobiles: Beyond Li-ion Batteries (Invited)

Y. Ukyo*, TOYOTA Central Research & Development Laboratories Inc., Japan

11:20 AM

(ICACC-PL-004-2012) Overview of Brazilian Ceramics R&D Activities and Challenges in Design and Processing of Multifunctional Ceramic Materials and Systems (Invited)

J. Varela*, M. A. Ramirez, E. Longo, Universidade Estadual Paulista, Brazil

European Union - USA Engineering Ceramics Summit

EU/USA Summit I

Room: Coquina Salon F

Session Chair: Sanjay Mathur, University of Cologne

1:30 PM

(ICACC-EUUSA-001-2012) Porous Wall, Hollow Glass Microspheres (Invited)

G. Wicks*, Savannah River National Lab, USA

2:00 PM

(ICACC-EUUSA-002-2012) New ceramic membranes for energy- and environmental applications (Invited)

A. Michaelis*, I. Voigt, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany

2:30 PM

(ICACC-EUUSA-003-2012) Next Generation Microturbine with Ceramic Hot-Section (Invited)

J. Kesseli*, T. Wolf, J. Nash, Brayton Energy, USA

3:00 PM

Break

EU/USA Summit II

Room: Coquina Salon F

Session Chair: Mrityunjay Singh, OAI/NASA GRC

3:20 PM

(ICACC-EUUSA-004-2012) Advances in Ceramic Membranes for H₂/Syngas Production and Clean Energy Applications (Invited)

J. C. Chen*, D. M. Taylor, M. F. Carolan, Ceramatec, Inc., USA; D. W. Studer, Air Products and Chemicals, Inc., USA

3:50 PM

(ICACC-EUUSA-005-2012) Polymer-Derived-Ceramics Research and Development in Europe (Invited)

P. Colombo*, University of Padova, Italy

4:20 PM

(ICACC-EUUSA-006-2012) Innovations in bioactive ceramics and glasses for tissue engineering, drug delivery and regenerative medicine (Invited)

A. Boccaccini*, University of Erlangen-Nuremberg, Germany

4:50 PM

(ICACC-EUUSA-007-2012) Silica Mesoporous Particles in Nanomedicine: State of the Art (Invited)

A. Garcia-Bennett*, Uppsala University, Sweden

5:20 PM

(ICACC-EUUSA-008-2012) Nonhydrolytic Sol-Gel Reactions for the Synthesis of Oxide Materials (Invited)

J. Pinkas*, Masaryk University, Czech Republic

S1: Mechanical Behavior and Performance of Ceramics & Composites

Fracture, Mechanical Properties I

Room: Coquina Salon D

Session Chairs: Jon Salem, NASA Glenn Research; Joaquin Ramirez-Rico, Universidad de Sevilla - CSIC

1:30 PM

(ICACC-S1-001-2012) Meeting the Challenges in Thermomechanical Characterization of CMCs (Invited)

F. Zok*, University Of California, Santa Barbara, USA

2:00 PM

(ICACC-S1-002-2012) Modeling of Delamination and Damage Processes in CMC Components

R. S. Kumar*, United Technologies Research Center, USA

2:20 PM

(ICACC-S1-003-2012) High-Temperature Interlaminar Tension Test Method Development for Ceramic Matrix Composites

T. Engel*, Hyper-Therm HTC, Inc., USA

2:40 PM

(ICACC-S1-004-2012) Electrical Resistivity of a Variety of SiC/SiC Composites

G. Morscher*, J. Dainovic, The University of Akron, USA; C. Smith, Ohio Aerospace Institute, USA

3:00 PM

Break

3:20 PM

(ICACC-S1-005-2012) Laser Heat Flux Testing and Characterization of Composite Materials using Digital Image Correlation

M. D. Novak*, F. W. Zok, University of California Santa Barbara, USA

3:40 PM

(ICACC-S1-006-2012) Evaluating the Effect of Embedded Sensors on CMC Mechanical Properties

C. Smith*, Ohio Aerospace Institute, USA; J. Kiser, R. Okojie, L. Evans, NASA GRC, USA; A. Calomino, NASA LARC, USA

4:00 PM

(ICACC-S1-007-2012) Thermal Shock, Microstructure, Ionic Conductivity, and OOF₂ Modeling of 8YSZ Composites

J. P. Angle*, M. M. Chan, M. L. Mecartney, University of California, Irvine, USA

4:20 PM

(ICACC-S1-008-2012) Measurement of Temperature Dependence of Thermal Stress in Polycrystalline Oxide Ceramics
Y. Dong*, H. Kakisawa, Y. Kagawa, The University of Tokyo, Japan

4:40 PM

(ICACC-S1-009-2012) Tensile fracture mechanism of silicon impregnated C/C composite
A. Ohtani*, K. Goto, Japan Aerospace Exploration Agency, Japan

5:00 PM

(ICACC-S1-010-2012) Effects of Target Support on Foreign Object Damage in an Oxide/Oxide CMC
D. C. Faucett*, M. Ayre, J. M. Wright, S. R. Choi, NAVAIR, USA

5:20 PM

(ICACC-S1-011-2012) Machinability Studies of Al/SiC/B4C Metal Matrix Hybrid Composites using PCD 1600 grade insert
A. Maheshwari*, A. Erode Natarajan, A. S. Teja, Sri Venkateswara College of Engineering, India

S4: Armor Ceramics**Impact, Penetration and Material Modeling**

Room: Coquina Salon E

Session Chair: Brian Leavy, Army Research Lab

1:30 PM

(ICACC-S4-001-2012) Mesoscale Modeling of the Dynamic Response of Armor Ceramics (Invited)
T. H. Antoun*, O. Vorobiev, E. Herbold, I. Lomov, Lawrence Livermore National Laboratory, USA

2:00 PM

(ICACC-S4-002-2012) Mechanism-Based Modeling of the Failure of Brittle Materials under Dynamic Multiaxial Loading
G. Hu*, K. Ramesh, Johns Hopkins University, USA

2:20 PM

(ICACC-S4-003-2012) Impact Performance of Ceramic-Metal Composites
B. G. Compton*, E. A. Gamble, F. W. Zok, University of California, Santa Barbara, USA

2:40 PM

(ICACC-S4-004-2012) Specimen Size Effects on the Dynamic Failure Strength of Brittle Materials
N. Daphalapurkar*, G. Hu, K. T. Ramesh, Johns Hopkins University, USA

3:00 PM

Break

3:20 PM

(ICACC-S4-005-2012) Brittle Model for Porous Materials under Impact: Calibration and Uses for Material Comparison
C. Z. Katcoff*, L. Graham-Brady, K. T. Ramesh, Johns Hopkins University, USA

3:40 PM

(ICACC-S4-006-2012) Compression Tests of Boron Carbide and Silicon Carbide under Moderate Confinement
S. Chocron*, C. E. Anderson, K. A. Dannemann, A. E. Nicholls, N. L. King, Southwest Research Institute, USA

4:00 PM

(ICACC-S4-007-2012) Confined plate impact experiment of ceramics to study source of inelasticity
S. Satapathy*, US Army Research Laboratory, USA

4:20 PM

(ICACC-S4-008-2012) A Novel Class of Equations of State for Hydrocode
S. Bilyk, M. Greenfield*, US Army Research Laboratory, USA

4:40 PM

(ICACC-S4-009-2012) Influence of a conical projectile tip on the transition from interface defeat to penetration
P. Lundberg*, R. Renström, FOI, Swedish Defence Research Agency, Sweden

5:00 PM

(ICACC-S4-010-2012) Numerical Convergence of Ballistic Impacts with Ceramic Targets
S. R. Beissel*, T. J. Holmquist, Southwest Research Institute, USA

5:20 PM

(ICACC-S4-011-2012) Constitutive Characterization and Simulations of Penetration into Thick Glass Targets
C. E. Anderson*, Southwest Research Inst, USA; S. Chocron, R. Bigger, Southwest Research Institute, USA

5:40 PM

(ICACC-S4-012-2012) Numerical Study of the Effect of Small Size Surface Flaws on the Ballistic Behavior of Transparent Laminated Targets
C. G. Fountzoulas*, P. J. Patel, Army Reserach Laboratory, USA

S7: 6th International Symposium on Nanostructured Materials and Nano-Composites**Nanomaterials for Photocatalysis, Solar Hydrogen and Thermoelectrics I**

Room: Coquina Salon B

Session Chairs: Palani Balaya, National University of Singapore; Gongxuan Lu, Lanzhou Institute of Chemical Physics, CAS

1:30 PM

(ICACC-S7-001-2012) Mesoporous Titanium Oxide Spheres for High Efficiency Dye Sensitized Solar Cells (Invited)
Y. Cheng*, F. Huang, Monash University, Australia; D. Chen, The University of Melbourne, Australia; Y. Chen, Monash University, Australia; L. Cao, The University of Melbourne, Australia; X. Zhang, Monash University, Australia; R. Caruso, The University of Melbourne, Australia

2:00 PM

(ICACC-S7-002-2012) Engineered metal oxide photoanodes for highly efficient excitonic solar cells (Invited)
A. Vomiero*, I. Concina, CNR IDASC, Italy; A. Braga, V. Galstyan, Brescia University, Italy; N. Memarian, CNR IDASC, Italy; G. Faglia, G. Sberveglieri, Brescia University, Italy

2:30 PM

(ICACC-S7-003-2012) Nanostructure and Nanoheterojunction for High-Efficiency Photocatalytic and Photoelectrochemical Water Splitting (Invited)
L. Guo*, S. Shen, Xi'an Jiaotong University, China

3:00 PM

Break

Nanomaterials for Photocatalysis, Solar Hydrogen and Thermoelectrics II

Room: Coquina Salon B

Session Chairs: Alberto Vomiero, CNR IDASC; Yi-Bing Cheng, Monash University

3:20 PM

(ICACC-S7-004-2012) Nanostructural Control in Conjugated Polymer/Metal Oxide Nanohybrid Solar Cells (Invited)
Y. Tachibana*, A. Azarifar, S. Makuta, RMIT University, Australia; J. Terao, Kyoto University, Japan; S. Seki, Osaka University, Japan

3:50 PM**(ICACC-S7-005-2012) Energy Conversion using Nano-structured Solar Cells (Invited)**

S. R. Gajjela, W. Hai, K. Ananthanarayanan, P. Balaya*, National University of Singapore, Singapore

4:10 PM**(ICACC-S7-006-2012) High Efficient Visible Light Hydrogen Evolution over Dye-sensitized Reduced Graphene Oxide Photocatalyst (Invited)**

G. Lu*, Lanzhou Institute of Chemical Physics, CAS, China

4:40 PM**(ICACC-S7-007-2012) Surface doping of W6+ for enhanced photoelectrochemical water splitting over α -Fe2O3 nanorod photoanodes (Invited)**

S. Shen*, J. Jiang, Xi'an Jiaotong University, China; C. X. Kronawitter, S. S. Mao, Lawrence Berkeley National Laboratory, USA; L. Guo, Xi'an Jiaotong University, China

5:00 PM**(ICACC-S7-008-2012) In-situ Boron Nitride Nanotubes Growth on Commercial Silicon Carbide Fiber Tows**

J. B. Hurst*, C. Hung, NASA GRC, USA

5:20 PM**(ICACC-S7-009-2012) Perovskite Nanosheets Produced by Chemical Exfoliation**

J. Liu, J. Shi, V. Knox, S. Misture*, Alfred University, USA

5:40 PM**(ICACC-S7-010-2012) Preparation of CdS sensitized TiO2 mesoporous submicrotubes and enhanced photocatalytic properties for hydrogen production**

Y. Chen*, J. Shi, L. Guo, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, China

S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf**In Honor of Professor R. Judd Diefendorf**

Room: Coquina Salon A

Session Chairs: Mrityunjay Singh, OAI/NASA GRC; Tatsuki Ohji, AIST

1:30 PM**(ICACC-S8-001-2012) Aerospace Materials Development (Invited)**

R. J. Diefendorf*, Clemson U., USA

2:00 PM**(ICACC-S8-002-2012) Assessment of Ceramic Matrix Composites for Targeted Applications (Invited)**

R. Shinavski*, Hyper-Therm High-Temperature Composites, Inc, USA

2:30 PM**(ICACC-S8-008-2012) Carbon Fiber Reinforced Composites Manufactured by Reactive Melt Infiltration Processes (Invited)**

W. Krenkel*, R. Voigt, F. Lenz, University of Bayreuth, Germany

3:00 PM**Break****3:20 PM****(ICACC-S8-004-2012) From carbon fiber to ceramic matrix composite (Invited)**

F. Teyssandier*, R. Pailler, University of Bordeaux 1, France

3:50 PM**(ICACC-S8-005-2012) Multiscale Damage Evolution Behaviors of Carbon Fiber-Dispersed Si/SiC Matrix Triple Phase Composites (Invited)**

Y. Kagawa*, The University of Tokyo, Japan

4:20 PM**(ICACC-S8-006-2012) UBE's precursor polymers and the derived functional ceramics (Invited)**

T. Ishikawa*, Ube Industries, Ltd., Japan

4:50 PM**(ICACC-S8-007-2012) Industrial Aspects of PyC- and SiC-CVD Processes (Invited)**

R. Weiss*, K. Brennfleck, D. Kehr, Schunk Kohlenstofftechnik GmbH, Germany

S9: Porous Ceramics: Novel Developments and Applications**Processing Methods for Porous Ceramics I**

Room: Coquina Salon C

Session Chair: Paolo Colombo, University of Padova

1:30 PM**(ICACC-S9-001-2012) Multifunctional carbon bonded filters for metal melt filtration (Invited)**

C. G. Aneziris*, M. Emmel, V. Rongos, Institute of Ceramics, Glass and Construction Materials, Germany

2:00 PM**(ICACC-S9-002-2012) Fabrication and Properties of Highly Porous Ceramic Monolith by Gelation Freezing Route**

M. Fukushima, T. Ohji*, Y. Yoshizawa, National Institute of Advanced Industrial Science and Technology (AIST), Japan

2:20 PM**(ICACC-S9-003-2012) Effect of Freezing Gradient on Pore Size and Orientation for Freeze-Cast Alumina**

S. Miller*, K. Faber, Northwestern University, USA

2:40 PM**(ICACC-S9-004-2012) Porous Coatings for Complex 3D-Structures Formed by Self-Assemblage**

M. Woiton*, M. Heyder, Bavarian Center for Applied Energy Research, Germany; A. Laskowsky, University of Magdeburg, Germany; E. Stern, Bavarian Center for Applied Energy Research, Germany; M. Scheffler, C. J. Brabec, University of Magdeburg, Germany

3:00 PM**Break****Processing Methods for Porous Ceramics II**

Room: Coquina Salon C

Session Chair: Yuji Iwamoto, Nagoya Institute of Technology

3:20 PM**(ICACC-S9-005-2012) Processing, Microstructure and Properties of Reticulated Carbon Foam (Invited)**

R. A. Olson*, D. P. Haack, Porvair-SELEE Corporation, USA

3:50 PM**(ICACC-S9-006-2012) Porous ceramics with tailorable properties**

P. Karandikar*, G. Evans, M. Aghajanian, M Cubed Technologies, Inc., USA

4:10 PM**(ICACC-S9-007-2012) The effect of setting mechanism on the properties of ceramic foams produced by O/W emulsions**

F. S. Ortega*, FEI, Brazil

4:30 PM**(ICACC-S9-008-2012) Additive manufacturing of macro-cellular ceramic structures (Invited)**

N. Travitzky*, T. Schlordt, L. Schlier, University of Erlangen-Nuremberg, Germany; J. Cypris, M. Weclas, University of Applied Sciences Nuremberg, Germany; T. Fey, P. Grell, University of Erlangen-Nuremberg, Germany

5:00 PM**(ICACC-S9-009-2012) Wollastonite and cordierite foams from silicones filled with micro-particles and novel processing**

E. Bernardo*, G. Parciannelo, P. Colombo, University of Padova, Italy; S. Matthews, SCF Processing Ltd, Ireland

5:20 PM**(ICACC-S9-010-2012) Preparation of porous β - Si_3N_4 ceramics in an air atmosphere furnace**

A. K. Gandhi, K. P. Plucknett*, Dalhousie University, Canada

5:40 PM**(ICACC-S9-011-2012) Porous Silicon Oxycarbide Glasses from Polyhydridomethylsiloxane Using a Templating Approach**

G. D. Soraru, University of Trento, Italy; Y. Blum*, SRI International, USA; P. Aravind, University of Trento, Italy

6:00 PM**(ICACC-S9-012-2012) Preparation of Porous Alumina Ceramic with Ultra-high Porosity by Freeze Casting**

D. Li*, M. Li, Institute of Metal Research, CAS, China

S14: Advanced Materials and Technologies for Rechargeable Batteries**Advanced Materials and Designs for Lithium Batteries**

Room: Coquina Salon H

Session Chairs: Ilias Belharouak, Argonne National Laboratory; Kristina Edstrom, Uppsala University

1:30 PM**(ICACC-S14-001-2012) The capacity of 3D-structured electrode materials for Li-ion batteries (Invited)**

K. Edstrom*, D. Brandell, T. Gustafsson, Uppsala University, Sweden

2:00 PM**(ICACC-S14-002-2012) ALD of Al_2O_3 for Highly Improved Performance in Li-ion Batteries (Invited)**

A. C. Dillon*, Y. Jung, L. Riley, C. Ban, National Renewable Energy Laboratory, USA; A. Cavanagh, S. George, S. Lee, University of Colorado, USA; S. Harris, P. Lu, General Motors, USA

2:30 PM**(ICACC-S14-003-2012) Sodium or Lithium intercalation in some original FeIII phosphates structures: Lamellar $\text{Na}_3\text{Fe}_3(\text{PO}_4)_4$, Alluaudites $\text{Li}_y\text{Na}_{1-y}\text{MnFe}_2(\text{PO}_4)_3$ ($y = 0, 0.5, 0.75$) and Favorite $\text{LiFePO}_4 \cdot \text{OH} / \text{FePO}_4 \cdot \text{H}_2\text{O}$ (Invited)**

D. Carlier*, K. Trad, N. Marx, L. Croguennec, A. Wattiaux, ICMCB-CNRS, France; F. Le Cras, CEA, France; M. Ben Amara, Faculté des sciences de Monastir, Tunisia; C. Delmas, ICMCB-CNRS, France

3:00 PM**Break****3:20 PM****(ICACC-S14-004-2012) Nanocomposite Materials for Energy Storage Application (Invited)**

D. Wang*, Z. Song, T. Xu, M. Gordin, Penn State University, USA

3:50 PM**(ICACC-S14-005-2012) Synthesis, structure and electrochemical Li insertion properties of $\text{A}_2\text{Ti}_6\text{O}_{13}$ ($\text{A} = \text{Na}, \text{Li}, \text{H}$) (Invited)**

A. Kuhn*, J. Pérez-Flores, F. García-Alvarado, San Pablo-CEU University, Spain; C. Baetz, Helmholtz-Zentrum Dresden-Rossendorf, Germany; M. Hoelzel, University of Technology Munich, Germany; I. Sobrados, J. Sanz, Institut of Materials Science, Spain

4:20 PM**(ICACC-S14-006-2012) Three-Dimensional Lithium-ion Rechargeable Batteries (Invited)**

A. Prieto*, Colorado State University, USA

4:50 PM**(ICACC-S14-007-2012) Electrospun Nanofiber Networks as Electrode Materials for Li-ion Batteries**

S. Mathur, R. von Hagen*, A. Lepcha, M. Büyükyazi, University of Cologne, Germany; K. Möller, H. Lorrmann, H. Andersen, Fraunhofer ISC, Germany

5:10 PM**(ICACC-S14-008-2012) Lithium diffusion pathways and possible reaction mechanisms in $\text{FeF}_3/\text{FeF}_2$ cathode predicted by variable charge molecular dynamics simulations**

Y. Ma*, G. Lockwood, S. Garofalini, Rutgers University, USA

5:30 PM**(ICACC-S14-009-2012) Synthesis and Electrochemical Analysis of SiCN-MoS_2 Nanosheet Composite for Lithium Ion Battery Anodes**

R. Bhandavat*, L. David, U. Banera, G. Singh, Kansas State University, USA

5:50 PM**(ICACC-S14-010-2012) Li Insertion in SiCO Ceramics – Ab-Initio Simulations**

P. Kroll*, UT Arlington, USA

FS2: Computational Design, Modeling, and Simulation of Ceramics and Composites**Simulation of Structure and Properties of Advanced Ceramics**

Room: Ponce de Leon

Session Chairs: Hans Seifert, Karlsruhe Institute of Technology

1:30 PM**(ICACC-FS2-001-2012) Modeling of radiation damage in nanocrystalline silicon carbide (Invited)**

I. Szlufarska*, D. Morgan, N. Swaminathan, M. Zheng, University of Wisconsin, USA

2:00 PM**(ICACC-FS2-002-2012) Thermal Conductivity of Amorphous Ceramics from Ab-Initio Molecular Dynamics Simulations (Invited)**

P. Kroll*, B. Kouchmeshky, UT Arlington, USA

2:20 PM**(ICACC-FS2-003-2012) Transferable variable charge potential for the study of energy conversion materials in Lithium ion batteries**

Y. Ma*, G. Lockwood, S. Garofalini, Rutgers University, USA

2:40 PM**(ICACC-FS2-004-2012) Phase stability of Al_3BC_3 : first-principles calculation and in situ Raman experiments (Invited)**

J. Wang*, H. Xiang, Institute of Metal Research, China; Y. Zhou, Aerospace Research Institute of Materials and Processing Technology, China

3:00 PM**Break****3:20 PM****(ICACC-FS2-005-2012) First Principles Calculations of Temperature and Pressure Dependent Physical Properties of MAX Phase Materials (Invited)**

L. Ouyang*, Tennessee State University, USA

3:40 PM**(ICACC-FS2-006-2012) Understanding the Behavior of Native Point Defects in ZrC by First-Principles Calculation**

Y. Zhang*, J. Wang, Institute of Metal Research, China; Y. Zhou, Aerospace Research Institute of Materials and Processing Technology, China

4:00 PM

(ICACC-FS2-007-2012) Mechanical properties of apatite crystals using multiaxial tensile experiment and construction of failure envelope (Invited)

W. Ching*, S. Aryal, A. Misra, University of Missouri-Kansas City, USA

4:30 PM

(ICACC-FS2-008-2012) Modeling hardness of materials and its application to the search for superhard materials from first-principles calculations (Invited)

X. Chen*, H. Niu, D. Li, Y. Li, Institute of Metal Research, Chinese Academy of Sciences, China

4:50 PM

(ICACC-FS2-009-2012) Multiscale modeling of ultra high temperature ceramics (UHTC) ZrB₂ and HfB₂: application to lattice thermal conductivity (Invited)

J. W. Lawson*, NASA Ames Research Center, USA; M. S. Daw, Clemson University, USA; T. H. Squire, C. W. Bauschlicher, NASA Ames Research Center, USA

5:20 PM

(ICACC-FS2-010-2012) Atomistic reconstruction of pyrocarbons: from imaging to property computation (Invited)

J. Leyssale, CNRS, France; J. Da Costa, University Bordeaux, France; B. Farbos, CNRS, France; C. Germain, University Bordeaux, France; G. L. Vignoles*, University Bordeaux 1, France

FS3: Next Generation Technologies for Innovative Surface Coatings

Technology for Innovative Surface Engineering

Room: Coquina Salon G

Session Chairs: Taejin Hwang, Korea Institute of Industrial Technology; Tsuyoshi Honma, Nagaoka University of Technology

1:30 PM

(ICACC-FS3-002-2012) Multifunctional thin film resistors prepared by ALD for high-efficiency inkjet printheads

S. Kwon*, Y. Shin, W. Kwack, Pusan National University, Republic of Korea; S. Shin, K. Moon, Korea Institute of Industrial Technology, Republic of Korea

1:50 PM

(ICACC-FS3-003-2012) HfInZnO-based thin film transistors: the effects of the Hf ratio on the film properties and the bias stability

M. Moon, H. Jeon, S. Na, D. Jung, H. Kim, H. Lee*, Sungkyunkwan University, Republic of Korea

2:10 PM

(ICACC-FS3-004-2012) Thermal anisotropy of epoxy resin-based nano hybrid film with oriented boron nitride nanosheets under rotation magnetic field

H. Cho*, M. Mitsuhashi, T. Nakayama, T. Suzuki, S. Tanaka, W. Jiang, H. Suematsu, K. Niihara, Nagaoka University of Technology, Japan

2:30 PM

(ICACC-FS3-005-2012) Fabrication of freestanding TiO₂ and TiO₂-based Multicomponent nanotube arrays using ALD and BCP templates

Y. Shin*, S. Kwon, Pusan National University, Republic of Korea; S. Ku, G. Jo, J. Kim, KAIST, Republic of Korea

2:50 PM

(ICACC-FS3-006-2012) Synthesis and electrochromic characterization of polyaniline-silica nanoparticles using surface modified colloidal silica with aminosilane

H. Lee*, J. Park, G. Kim, Korea Institute of Industrial Technology (KITECH), Republic of Korea; M. Lee, Yonsei University, Republic of Korea

3:10 PM

Break

3:30 PM

(ICACC-FS3-007-2012) Fabrication of crystal patterns on glass substrates by scanning laser irradiation (Invited)

T. Honma*, Nagaoka University of Technology, Japan

4:00 PM

(ICACC-FS3-008-2012) Fabrication of nanocrystalline InGaZnO films: the microstructure and the device performance of their thin film transistors

H. Jeon*, H. Choi, M. Moon, S. Na, D. Jung, H. Kim, H. Lee, Sungkyunkwan University, Republic of Korea

4:20 PM

(ICACC-FS3-009-2012) Corrosion protection for Mg by a sol-gel chemical method

H. Kim, T. Hwang*, Korea Institute of Industrial Technology, Republic of Korea

4:40 PM

(ICACC-FS3-010-2012) Gas sensing properties of noble metal decorated nano-grain TiO₂ thick films with controlled porosity

J. Park*, G. Kim, H. Lee, Korea Institute of Industrial Technology (KITECH), Republic of Korea

5:00 PM

(ICACC-FS3-011-2012) High Velocity Suspension Flame Sprayed (HVSFS) coatings for automotive applications

R. Gadow*, A. Killinger, A. Manzat, University of Stuttgart, Germany

5:20 PM

(ICACC-FS3-012-2012) Synthesis and Characterization of Superhydrophobic Silica Layers via Electrospray (Invited)

E. Kim, C. Lee, S. Kim*, Inha University, Republic of Korea

Tuesday, January 24, 2012

European Union - USA Engineering Ceramics Summit

EU/USA Summit III

Room: Coquina Salon F

Session Chair: Mrityunjay Singh, OAI/NASA GRC

8:00 AM

(ICACC-EUUSA-009-2012) Ceramic Matrix Composite Turbine Vane for Rotorcraft Engines (Invited)

M. C. Halbig*, NASA Glenn Research Center, USA

8:30 AM

(ICACC-EUUSA-010-2012) Status of Carbon/Ceramic Brakes: Properties, Production and Perspectives (Invited)

W. Krenkel*, University of Bayreuth, Germany; R. Renz, Porsche AG, Germany

9:00 AM

(ICACC-EUUSA-011-2012) Recent developments in joining issues and ceramic matrix composites (Invited)

M. Ferraris*, Politecnico di Torino, Italy

9:30 AM

Break

EU/USA Summit IV

Room: Coquina Salon F

Session Chair: Sanjay Mathur, University of Cologne

9:50 AM

(ICACC-EUUSA-012-2012) Synthesis of silicon-carbon nanoceramics in high temperature aerosol reactor (Invited)

A. Lahde*, University of Eastern Finland, Finland

10:20 AM

(ICACC-EUUSA-013-2012) The State of Ceramics Research at Corning (Invited)

C. Heckle*, Corning Incorporated, USA

10:50 AM

(ICACC-EUUSA-014-2012) Inorganic Nanofibers via Electrospinning – on the Road to Industrial Application (Invited)
K. Schierle-Arndt*, F. Major, E. Klimov, M. Gärtner, BASF SE, Germany

11:20 AM

(ICACC-EUUSA-015-2012) Strategic Initiative Materials (SIM): Joint materials research between Flemish research institutes and industry (Invited)
M. K. Van Bael*, A. Hardy, Hasselt University, Belgium

S1: Mechanical Behavior and Performance of Ceramics & Composites

Fracture, Mechanical Properties II

Room: Coquina Salon D

Session Chairs: Dileep Singh, Argonne National Lab; Rajan Tandon, Sandia National Lab

8:00 AM

(ICACC-S1-012-2012) An experimentally-verified and adjustable-parameter-free equation for indentation toughness in the presence of lateral and radial cracking
R. I. Todd*, University of Oxford, United Kingdom; X. Huang, Harbin Institute of Technology, China; S. Guo, University of Oxford, United Kingdom

8:20 AM

(ICACC-S1-013-2012) Using the Hertzian Ring Crack Initiation Approach to Measure Surface Flaw Size Densities
R. Tandon*, Sandia National Lab, USA

8:40 AM

(ICACC-S1-014-2012) SPM observation of crack propagation behavior of Si₃N₄ ceramics
J. Tatami*, M. Ohnishi, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

9:00 AM

(ICACC-S1-015-2012) Mixed-Mode Fracture in an R-Curve Material
K. Gopalakrishnan*, J. J. Mecholsky, Jr., University of Florida, USA

9:20 AM

(ICACC-S1-016-2012) Strength Properties of Aged Poled Lead Zirconate Titanate Subjected to Electromechanical Loadings
K. Zhang, H. Wang, H. Lin*, Oak Ridge National Lab, USA

9:40 AM

Break

10:00 AM

(ICACC-S1-017-2012) Glass Cracking Near Edges and Interfaces
R. Tandon*, Sandia National Lab, USA; D. Shahin, Missouri University of Science and Technology, USA

10:20 AM

(ICACC-S1-018-2012) Edge Chip Fracture Resistance of Dental Materials
G. Quinn*, American dental association foundation, USA; K. Hoffman, American dental association foundation, USA; J. Quinn, American dental association foundation, USA

10:40 AM

(ICACC-S1-019-2012) Fretting fatigue failure of engineering ceramics
C. Woerner*, K. Lang, Institut fuer Angewandte Materialien - Werkstoffkunde, Germany

11:00 AM

(ICACC-S1-020-2012) Mechanical stability limits of Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-δ} ceramic membrane material
J. Malzbender*, G. Pecanac, Forschungszentrum Jülich, Germany

11:20 AM

(ICACC-S1-021-2012) Controlled Crack Propagation Tests in Novel Alumina-Based Refractories
E. Skiera*, R. W. Steinbrech, J. Malzbender, Forschungszentrum Juelich, Germany; C. G. Aneziris, S. Dudczig, Technical University Bergakademie Freiberg, Germany

11:40 AM

(ICACC-S1-022-2012) Nanoscratch Induced Deformation in Sapphire
L. Huang*, C. Bonifacio, K. van Benthem, A. K. Mukherjee, J. M. Schoenung, UC Davis, USA

S4: Armor Ceramics

Dynamic Behavior

Room: Coquina Salon E

Session Chair: Jerry LaSalvia, U.S. Army Research Laboratory

8:00 AM

(ICACC-S4-013-2012) Ceramic Armour Development (Invited)
B. James*, Dstl, United Kingdom

8:30 AM

(ICACC-S4-014-2012) From Mechanisms to Materials: Armor Ceramics (Invited)
K. T. Ramesh*, Johns Hopkins University, USA

9:00 AM

(ICACC-S4-015-2012) High Speed Electrical Monitoring of Crack Propagation in Layered Ballistic Protection Systems
E. K. Oberg*, C. S. Dunleavy, T. W. Clyne, University of Cambridge, United Kingdom; P. Bourke, Tencate Advanced Armour, United Kingdom

9:20 AM

(ICACC-S4-016-2012) Dislocation Mechanisms in Aluminum Nitride Under Shock Loading
G. Hu*, Johns Hopkins University, USA; C. Williams, Army Research Laboratory, USA; C. Chen, K. Ramesh, Johns Hopkins University, USA; J. McCauley, Army Research Laboratory, USA

9:40 AM

Break

10:00 AM

(ICACC-S4-017-2012) Quantative measurement of flaw population and cracking resistance on surfaces of armour silicon carbide ceramics
S. Ghosh*, H. Wu, Loughborough University, United Kingdom

10:20 AM

(ICACC-S4-018-2012) Split Hopkinson Pressure Bar Testing of Alumina and Alumina-Based Composite Materials
C. J. Dancer*, S. Falco, N. Petrinic, R. Todd, University of Oxford, United Kingdom

10:40 AM

(ICACC-S4-019-2012) Dynamic Response of Granular Tungsten Carbide under Pressure-Shear Loading
S. Alexander*, T. Thornhill, W. Reinhart, T. Vogler, Sandia National Laboratories, USA

11:00 AM

(ICACC-S4-020-2012) Analysis of crack patterns in non-oxide ceramics after ballistic test
C. Roberson*, Advanced Defence Materials Limited, United Kingdom; P. J. Hazell, Cranfield University, United Kingdom; D. Liaptsis, N. P. Ludford, TWI Limited, United Kingdom

11:20 AM

(ICACC-S4-021-2012) Dynamic Electro-mechanical Damage Behavior of Piezoelectric Ceramics
L. E. Lamberson*, K. T. Ramesh, Johns Hopkins University, USA

11:40 AM

(ICACC-S4-022-2012) High Strain Rate Response and Dynamic Failure of Alumina
J. Yuan*, G. Tan, J. Ma, Nanyang Technological University, Singapore

S7: 6th International Symposium on Nanostructured Materials and Nano-Composites

Nanodevices and Industrial Application

Room: Coquina Salon B

Session Chairs: Anna Lahde, University of Eastern Finland; Erica Corral, University of Arizona

8:00 AM

(ICACC-S7-011-2012) Toughening in Graphene Ceramic Composites (Invited)

L. S. Walker, V. R. Marotto, University of Arizona, USA; M. A. Rafiee, N. Koratkar, Rensselaer Polytechnic Institute, USA; E. L. Corral*, University of Arizona, USA

8:30 AM

(ICACC-S7-012-2012) Lateral Growth of ZnO Nanorods in Solution and Their Application for High Performance Field Effect Transistors (Invited)

Y. Hahn*, Y. Park, H. Choi, J. Kim, Chonbuk National University, Republic of Korea

9:00 AM

(ICACC-S7-013-2012) Effects of the pulsation reactor process on the material properties of nanoscaled ZrO₂

L. Leidlolph*, IBU-tec advanced materials AG, Germany

9:20 AM

(ICACC-S7-014-2012) Properties of organic semiconductor-metal oxide nanowire composite transistors

C. Sun*, Nanyang Technological University, Singapore; N. Mathews, Nanyang Technological University, Singapore; L. H. Wong, Nanyang Technological University, Singapore; S. G. Mhaisalkar, Nanyang Technological University, Singapore

9:40 AM

Break

Synthesis and Industrial Development of Nanoparticles

Room: Coquina Salon B

Session Chairs: Erica Corral, University of Arizona; Yoon-Bong Hahn, Chonbuk National University

10:00 AM

(ICACC-S7-015-2012) Synthesis of silicon-carbon nanoceramics with high temperature aerosol reactor (Invited)

A. Lähde*, M. Miettinen, University of Eastern Finland, Finland; M. Johansson, University of Åbo, Finland; S. Suvanto, J. Riikonen, University of Eastern Finland, Finland; U. Tapper, Technical Research Center of Finland, Finland; T. T. Pakkanen, V. Lehto, J. Jokiniemi, University of Eastern Finland, Finland

10:30 AM

(ICACC-S7-016-2012) Highly Specific Nanoparticles from gas phase synthesis – An Economic Route towards Sustainable Energy Technology (Invited)

T. P. Huelsner, H. Wiggers*, C. Schulz, Institute of Energy and Environmental Technology, Germany

11:00 AM

(ICACC-S7-017-2012) Phase evolution studies and ferroelectric properties of Lead Zirconate Titanate (PZT) nanopowder and films thereof (Invited)

R. P. Tandon*, University of Delhi, India

11:30 AM

(ICACC-S7-018-2012) Nanostructured Oxides from Natural Minerals for Industrial applications (Invited)

V. Rajendran*, P. Manivasakan, P. R. Rauta, N. R. Dhineshbabu, K S Rangasamy College of Technology, India

S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf

Advanced Forming and Powder Technology

Room: Coquina Salon A

Session Chairs: Nahum Travitzky, University of Erlangen-Nuremberg; Eugene Medvedovski, Umicore Thin Film Products

8:10 AM

(ICACC-S8-009-2012) Additive Manufacturing of complex-shaped ceramic structures (Invited)

N. Travitzky*, P. Greil, University of Erlangen-Nuremberg, Germany

8:40 AM

(ICACC-S8-010-2012) Fabrication of Complex-Shaped Ceramic Components by Injection Molding of Ceramic Suspension Gels at Room Temperature

V. L. Wiesner*, J. P. Youngblood, R. W. Trice, Purdue University, USA

9:00 AM

(ICACC-S8-011-2012) Ceramic Injection Moulding Using a Partially Water-Soluble Binder System: Effect of Back-Bone Polymers on the Process

O. Weber*, T. Hanemann, Karlsruhe Institute of Technology, Germany

9:20 AM

(ICACC-S8-012-2012) Low Pressure Injection Molding of Advanced Ceramic Components with Complex Shapes for Mass Production

E. Medvedovski*, Umicore Thin Film Products, USA; M. Peltzman, Peltzman Corp., USA

9:40 AM

Break

10:00 AM

(ICACC-S8-013-2012) Shaping of Large-Sized Sputtering Targets

A. Kaiser*, LAEIS GmbH, Luxembourg

10:20 AM

(ICACC-S8-014-2012) Pressure slip casting of calcium containing coarse grain oxide ceramics

S. Schaffoener*, C. G. Aneziris, TU Bergakademie Freiberg, Germany

10:40 AM

(ICACC-S8-015-2012) Characterization of Ceramic Powders during Compaction Using Electrical Measurements

T. Prun*, R. Gerhardt, Georgia Institute of Technology, USA

11:00 AM

(ICACC-S8-016-2012) Highly particle-oriented alumina powder compact prepared from non-aqueous dispersed slurry

S. Tanaka*, R. Furushima, K. Uematsu, Nagaoka University of Technology, Japan

11:20 AM

(ICACC-S8-017-2012) Mechanical Milling and Densification of High Purity Si-C Powder with Low Contamination

S. Lee*, B. An, H. Kim, KIMS, Republic of Korea

11:40 AM

(ICACC-S8-018-2012) The Role of Milling Liquids in Processing Metal-Ceramic-Precursor Powders

N. Holstein*, University of Applied Science Koblenz, Germany; K. Wiegandt, J. Kriegesmann, Hamburg University of Technology, Germany; R. Janssen, University of Applied Science Koblenz, Germany

S9: Porous Ceramics: Novel Developments and Applications

Membranes and High SSA Ceramics

Room: Coquina Salon C

Session Chair: Irene Peterson, Corning Incorporated

8:00 AM

(ICACC-S9-013-2012) Ordered-microporous membranes-preparation, properties and prospects (Invited)

M. Matsukata*, Waseda University, Japan

8:30 AM

(ICACC-S9-014-2012) Synthesis and characterization of carbon dioxide-permselective organoamino group-functionalized amorphous silica membranes

A. Kawai, Nagoya Institute of Technology, Japan; K. Miyajima, Noritake Co., Limited, Japan; K. Sekimoto, S. Honda, Y. Iwamoto*, Nagoya Institute of Technology, Japan

8:50 AM

(ICACC-S9-015-2012) Gas Permeability and Fracture Properties of Porous Alumina with Various Pore Structures for Support Substrates of Ceramic Membranes

S. Honda*, N. Nishihara, S. Hashimoto, Nagoya Institute of Technology, Japan; T. Eda, H. Watanabe, K. Miyajima, Noritake Co., Limited, Japan; Y. Iwamoto, Nagoya Institute of Technology, Japan

9:10 AM

(ICACC-S9-016-2012) Porous membranes derived from Polysiloxanes for electrochemical applications

M. Wilhelm*, M. Adam, G. Grathwohl, University of Bremen, Germany

9:30 AM

(ICACC-S9-017-2012) Synthesis of Novel Polysiloxane and Polycarbosilane Aerogels from Si-H and Si-Vy Bearing Precursors

G. D. Soraru*, P. Camprostrini, P. Aravind, A. Gaston, University of Trento, Italy; Y. Blum, SRI International, USA

9:50 AM

Break

Structure and Properties of Porous Ceramics I

Room: Coquina Salon C

Session Chair: Alek Pyzik, Dow Chemical Company

10:10 AM

(ICACC-S9-018-2012) Aluminum titanate-based composites for diesel particulate filter application (Invited)

M. Backhaus-Ricoult*, Corning Incorporated, USA

10:40 AM

(ICACC-S9-019-2012) Effect of Pore Size Distribution and Cell Geometry on Filtration Efficiency and Pressure Drop (Invited)

I. Peterson*, G. Merkel, J. Wang, M. Fischer, A. Ozturk, C. Warren, Corning Incorporated, USA; M. Moreno, Corning Incorporated, France; M. Wallen, J. Heine, Corning Incorporated, USA

11:10 AM

(ICACC-S9-020-2012) SiC foams decorated with ceramic nanowires: permeation and aerosol filtration behavior

M. Innocentini, R. Caldato, Universidade de Ribeirão Preto, Brazil; E. Tanabe, J. Coury, Universidade Federal de São Carlos, Brazil; M. Fukushima, AIST, Japan; P. Colombo*, University of Padova, Italy

11:30 AM

(ICACC-S9-021-2012) A novel method for pore size and porosity analysis of meso- and macroporous solids using electroacoustics

A. Dukhin, Dispersion Technology Inc, USA; M. Thommes*, Quantachrome Instruments, USA

11:50 AM

(ICACC-S9-022-2012) Effect of h-BN content on thermal shock resistance and dielectric properties of porous h-BN/Si₃N₄ composite ceramics prepared by gel casting

S. Wang, D. Jia*, Z. Yang, X. Duan, Y. Zhou, Harbin Institute of Technology, China

S14: Advanced Materials and Technologies for Rechargeable Batteries

Materials Characterization and Diagnostics For Lithium Batteries

Room: Coquina Salon H

Session Chairs: Dany Carlier, CNRS; Anne Dillon, National Renewable Energy Laboratory

8:00 AM

(ICACC-S14-011-2012) Multiscale electronic transport mechanism and true conductivities in amorphous carbon-LiFePO₄ nanocomposites (Invited)

K. Seid, Université de Nantes, CNRS, France; J. Badot, Chimie ParisTech (ENSCP), CNRS, UPMC Univ Paris 06, France; O. Dubrunfaut, Laboratoire de Génie Electrique de Paris, France; D. Guyomard, Université de Nantes, CNRS, France; S. Levasseur, UMICORE Cobalt & Specialty Materials, Belgium; B. Lestriez*, Université de Nantes, CNRS, France

8:30 AM

(ICACC-S14-012-2012) In-situ high-energy synchrotron x-ray study of Li-Air and Li-ion rechargeable batteries (Invited)

Y. Ren*, C. Lin, N. Karan, L. Trahey, M. Balasubramanian, Z. Chen, Argonne National Laboratory, USA

9:00 AM

(ICACC-S14-013-2012) Synthesis of Li-La-Ba-Ta-O electrolyte by RF magnetron sputtering for micro battery

S. Jee*, S. Lee, Y. Yoon, Yonsei Univ, Republic of Korea

9:20 AM

(ICACC-S14-014-2012) Lithium Intercalation in Low Dimensional Materials as Anodes for Li-ion Batteries (Invited)

R. Shahbazian Yassar*, H. Ghassemi, Q. Gao, Michigan Technological University, USA; M. Au, Savannah River National Laboratory, USA; P. Heiden, N. Chen, Michigan Technological University, USA

9:50 AM

Break

10:10 AM

(ICACC-S14-015-2012) Electrode/Electrolyte Interphase Studies in Lithium Batteries Using High Field Multinuclear NMR (Invited)

M. Cuisinier*, N. Dupré, J. Martin, Z. Wang, Institut des Matériaux Jean Rouxel - Université de Nantes - CNRS, France; K. Suzuki, M. Hirayama, R. Kanno, Tokyo Institute of Technology, Japan; D. Guyomard, Institut des Matériaux Jean Rouxel - Université de Nantes - CNRS, France

10:40 AM

(ICACC-S14-016-2012) Electrolytes for Rechargeable Lithium batteries (Invited)

Y. Abu-Lebdeh*, National Research Council Of Canada, Canada

11:10 AM

(ICACC-S14-017-2012) Surface and Subsurface Damage Characterization of Graphite Anodes Electrochemically Cycled in Lithium-ion Cells

S. Bhattacharya*, A. Riahi, A. Alpas, University of Windsor, Canada

FS2: Computational Design, Modeling, and Simulation of Ceramics and Composites

Characterization and Modeling of Surfaces, Interfaces and Grain Boundaries at Multiple Scales

Room: Ponce de Leon

Session Chairs: Jingyang Wang, Institute of Metal Research; Wai-Yim Ching, University of Missouri-Kansas City

8:00 AM

(ICACC-FS2-011-2012) Combining X-ray Diffraction Contrast Tomography and Mesoscale Grain Growth Simulations in STO: an integrated approach for the investigation of microstructure evolution (Invited)

M. Syha*, W. Rheinheimer, M. Baeurer, Karlsruhe Institute of Technology, Germany; W. Ludwig, European Synchrotron Radiation Facility, France; E. M. Lauridsen, Risø National Laboratory, Denmark; D. Weygand, P. Gumbsch, Karlsruhe Institute of Technology, Germany

8:20 AM

(ICACC-FS2-012-2012) Growth Stress in SiO₂ during Oxidation of SiC Fibers

R. Hay*, Air Force Research Laboratory, USA

8:40 AM

(ICACC-FS2-013-2012) A Density-Functional Theory Investigation of Oxidative Corrosion of the UO₂(111) Surface (Invited)

A. Chaka*, G. Oxford, NIST, USA

9:00 AM

(ICACC-FS2-014-2012) Effect of Absorbates and Surface Defects on Work Function of ZnO Based on First Principles DFT Calculations

J. Du*, Y. Li, University of North Texas, USA

9:20 AM

(ICACC-FS2-015-2012) Sintering of multi-phase Mo-Si-B and the effects of doping

J. Jung*, J. Luo, Clemson University, USA

9:40 AM

Break

10:00 AM

(ICACC-FS2-016-2012) Modeling of Oxide Interfaces (Invited)

C. Fisher*, A. Kuwabara, H. Moriwake, Japan Fine Ceramics Center, Japan; H. Oki, Toyota Motor Corporation, Japan; Y. Ikuhara, University of Tokyo, Japan

10:30 AM

(ICACC-FS2-017-2012) Modeling Grain Boundary Phase Behaviors (Invited)

J. Luo*, Clemson Univ, USA

11:00 AM

(ICACC-FS2-018-2012) Atomistic simulations and TEM measurements of Si₃N₄-amorphous SiO₂ interface with La and Lu

I. G. Batyrev*, J. Synowczynski, N. S. Weingarten, B. M. Rice, J. Andzelm, J. J. Swab, US Army Research Laboratory, USA; J. C. Idrobo, ORNL, USA

11:20 AM

(ICACC-FS2-019-2012) Molecular Dynamics Simulations of La Doped Intergranular Films in Silicon Nitride: Effect of Structure on Properties

Y. Jiang*, S. H. Garofalini, Rutgers University, USA

FS3: Next Generation Technologies for Innovative Surface Coatings

Next Generation Production Methods for Surface Engineering

Room: Coquina Salon G

Session Chairs: Toshiyuki Matsui, Osaka Prefecture University; DaeYong Jeong, Inha University

8:20 AM

(ICACC-FS3-013-2012) Synthesis and novel application of nano- or mezzo-scale porous 3C-SiC coatings by Si carbonization technique (Invited)

T. Matsui*, H. Tsuda, H. Mabuchi, Osaka Prefecture University, Japan; A. Kakitsuji, Technology Research Institute of Osaka Prefecture, Japan

8:50 AM

(ICACC-FS3-014-2012) Superconducting MgB₂ Thick Films Prepared by Aerosol Deposition

S. Hirose*, AIST, Japan

9:10 AM

(ICACC-FS3-015-2012) Next generation surface technologies for the exterior parts of mobile devices

T. Yim*, Korea Institute of Industrial Technology, Republic of Korea

9:30 AM

(ICACC-FS3-016-2012) Control of the oxygen content with oxygen gas introduction of Cr(N,O) thin films prepared by pulsed laser deposition

K. Suzuki*, T. Endo, T. Fukushima, A. Sato, T. Suzuki, T. Nakayama, H. Suematsu, K. Niihara, Nagaoka University of Technology, Japan

9:50 AM

Break

10:10 AM

(ICACC-FS3-017-2012) Synthesis and thermal conductivity of thick AlN-YAG coating by plasma spraying

K. Baik*, W. Soh, D. Noh, Chungnam National University, Republic of Korea

10:30 AM

(ICACC-FS3-018-2012) Carbon nanomaterials for energy storage and conversion (Invited)

W. Choi*, Florida International University, USA

11:00 AM

(ICACC-FS3-019-2012) Enhancement of materials properties with the induced stress in aerosol deposition

D. Jeong*, Inha University, Republic of Korea; G. Han, J. Ryu, D. Park, Korea Institute of Materials Science (KIMS), Republic of Korea

11:20 AM

(ICACC-FS3-020-2012) Optical and Mechanical Properties of Infrared Transmitting Coatings Prepared by Aerosol Deposition

H. Tsuda*, J. Akedo, S. Hirose, AIST, Japan; K. Ohashi, NEC, Japan

11:40 AM

(ICACC-FS3-021-2012) The use of Aerosol Deposition Technique in all-solid-state Li-ion fabrication

D. Popovici*, AIST, Japan; H. Nagai, S. Fujishima, Toyota Motor Co., Japan; J. Akedo, AIST, Japan

FS4: Advanced (Ceramic) Materials and Processing for Photonics and Energy

Multifunctional Materials for Biological Applications

Room: Oceanview

Session Chair: Marco Rolandi, University of Washington

8:00 AM

(ICACC-FS4-001-2012) Nanomaterials for optical and biological applications (Invited)

F. Stellacci*, EPFL, Switzerland

8:30 AM

(ICACC-FS4-002-2012) Lanthanide-Doped Nanoparticles: Towards Multi-Functional Bioprobes (Invited)

F. Vetrone*, Université du Québec, Canada

9:00 AM

(ICACC-FS4-003-2012) pH-dependant transformations of Bioglass®: implications for bone regeneration and composite scaffold synthesis (Invited)

M. G. Cerruti*, S. Abdollahi, McGill University, Canada

9:30 AM

(ICACC-FS4-004-2012) In-vitro and in-vivo Investigation of Near-Infrared Emitting, Paramagnetic $Gd_2O_3:Er^{3+}, Yb^{3+}$ Nanostructures for Bioimaging Applications

E. Hemmer*, T. Yamano, H. Takeshita, T. Fujiki, H. Kishimoto, Tokyo University of Science, Japan; M. A. Boss, R. B. Goldfarb, National Institute of Standards and Technology (NIST), USA; K. Soga, Tokyo University of Science, Japan

9:50 AM

Break

Optical Properties of Nanomaterials

Room: Oceanview

Session Chair: Giuliano Gregori, Max Planck Institute for Solid State Research

10:10 AM

(ICACC-FS4-005-2012) Nanostructured photoanodes and colloidal quantum dots for improved light harvesting in excitonic solar cells (Invited)

G. Sberveglieri*, A. Vomiero, I. Concina, A. Braga, G. Faglia, V. Galstyan, University of Brescia, Italy

10:40 AM

(ICACC-FS4-006-2012) Photo-induced electron transfer reactions at semiconductor quantum dot interfaces (Invited)

Y. Tachibana*, RMIT University, Australia

11:10 AM

(ICACC-FS4-007-2012) Frontiers of Nanostructured Materials and Nanotechnology (Invited)

J. Narayan*, NC State University, USA

11:40 AM

(ICACC-FS4-008-2012) Si, Ge, and SiGe nanostructure direct-write using scanning probes and conducting stamps (Invited)

M. Rolandi*, University of Washington, USA

European Union - USA Engineering Ceramics Summit

EU/USA Summit V

Room: Coquina Salon F

Session Chair: Alexander Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems IKTS

1:30 PM

(ICACC-EUUSA-016-2012) Solar Hydrogen Production with Disorder-Engineered Titania (Invited)

S. Mao*, EETD Advanced Energy Technologies, USA

2:00 PM

(ICACC-EUUSA-017-2012) Challenges for Ceramic Materials in Breakthrough Energy Applications (Invited)

K. Joachim*, Deutsche Gesellschaft für Materialkunde e.V. (DGM), Germany

2:30 PM

(ICACC-EUUSA-018-2012) New approaches for silicon in three valuable energy management applications (Invited)

J. Carberry*, Mossey Creek Energy, USA

3:00 PM

Break

EU/USA Summit VI

Room: Coquina Salon F

Session Chair: Walter Krenkel, University of Bayreuth

3:20 PM

(ICACC-EUUSA-019-2012) Status of PVD Technology in Poland (Invited)

W. Gulbinski*, Koszalin University of Technology, Poland

3:50 PM

(ICACC-EUUSA-020-2012) Miniaturized Surface Ionization Gas Sensors (Invited)

G. Mueller*, A. Hackner, S. Beer, EADS Innovation Works, Germany; F. Ramirez-Hernandez, Institut de Recerca en Energia de Catalunya (IREC), Spain; J. Prades, Universitat de Barcelona, Spain; J. R. Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain; S. Mathur, University of Cologne, Germany

4:20 PM

(ICACC-EUUSA-021-2012) Plasma technologies for energetics and sensing: towards the metal oxide highway via the nano-road (Invited)

D. Barreca*, Padova University, Italy

4:50 PM

(ICACC-EUUSA-022-2012) Importance of Precursor Chemistry in Atomic Layer Deposition (Invited)

M. Leskela*, University of Helsinki, Finland

5:20 PM

(ICACC-EUUSA-023-2012) Bio-inspired Ceramic Composites for Engineering Applications (Invited)

J. Martinez-Fernandez*, J. Ramirez-Rico, F. M. Varela-Feria, C. Vera-García, A. Gutierrez-Pardo, University of Seville-CSIC, Spain; M. Singh, Ohio Aerospace Institute, NASA Glenn Research Center, USA

S1: Mechanical Behavior and Performance of Ceramics & Composites

Ceramic Fiber Reinforced Composites

Room: Coquina Salon D

Session Chairs: Walter Krenkel, University of Bayreuth; Randall Hay, Air Force Research Laboratory

1:30 PM

(ICACC-S1-023-2012) Ceramic components based on non-oxide fibre composite materials for advanced systems in the high-temperature energy technology

K. Schoenfeld*, TU, Germany; H. Klemm, A. Michaelis, FhG IKTS, Germany

1:50 PM

(ICACC-S1-024-2012) Determination of the true statistical flaw strength parameters for SiC Nicalon fibres

J. L. Lamon*, M. R'illi, N. Godin, CNRS, France

2:10 PM

(ICACC-S1-025-2012) Kinetics of Passive Oxidation of Hi-Nicalon-S SiC Fibers in Wet Air: Relationships between SiO₂ Scale Thickness, Crystallization, and Fiber Strength

R. Hay*, G. Fair, Air Force Research Laboratory, USA; A. Hart, University of Cincinnati, USA; R. Bouffouix, New Mexico Tech., USA

2:30 PM

(ICACC-S1-026-2012) Optimizing Strength and Toughness of CMCs reinforced with Wavy, Finite-length Carbon Nanotubes

F. Pavia*, W. A. Curtin, Brown University, USA

2:50 PM

(ICACC-S1-027-2012) The growth of carbon nanotubes in three-dimensional carbon felt and the hybrid enhancement to Cf/SiC composites

H. Jianbao*, D. Shaoming, Z. Xiangyu, H. Zhihui, Y. Jinshan, L. Qinggang, W. Bin, L. Bo, Shanghai Institute of Ceramics, China

3:10 PM

Break

3:30 PM

(ICACC-S1-028-2012) Investigation of critical fiber length in phenol matrix based short fiber CFRP

D. Heim*, S. Zaremba, K. Drechsler, Technical University of Munich, Germany

3:50 PM

(ICACC-S1-029-2012) Processing and Testing of γ -RE₂Si₂O₇ Matrix Composites

E. E. Boakye*, K. A. Keller, P. Mogilevsky, T. Parthasarathy, UES Inc., USA; M. K. Cinibulk, R. S. Hay, AFRL, USA; M. Ahrens, Wright State University, USA

4:10 PM

(ICACC-S1-030-2012) Ultra High Toughness Ceramic Composites: Optimising Metal Fibre Reinforced Ceramic Matrix Composites (MFCs)

S. R. Pemberton*, University of Cambridge, United Kingdom; L. Marston, Fibertone Products Ltd, United Kingdom; T. W. Clyne, University of Cambridge, United Kingdom

4:30 PM

(ICACC-S1-031-2012) Interfacial Studies of Microfibrillated Cellulose Filled CF/Epoxy Composites

M. H. Gabr*, K. Okubo, T. Fujii, Doshisha University, Japan

4:50 PM

(ICACC-S1-032-2012) The study on the strength prediction of comold composites joints

H. Zhang*, W. Wen, H. Cui, Nanjing University of Aeronautics and Astronautics, China

S4: Armor Ceramics

Transparent Materials I

Room: Coquina Salon E

Session Chair: Lisa Franks, US Army TARDEC

1:20 PM

(ICACC-S4-023-2012) Energy effects on the cracking patterns of glass/polymer laminates in ballistic impact (Invited)

D. Ahearn, J. Ladner, R. Bradt*, University of Alabama, USA

1:50 PM

(ICACC-S4-024-2012) Edge-on Impact Investigations of Stress and Damage Propagation in Sapphire Single Crystal Plates

E. Strassburger, Fraunhofer-Institut für Kurzzeitdynamik, Germany; P. Patel, J. McCauley*, Army Research Laboratory, USA

2:10 PM

(ICACC-S4-025-2012) Radio Frequency Lamination for Curved Windows

S. M. Allan*, H. S. Shulman, I. Baranova, M. L. Fall, G. Esquenazi, Ceralink Inc., USA

2:30 PM

(ICACC-S4-026-2012) Effect of Ball Material Properties on Impact Response of SLS Glass at Low Velocities

A. A. Wereszczak, E. E. Fox, D. J. Vuono, T. G. Morrissey*, Oak Ridge National Laboratory, USA

2:50 PM

Break

3:10 PM

(ICACC-S4-027-2012) Preparation and Sintering of Al₂O₃-Coated Spinel

M. Vu*, R. Haber, Rutgers University, USA; H. Gocmez, Dumlupinar University, Turkey

3:30 PM

(ICACC-S4-028-2012) "Complexion" Based Strategies for Controlling the Microstructure and Properties of Magnesium Aluminate Spinel for Armor Applications

A. Kundu*, G. J. Ferko, M. P. Harmer, Lehigh University, USA

3:50 PM

(ICACC-S4-029-2012) The Role of Point Defects on the Sintering and Optical Properties of Transparent MgAl₂O₄ Hot Pressed with LiF

M. Rubat du Merac*, I. Reimanis, Colorado School of Mines, USA; H. Kleebe, Technical University Darmstadt, Germany; C. Smith, Corning Inc., USA

4:10 PM

(ICACC-S4-030-2012) Polished Spinel Directly From the Hot Press

G. Villalobos*, Naval Research Lab, USA; B. Sadowski, Sotera Defense Solutions, USA; M. Hunt, University Research Foundation, USA; S. Bayya, Naval Research Lab, USA; R. Miklos, Sotera Defense Solutions, USA; W. Kim, Naval Research Lab, USA; I. Aggarwal, Sotera Defense Solutions, USA; J. Sanghera, Naval Research Lab, USA

4:30 PM

(ICACC-S4-031-2012) Determining the Strength of Coarse-Grained AION and Spinel

J. Swab*, G. Gilde, U.S. Army Research Laboratory, USA; J. Wright, UIC TS, Bowhead Science & Technology, USA; R. Pavlacka, Oak Ridge Institute for Science & Education, USA; S. Kilczweski, Data Matrix Solutions, USA

4:50 PM

(ICACC-S4-032-2012) A fresh look at why does spinel outperforms sapphire during ballistic tests?

G. Subhash*, E. J. Haney, University of Florida, USA

S7: 6th International Symposium on Nanostructured Materials and Nano-Composites

Industrial Application of Nanomaterials and One Dimensional Structures

Room: Coquina Salon B

Session Chairs: Ulf Jansson, Uppsala University; Jyh-Ming Ting, National Cheng Kung University

1:30 PM

(ICACC-S7-019-2012) Nanostructured Coatings by Cluster Beam Deposition: Method and Applications (Invited)

E. Barborini*, S. Vinati, R. Carbone, Tethis spa, Italy

2:00 PM

(ICACC-S7-020-2012) Copper (II) heteroarylalkenolates: From Molecule to Material

I. Giebelhaus*, T. Fischer, University of Cologne, Germany; E. Varchkina, M. Rumyantseva, A. Gaskov, Moscow State University, Russian Federation; W. Tyrra, S. Mathur, University of Cologne, Germany

2:20 PM

(ICACC-S7-021-2012) Use of Copper Nanoparticles to Enhance Thermal Performance of Solar Heat Transfer Fluids

S. Cingarapu*, E. V. Timofeeva, M. R. Moravek, M. J. Nawrocki, D. Singh, T. Fischer, S. Mathur, Argonne National Laboratory, USA

2:40 PM

(ICACC-S7-022-2012) Development of nanowire based solar cell on multilayer transparent conducting films (Invited)

D. Sahu*, University of the Witwatersrand, South Africa

3:00 PM

Break

Nanostructured Membranes, Functional Coatings and Nanocomposites

Room: Coquina Salon B

Session Chairs: Emanuele Barborini, Tethis spa; Tim Van Gestel, Forschungszentrum Jülich

3:20 PM

(ICACC-S7-023-2012) Design of Multifunctional Carbide-based Nanocomposite Coatings (Invited)

U. Jansson*, Uppsala University, Sweden

3:50 PM

(ICACC-S7-024-2012) Synthesis and Electrochemical Performance of SiOC-Carbon Nanotube Composite Nanowire Coatings

R. Bhandavat*, G. Singh, Kansas State University, USA

4:10 PM

(ICACC-S7-025-2012) Superhard Nanostructured Coatings Ti-Hf-Si-N, Their Structure and Properties

A. D. Pogrebnjak*, Sumy State University, Ukraine; A. P. Shpak, Institute for Metal Physics G.V.Kurdyumov NAS of Ukraine, Ukraine; V. M. Beresnev, Kharkov National University, Ukraine; F. F. Komarov, Belarus State University, Belarus; P. Konarski, Tele-Radio Research Institute, Poland; V. V. Uglov, Belarus State University, Belarus; M. V. Kaverin, Sumy State University, Ukraine; D. A. Kolesnikov, Belgorod State University, Russian Federation; N. A. Makhmudov, Samarkand Branch of Tashkent University of Information, Uzbekistan; I. V. Yakuschenko, Sumy State University, Ukraine; V. V. Grudnitskii, Kharkov National University, Ukraine

4:30 PM

(ICACC-S7-058-2012) Nanowire based heterostructures: growth, properties and application to photovoltaics (Invited)

A. Fontcuberta-Morrall*, Ecole Polytechnique Fédérale de Lausanne, Switzerland

5:00 PM

(ICACC-S7-026-2012) P-type conductivity of Mg-doped CuAlO₂ (Invited)

E. Kim*, M. Kim, M. Oh, S. Kim, Korea Electrotechnology Research Institute, Republic of Korea

5:20 PM

(ICACC-S7-027-2012) Investigation on hybrid composite membrane consisting ammonium phosphate and their characterization

U. Thanganathan*, F. Yin, Okayama University, Japan

5:40 PM

(ICACC-S7-028-2012) Synthesis of Nanostructured Oxidizers for Controlling the Explosive Reactivity of Nanoenergetic Materials

S. Kim, J. Ahn*, Y. Kim, Pusan National University, Republic of Korea

S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf

Advanced Composite Manufacturing

Room: Coquina Salon A

Session Chair: Erica Corral, University of Arizona; Shawn Allen, Ceralink

1:30 PM

(ICACC-S8-019-2012) Processing of Advanced Ceramic Matrix Composites (CMCs) Based on Multifunctional Enhancement Mechanism (Invited)

S. Dong*, B. Wu, J. Hu, X. Zhang, Y. Ding, P. He, L. Gao, Z. Wang, H. Zhou, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

2:00 PM

(ICACC-S8-020-2012) Graphene Ceramic Composites (Invited)

L. Walker, V. Marotto, M. Valdez, University of Arizona, USA; M. A. Rafiee, N. Koratkar, Rensselaer Polytechnic Institute, USA; E. L. Corral*, University of Arizona, USA

2:20 PM

(ICACC-S8-021-2012) Contribution to the understanding of the microstructure of first generation Si-C-O fibers

F. Teyssandier*, G. Puyoo, S. Mazerat, G. Chollon, R. Pailler, J. Leyssale, Collège de France, France, Collège de France, France; University of Bordeaux 1, France; F. Babonneau, Collège de France, France

2:40 PM

(ICACC-S8-022-2012) Direct 3D printing of composite microstructures

N. R. Phillips*, B. G. Compton, N. Reilly-Shapiro, M. R. Begley, UCSB, USA

3:00 PM

Break

SPS and Micro-Wave Assisted Technology

Room: Coquina Salon A

Session Chairs: Erica Corral, University of Arizona; Jow-Lay Huang, National Cheng-Kung University

3:20 PM

(ICACC-S8-023-2012) Study on spark-plasma-sintered beta-Si₃N₄ based nanocomposites (Invited)

J. Huang*, C. Lee, National Cheng-Kung University, Taiwan; H. Lu, 2 Department of Mechanical Engineering, National Chin-Yi University of Technology, Taiping, Taichung 411, Taiwan, Republic of China, Taiwan; P. Nayak, National Cheng-Kung University, Taiwan

3:40 PM

(ICACC-S8-024-2012) Critical Analysis of Spark Plasma Sintering Scale-up Processing and Production of Complex Shape Parts Assisted by Spark Plasma Joining

W. Pinc*, L. S. Walker, University of Arizona, USA; D. Fredrick, Thermal Technologies, USA; E. Corral, University of Arizona, USA

4:00 PM

(ICACC-S8-025-2012) Optical Transparent Nano-structured and Nano-composite Ceramics Prepared by Spark Plasma Sintering
J. Liu*, University of California, USA; W. Yao, A. K. Mukherjee, OSRAM SYLVANIA INC., USA

4:20 PM

(ICACC-S8-026-2012) In situ carbon nanotube reinforced ceramics via Microwave Assist Technology sintering
S. M. Allan*, F. J. Cabe, Ceralink Inc., USA; A. Datye, Florida International University, USA; M. L. Fall, Ceralink Inc., USA; A. Zaretski, K. H. Wu, Florida International University, USA; H. S. Shulman, Ceralink Inc., USA

4:40 PM

(ICACC-S8-028-2012) FAST Processing of SiC Monolithics and Fiber Reinforced SiC Composites
S. Gephart*, J. Singh, A. Kulkarni, Penn State University, USA; R. Shinavski, Hyper-Therm High-Temperature Composites, Inc, USA; A. Calomino, D. Brewer, NASA - Langley Research Center, USA

S9: Porous Ceramics: Novel Developments and Applications

Structure and Properties of Porous Ceramics II

Room: Coquina Salon C

Session Chair: Thomas Watkins, ORNL

1:30 PM

(ICACC-S9-023-2012) Photoactivities of Porous PEO Coatings on Titanium Plates and Wire Meshes
L. K. Mirelman*, B. Clyne, C. Dunleavy, J. Curran, University of Cambridge, United Kingdom

1:50 PM

(ICACC-S9-024-2012) The Effect of the Water-Silica Interface on Enhanced Proton Transport
G. K. Lockwood*, S. H. Garofalini, Rutgers, the State University of New Jersey, USA

2:10 PM

(ICACC-S9-025-2012) Intentionally Porous Alumina and Aluminates
M. Vadala*, D. C. Lupascu, University of Duisburg Essen, Germany

2:30 PM

(ICACC-S9-026-2012) Characterizing the Reduction of $Ni_xMg_{1-x}Al_2O_4$
B. E. Hill*, M. E. Miller, K. C. Glass, S. T. Misture, Alfred University, USA

2:50 PM

Break

Mechanical Properties of Porous Ceramics

Room: Coquina Salon C

Session Chair: Monika Backhaus-Ricoult, Corning Incorporated

3:10 PM

(ICACC-S9-027-2012) Fracture Toughness of Porous SiC at Elevated Temperature (Invited)
T. R. Watkins*, K. J. Wright, A. Shyam, ORNL, USA; R. J. Stafford, Cummins Inc, USA

3:40 PM

(ICACC-S9-028-2012) Failure Stress and Apparent Elastic Modulus of Diesel Particulate Filter Ceramics
A. A. Wereszczak, E. E. Fox*, M. J. Lance, Oak Ridge National Lab, USA

4:00 PM

(ICACC-S9-029-2012) Strengthening technique of porous alumina using a TEOS solution treatment
S. Hashimoto*, R. Hanai, Y. Ito, S. Honda, Y. Iwamoto, Nagoya Institute of Technology, Japan

4:20 PM

(ICACC-S9-030-2012) Elastic Modulus of Porous Cordierite by Flexure Test Method Compared to Sonic/Resonance Test Methods
R. Stafford*, K. Golovin, Cummins, Inc, USA; A. Dickinson, Cummins, Inc., USA; T. Watkins, A. Shyam, Oak Ridge National Laboratory, USA

4:40 PM

(ICACC-S9-031-2012) Crack growth during double torsion fracture toughness testing of machined honeycomb ceramics
J. Zimmermann*, K. Hof, J. Westbrook, G. Morgan, T. Meyer, Corning, USA

5:00 PM

(ICACC-S9-032-2012) Converting macro to micro-stress and strain in porous and in microcracked ceramics
G. Bruno*, Corning Inc., USA; A. N. Levandovskiy, A. M. Efremov, Corning OOO, Russian Federation

S14: Advanced Materials and Technologies for Rechargeable Batteries

Ceramics for Electric Energy Generation, Storage, and Distribution

Room: Coquina Salon H

Session Chairs: Michael Lanagan, Penn State University; Gunnar Westin, Uppsala University

1:30 PM

(ICACC-S14-018-2012) High Energy Glass Composites for Pulse Power and Power Electronic Applications (Invited)
M. Lanagan*, Penn State University, USA

2:00 PM

(ICACC-S14-019-2012) Thermoelectric Properties of Selected Phases in the System $Zn_xIn_yO_{x+1.5y}$
M. Amani*, I. M. Tougas, O. J. Gregory, Department of Chemical Engineering, USA

2:20 PM

(ICACC-S14-020-2012) Flexible Zn_2SnO_4/MnO_2 Core/shell Nanocable - Carbon Microfiber Hybrid Composites for High Performance Supercapacitor Electrodes
L. Bao, J. Zang, X. Li*, University of South Carolina, USA

2:40 PM

(ICACC-S14-021-2012) Highly efficient spectrally selective solar thermal absorbers by solution processing
G. Westin*, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden

3:00 PM

Break

3:20 PM

(ICACC-S14-022-2012) Mesoporous Pseudocapacitive Electrode Materials
B. Saruhan-Brings*, S. Özkan, Y. Gönüllü, German Aerospace Center, Germany

3:40 PM

(ICACC-S14-023-2012) Thermal conductivity reduction and thermoelectric performance of ZnO by Multinary Doping
M. Ohtaki*, Y. Iwano, Kyushu University, Japan

4:00 PM

(ICACC-S14-024-2012) Nanoscale Defect Engineering for High Critical Currents in Epitaxial High Temperature Superconducting (HTS) Tapes
V. Selvamanickam*, University of Houston, USA; Y. Chen, SuperPower, USA; G. Majkic, S. Tuo, Y. Yao, Y. Bi, X. Tao, N. Khatri, E. Galtysyan, University of Houston, USA; S. Sambandam, SuperPower, USA

4:20 PM

(ICACC-S14-025-2012) Fabrication of 2D/3D Nanostructures using Polymer/Inorganic Nanospheres for Energy Conversion Applications (Invited)
K. Fung*, C. Ni, National Cheng Kung University, Taiwan

4:40 PM

(ICACC-S14-026-2012) Improvement of Calcium Cobaltate Thermoelectric Performance by Silver Doping
J. Seig, S. Lin*, Lamar University, USA; H. Lin, H. Wang, Oak Ridge National Laboratory, USA

FS2: Computational Design, Modeling, and Simulation of Ceramics and Composites

Novel Simulation Method and Virtual Material Design

Room: Ponce de Leon

Session Chairs: Jian Luo, Clemson Univ; John Lawson, NASA Ames Research Center

1:30 PM

(ICACC-FS2-020-2012) Kinetic Monte Carlo Simulation of Oxygen Diffusion in Doped Zirconia-Based Materials (Invited)

B. S. Good*, NASA Glenn Research Center, USA

2:00 PM

(ICACC-FS2-021-2012) Materials Thermodynamics and Phase Modeling in the Li-Mn-O System (Invited)

H. J. Seifert*, D. M. Cupid, Karlsruhe Institute of Technology, Germany

2:30 PM

(ICACC-FS2-022-2012) Electronic Structure, Bonding, and Optical Properties of Mo Based Alloys in the Mo-Si-B Phase Diagram (Invited)

P. Rulis*, W. Ching, University of Missouri - Kansas City, USA

3:00 PM

Break

3:20 PM

(ICACC-FS2-023-2012) Micromechanical Finite Element Simulations and Determination of Effective Properties in Silicon Nitride (Invited)

T. Böhlke*, J. Wippler, Karlsruhe Institute of Technology, Germany

3:50 PM

(ICACC-FS2-024-2012) A new anisotropic constitutive model for ceramic materials failure

S. Falco*, C. Dancer, R. Todd, N. Petrinic, University of Oxford, United Kingdom

4:10 PM

(ICACC-FS2-025-2012) Inelastic Microstructure Modeling and Design of MMCs with Lamellar Microstructure

R. Piat*, Y. Sinchuk, Karlsruhe Inst of Technology, Germany

4:30 PM

(ICACC-FS2-026-2012) An integrated virtual material approach for ceramic matrix composites

G. Couegnat*, W. Ros, T. Haurat, C. Germain, E. Martin, G. L. Vignoles, University of Bordeaux, France

4:50 PM

(ICACC-FS2-027-2012) Microstructure-sensitive extreme value damage response in fully dense ceramic matrix composites with unidirectional plys

M. Braginsky*, UES, Inc., USA; C. P. Przybyla, Air Force Research Laboratory, USA

FS3: Next Generation Technologies for Innovative Surface Coatings

Longer Life Solution, Technological Problems and Solutions, and Mass Production

Room: Coquina Salon G

Session Chairs: Jinsam Choi, Gyeongsang National University; Jun Akedo, AIST

1:30 PM

(ICACC-FS3-022-2012) Corrosion protection of non-ferrous metals by SiOxCy(-H)film deposited by atmospheric pressure dielectric barrier discharge (Invited)

G. Kim, D. Shin, Y. Kim*, Hanbat National University, Republic of Korea

2:00 PM

(ICACC-FS3-023-2012) Fabrication of the anisotropic structured BN/Polymer composites with Nanoimprint and Electric Field Process

T. Nakayama*, T. Fujihara, H. Cho, S. Endo, H. Kim, Nagaoka University of Technology, Japan; K. Tada, Toyama National College of Technology, Japan; W. Jiang, H. Suematsu, K. Niihara, Nagaoka University of Technology, Japan

2:20 PM

(ICACC-FS3-024-2012) Fabrication of De-NOx SCR catalyst over graphene supported vanadium oxides

H. Kim*, M. Bae, E. Kim, M. Lee, Korea Institute of Industrial Technology, Republic of Korea

2:40 PM

(ICACC-FS3-025-2012) Production of hollow silica nanoparticles as a base material for the functional surface coatings

T. Hwang, G. Kim*, Korea Institute of Industrial Technology, Republic of Korea

3:00 PM

Break

3:20 PM

(ICACC-FS3-026-2012) Plasma resistant properties of sol-gel Y2O3 coating on quartz glass windows for semiconductor fabrication equipments

D. Riu*, Seoul National University of Science and Technology, Republic of Korea; B. Kim, Korea Institute of Industrial Technology, Republic of Korea; C. Oh, KumKang Quartz Co., Republic of Korea

3:40 PM

(ICACC-FS3-027-2012) Low-temperature curable TiO₂ paste for the flexible dye-sensitized solar cells

H. Kim*, J. Park, T. Hwang, Korea Institute of Industrial Technology, Republic of Korea

4:00 PM

(ICACC-FS3-028-2012) Grain orientation control of bismuth layer-structured ferroelectric thick films prepared by aerosol deposition method

M. Suzuki*, J. Akedo, AIST, Japan

4:20 PM

(ICACC-FS3-029-2012) An Approach to Sinter Yttria Monolith of a Full Density by Using Surface and Interfacial Engineering

J. Choi*, Gyeongsang National University, Republic of Korea; T. Nakayama, H. Suematsu, Nagaoka University of Technology, Japan; E. Kang, Gyeongsang National University, Republic of Korea

4:40 PM

(ICACC-FS3-001-2012) Atomic Layer Deposition of Ru-based Ternary Thin Films for Seedless Copper Electroplating Applications (Invited)

S. Kim*, Yeungnam University, Republic of Korea

FS4: Advanced (Ceramic) Materials and Processing for Photonics and Energy

Advanced Materials for Environmental Applications I

Room: Oceanview

Session Chair: J. Morante, IREC and University of Barcelona

1:30 PM

(ICACC-FS4-009-2012) Hydrolytic Colloidal Routes to Metal Oxide Nanocrystals. Synthetic Principles, Gas-Sensing Devices and Synthesis-Property Relationship (Invited)

M. Epifani*, CNR-IMM, Italy

2:00 PM

(ICACC-FS4-010-2012) Synchrotron based spectroscopic studies of functional materials and systems (Invited)

O. Karis*, Uppsala University, Sweden

2:30 PM**(ICACC-FS4-011-2012) Fast Processing of Advanced Ceramics for Sensor and Thermoelectric Applications: The Role of Powder Morphology During Spark Plasma Sintering of Nanopowders (Invited)**

O. A. Graeve*, J. P. Kelly, B. M. Clark, M. A. Alberga, Alfred University, USA

3:00 PM**Break****Solid State Ionics**

Room: Oceanview

Session Chair: Giorgio Sberveglieri, University of Brescia

3:20 PM**(ICACC-FS4-012-2012) Perovskite thin films and nano-phase powders by alkoxide based synthesis**

G. Westin*, K. Lashgari, A. Pohl, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden

3:40 PM**(ICACC-FS4-013-2012) Going nano: the impact of boundary effects on the electrical properties of ionically and mixed conducting oxides (Invited)**

G. Gregori*, J. Maier, Max Planck Institute for Solid State Research, Germany

4:10 PM**(ICACC-FS4-014-2012) Synthesis and Characterization of highly textured BaTiO₃ thin film**

Z. Zhou*, University of Florida, USA; Y. Lin, The University of Texas at El Paso, USA; H. A. Sodano, University of Florida, USA

4:30 PM**(ICACC-FS4-015-2012) Upconversion Luminescent Er Doped SrTiO₃: Site-selected Substitution and Visible-light-driven Photocatalytic H₂ or O₂ Evolution**

J. Shi*, Xi'an Jiaotong University (XJTU), China; J. Ye, National Institute for Materials Science (NIMS), Japan; L. Ma, Xi'an Jiaotong University (XJTU), China; S. Ouyang, National Institute for Materials Science (NIMS), Japan; D. Jing, L. Guo, Xi'an Jiaotong University (XJTU), China

Posters – Symposium 1

Room: Exhibit Hall

5:00 PM**(ICACC-S1-P001-2012) Evaluation of ceramic materials and joints using UT and X-Ray**

Y. Nishimura*, T. Suzuki, N. Kondou, H. Kita, K. Hirao, National Institute of Advanced Industrial Science and Technology, Japan

(ICACC-S1-P002-2012) Rapid fabrication of a C/SiC Composite with SiC-Powder Slurry Infiltration Method

T. Hara*, Tokyo University of Science, Japan; T. Aoki, T. Ogasawara, Japan Aerospace Exploration Agency (JAXA), Japan; Y. Kogo, Tokyo University of Science, Japan

(ICACC-S1-P003-2012) Mechanical Behavior of Reaction Bonded Silicon Carbide Exposed to Petroleum and Naptha

R. P. Silva*, C. A. Costa, Universidade Federal do Rio de Janeiro - UFRJ, Brazil

(ICACC-S1-P004-2012) Mechanical characterization of a transparent spinel ceramic

O. A. Tokariev*, J. Malzbender, R. W. Steinbrech, Forschungszentrum Jülich GmbH, Germany; L. Schnetter, CeramTec-ETEC GmbH, Germany

(ICACC-S1-P005-2012) Synthesis of SiC from Silica-Coated Carbon and Oxidized Silicon Powders

Y. Hwang*, D. Riu, H. Kang, Seoul National University of Science & Technology, Republic of Korea; D. Chun, Y. Kim, Inocera Inc., Republic of Korea

(ICACC-S1-P006-2012) Reaction bonded Si/SiB₆: effect of carbon additions on composition and properties

S. Salamone*, M. Aghajanian, O. Spriggs, M Cubed Technologies Inc., USA; S. E. Horner, PM Soldier Protection and Individual Equipment, USA

(ICACC-S1-P007-2012) Sintering behavior of SiC fiber derived from polycarbosilane

J. Hong*, Y. Cho, M. Kang, H. Lim, H. Kang, Seoul National University of Science and Technology, Republic of Korea; K. Cho, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; D. Riu, Seoul National University of Science and Technology, Republic of Korea

(ICACC-S1-P008-2012) Silicon carbide particle growth during carbothermal reduction of SiO₂ and C mixture

H. Kang*, J. Cho, D. Riu, Seoul National University of Science and Technology, Republic of Korea; D. Shin, LG Innotek, Republic of Korea

(ICACC-S1-P009-2012) Effect of Ta-doping on Electrical and Dielectric properties of Bi_{0.5}(Na_{0.5}K_{0.5})_{0.5}TiO₃ ceramics

K. Kumar*, Crystal Lab, India; B. Kumar, University of Delhi, India

(ICACC-S1-P010-2012) The study of the variation of mechanical properties with ratio of α/β SiC powders

H. Shin*, Y. Kim, D. Chun, Inocera inc., Republic of Korea

(ICACC-S1-P011-2012) Slurries with organic and inorganic components

M. Vadala*, D. C. Lupascu, University of Duisburg Essen, Germany

(ICACC-S1-P012-2012) Fracture Behavior and Toughness of Short Carbon Fiber Dispersed SiC Matrix Composites

R. Inoue*, Y. Kagawa, H. Kakisawa, The University of Tokyo, Japan

(ICACC-S1-P013-2012) Toughening in Graphene Ceramic Nanocomposites

V. R. Marotto*, M. A. Valdez, L. S. Walker, E. L. Corral, University of Arizona, USA

(ICACC-S1-P014-2012) Wear Behavior of Ceramic/Metal Composites

M. Aghajanian*, B. Givens, M. Watkins, A. McCormick, M. Waggoner, M Cubed Technologies, Inc., USA

(ICACC-S1-P015-2012) Weave and fiber volume effects in a PIP CMC material system

G. Ojard*, E. Prevost, Pratt & Whitney, USA; U. Santhosh, Structural Analytics, Inc.Center, USA; R. Naik, Pratt & Whitney, USA; D. Jarmon, United Technologies Research Center, USA

(ICACC-S1-P016-2012) Mechanical properties of nacre after cyclic loading

K. Uno*, H. Kakisawa, Y. Kagawa, The University of Tokyo, Japan

(ICACC-S1-P017-2012) In-situ Boron Nitride Nanotubes on Ceramic powders by Chemical Vapor deposition

A. Kumar*, Florida International University, USA; A. Datye, University of Tennessee, USA; K. Wu, Florida International University, USA; H. Lin, Oak Ridge National Laboratory, USA; J. Hurst, NASA, USA

(ICACC-S1-P018-2012) Study of visualizing of internal defects in ceramic products using UT probe array

Y. Nishimura, T. Suzuki, National Institute of Advanced Industrial Science and Technology, Japan; K. Fukuda, N. Saito*, Tokyo National College of Technology, Japan

(ICACC-S1-P019-2012) Advanced Ceramics Property Measurements

J. Salem, NASA GRC, USA; J. D. Helfinstine*, Corning Inc Retiree, USA; G. Quinn, NIST, USA; S. Gonczyk, Gateway Materials Technology, Inc, USA

(ICACC-S1-P020-2012) Corrosion of titanium carbonitride cermets with a nickel aluminide binder

M. B. Holmes*, Z. N. Farhat, G. J. Kipouros, K. P. Plucknett, Dalhousie University, Canada

(ICACC-S1-P021-2012) Tensile Behavior and Health Monitoring of SiC/SiC Single Tow Minicomposites

S. Ramasamy*, G. Morscher, The University of Akron, USA

(ICACC-S1-P022-2012) Low CTE & High Stiffness Diamond reinforced SiC based Composites with Machineable Surfaces for Mirrors & Structures

M. A. Akbas*, D. Mastrobattisto, B. Vance, P. Chhillar, P. Jurgaitis, M Cubed Technologies Inc., USA

(ICACC-S1-P023-2012) Study of Al₂O₃ ceramic coating deposited onto carbon fiber reinforced polymer substrate

G. Sun*, X. He, J. Jiang, Y. Sun, Center for Composite Materials and Structures, Harbin Institute of Technology, China

(ICACC-S1-P024-2012) Novel Oxide Ceramic Multilayer Structures for High Temperature Applications

I. Goetschel*, A. Roosen, University of Erlangen-Nuremberg, Germany

(ICACC-S1-P025-2012) Functionalization and Uniform Dispersion of MWCNTs into PDMS

S. Sagar*, N. Iqbal, A. Maqsood, M. Mujahid, M. Shahid, National University of Sciences & Technology (NUST), Pakistan

(ICACC-S1-P026-2012) Enhancement in Thermal and Mechanical Properties of PDMS via FMWCNTs

N. Iqbal*, S. Sagar, M. Khan, M. Mujahid, National University of Sciences & Technology (NUST), Pakistan

Posters – Symposium 4

Room: Exhibit Hall

5:00 PM

(ICACC-S4-P048-2012) The Effect of Alumina Microstructure on Acoustic Loss Mechanisms

S. Bottiglieri*, Rutgers University, USA

(ICACC-S4-P049-2012) Role of Pressure and Strain Rate on Structural Amorphization in Boron Carbide

G. Subhash*, D. Ghosh, University of Florida, USA

(ICACC-S4-P050-2012) Damage mechanisms and the indentation size effect

L. J. Vandeperre*, E. Feilden-Irving, R. Birch, N. Ur-Rehman, Imperial College London, United Kingdom; P. Brown, Defence Science and Technology Laboratory, United Kingdom

(ICACC-S4-P051-2012) Improved Modeling and Simulation of the Ballistic Impact of Tungsten-Based Penetrators on Confined Hot-Pressed Boron Carbide Targets

J. C. Lasalvia, C. G. Fountzoulas*, U.S. Army Research Laboratory, USA

(ICACC-S4-P052-2012) Microstructure and Mechanical Properties of SiC-TiB₂ Composites

D. King*, W. G. Fahrenholtz, G. Hilmas, Missouri University of Science and Technology, USA

(ICACC-S4-P053-2012) ZnS bulk ceramics fabricated by spark plasma sintering

Y. Wu*, Alfred University, USA

(ICACC-S4-P054-2012) TEM Phase Study of Silicon Carbide with Coprecipitated Alumina and Ytria as Sintering Aids

S. L. Miller*, Rutgers University, USA; S. Mercurio, American Standard, USA; J. Michael, Sandia National Laboratory, USA; F. Cosandey, R. Haber, Rutgers University, USA

(ICACC-S4-P055-2012) Development of lightweight reaction bonded materials for armor

P. Karandikar*, S. Wong, M. Aghajanian, M Cubed Technologies, Inc., USA

(ICACC-S4-P056-2012) Characterisation of Damage Mechanisms in Commercial Oxide Ceramics Indented Over a Range of Strain Rates

C. J. Dancer*, J. F. Spawton, S. Falco, N. Petrinic, R. I. Todd, University of Oxford, United Kingdom

(ICACC-S4-P057-2012) Alumina-Steel Trilayer and Bilayer Penetration: Simulation and the Role of Microcracked Material

E. A. Gamble*, B. G. Compton, F. W. Zok, University of California, Santa Barbara, USA

(ICACC-S4-P058-2012) Quantifying Ceramic Microstructure Homogeneity through Information Entropy

A. Portune*, ARL - ORAU, USA; T. L. Jessen, ARL, USA

(ICACC-S4-P059-2012) ALON® Transparent Armor

L. M. Goldman*, S. Balasubramanian, N. Nag, U. Kashalikar, R. A. Foti, S. Sastri, Surmet Corp., USA

(ICACC-S4-P060-2012) Hardness and Plasticity of Single Crystal SiC

J. Swab*, J. McCauley, G. Gazonas, B. Butler, D. Snoha, U.S. Army Research Laboratory, USA

(ICACC-S4-P061-2012) In Depth Study of Cone Cracks in Multi-Layered Transparent Panel Structures by X-ray Computed Tomography

W. H. Green*, R. E. Brennan, C. G. Fountzoulas, U.S. Army Research Laboratory, USA

(ICACC-S4-P062-2012) Effect of Binder Content on the Performance of WC Penetrators

J. C. Wright*, UIC TS, Bowhead Science and Technology, LLC, USA; J. J. Swab, L. S. Magness, US Army Research Lab, USA

(ICACC-S4-P063-2012) Modeling Ceramic Edge on Impact Experiments

B. Leavy*, Army Research Lab, USA; E. Strassburger, Ernst Mach Institute, Germany

(ICACC-S4-P064-2012) Nanostructured and large grain spinel: comparison of depth of penetration (DOP) test rubble

V. T. Viggato, M. J. Magner, L. P. Franks*, D. N. Hansen, US Army TARDEC, USA

(ICACC-S4-P065-2012) Strength Testing of Glass Coated Magnesium-Aluminate Spinel

S. Kilczewski*, Data Matrix Solutions, USA; R. Pavlacka, Oak Ridge Institute for Science and Education, USA; J. C. Wright, UIC TS Bowhead Science and Technology, LLC, USA; J. J. Swab, US Army Research Laboratory, USA

(ICACC-S4-P066-2012) Low Temperature Densification and Mechanical Properties of Ultra-hard Boron Suboxide Ceramics

R. Pavlacka*, G. Gilde, U.S. Army Research Laboratory, USA

(ICACC-S4-P067-2012) Acoustic and Mechanical Response of Microstructural Variation in Silicon Carbide Ceramic Materials

D. Slusark*, R. Haber, Rutgers University, USA

(ICACC-S4-P068-2012) Stress Wave Management in Obliquely Laminated Composite Systems

C. J. Espinoza Santos*, The University of Illinois at Urbana Champaign, USA; W. Kriven, The University of Illinois at Urbana Champaign, USA; D. A. Tortorelli, The University of Illinois at Urbana Champaign, USA; M. Silva, The University of Illinois at Urbana Champaign, USA

Posters – Symposium 9

Room: Exhibit Hall

5:00 PM

(ICACC-S9-P109-2012) Local structural characterizations of transition metal cation-doped amorphous silica-based membranes for high-temperature gas separation

A. Mori*, K. Higashiguchi, K. Hataya, S. Honda, Y. Iwamoto, Nagoya Institute of Technology, Japan

(ICACC-S9-P110-2012) Fabrication of porous zirconia with high volume fraction of closed pores formed by impurities

T. Umeda, S. Hashimoto*, Nagoya Institute of Technology, Japan; K. Hirao, N. Kondo, H. Hyuga, Y. Zhou, National Institute of Advanced Industrial Science and Technology (AIST), Japan; S. Honda, Y. Iwamoto, Nagoya Institute of Technology, Japan

(ICACC-S9-P111-2012) Processing of functional thin films for gas separation membranes and solid oxide fuel cells with sol-gel ink-jet printing

J. Hoffmann, T. Van Gestel*, G. Hu, N. Menzler, M. Bram, H. Buchkremer, Forschungszentrum Jülich, Germany

(ICACC-S9-P112-2012) Fibrous Alumina Scaffolds for Bone Tissue Engineering Applications

S. Mohanty, S. Dhara*, IIT Kharagpur, India; A. Rameshbabu, VIT University, India

(ICACC-S9-P113-2012) Obtaining of porous corundum ceramics by utilization of waste rice husk. Investigation of composition, structure and thermal degradation of rice husk

I. G. Markovska*, Assen Zlatarov University, Bulgaria

Posters – Symposium 14

Room: Exhibit Hall

5:00 PM

(ICACC-S14-P133-2012) Si nanowires fabricated by noble metal catalytic etching for Li-ion anodes

J. Kim*, S. Baek, J. Park, B. Noh, Daegu Gyeongbuk Institute of Science & Technology, Republic of Korea

(ICACC-S14-P134-2012) Effects of Al₂O₃ Addition on Phase Transition and Ionic Conductivity of The NASICON-type Li_{1+x}Al_xTi_{2-x}(PO₄)₃ Solid Electrolyte

K. Fung*, C. Ni, National Cheng Kung University, Taiwan

(ICACC-S14-P135-2012) 3D Characterization of Li-ion Batteries and other Porous Composites with Lab and Synchrotron X-ray Microscopes

P. R. Shearing, Imperial College London, United Kingdom; R. Bradley, University of Manchester, United Kingdom; S. H. Lau*, J. Gelb, Xradia, Inc., USA; N. P. Brandon, Imperial College London, United Kingdom; P. J. Withers, University of Manchester, United Kingdom

Posters – Focused Session 2

Room: Exhibit Hall

5:00 PM

(ICACC-FS2-P140-2012) Numerical Simulation of Temperature and Stress Field Evolution Applied to Spark Plasma Sintering

J. Allen*, C. Welch, J. Peters, US Army Corps of Engineers, Engineer Research & Development Center, USA

(ICACC-FS2-P141-2012) Electronic Structure and Interband Optical Properties of 20 MAX Phase Compounds

Y. Mo, P. Rulis, W. Ching*, University of Missouri-Kansas City, USA

(ICACC-FS2-P142-2012) Crystalline Approximants of SiCO: Implications on Structure and Thermochemistry of Ternary Silicon Oxycarbide

P. Kroll*, N. Bodiford, UT Arlington, USA

(ICACC-FS2-P143-2012) Oxidation mechanism for SiCO: theoretical study on diffusion and reaction of oxygen

P. Kroll*, B. Xu, B. Kouchmeshky, UT Arlington, USA

(ICACC-FS2-P144-2012) Design of ZrO₂/SiC Composite Materials with very low-thermal conductivity

B. Kouchmeshky, P. Kroll*, UT Arlington, USA

(ICACC-FS2-P145-2012) Molecular dynamics simulations of hypersonic velocity impact protection properties of CNT/a-SiC composites

A. Goodarzi*, Amirkabir University of Tech., Islamic Republic of Iran; H. Taylor, Imperial College London, United Kingdom

(ICACC-FS2-P146-2012) Studies of gas-phase reactivity during chemical vapor deposition of boron carbide

G. Reinisch, University Bordeaux 1, France; J. Leysale, CNRS, France; S. Patel, University Bordeaux 1, France; G. Chollon, CNRS, France; G. L. Vignoles*, University Bordeaux 1, France

(ICACC-FS2-P147-2012) Image-based 2D Numerical Modeling of Oxide Formation in Self-Healing CMCs

V. Dréan, INRIA, France; G. Perrot, University Bordeaux 1, France; G. Couegnat, CNRS, France; M. Ricchiuto, INRIA, France; G. L. Vignoles*, University Bordeaux 1, France

(ICACC-FS2-P148-2012) First Principles Calculations of Boron Carbide

J. S. Dunn*, J. C. LaSalvia, U.S. Army Research Laboratory, USA

Posters – Focused Session 5

Room: Exhibit Hall

5:00 PM

(ICACC-FS3-P149-2012) Growth behaviors of iron nitride in a low pressure gas nitriding reactor

Y. Kim*, Hanbat National University, Republic of Korea; K. Moon, Korea Institute of Industrial Technology, Republic of Korea

(ICACC-FS3-P150-2012) Fabrication, characterization and mechanical properties of the Y-Ti-O ceramics

S. Amarume*, Nagaoka university of technology, Japan; H. Lingfeng, University of Wisconsin-madison, USA; N. Tadachika, Nagaoka university of technology, Japan; R. Ramaseshan, Homi Bhabha National Institute, India; Y. Sato, Nagaoka university of technology, Japan; H. Asami, Tomakomai national College of Technology, Japan; T. Suzuki, H. Suematsu, K. Niihara, Nagaoka university of technology, Japan

(ICACC-FS3-P151-2012) Fabrication of the rubber and ceramics electrets with nano second pulsed discharge

M. Mitsuhashi*, T. Nakayama, S. Endo, M. Terauchi, W. Jiang, T. Suzuki, H. Kim, H. Suematsu, K. Niihara, Nagaoka University of technology, Japan

(ICACC-FS3-P152-2012) Plasma-Enhanced CVD of Metal Oxide Nanostructures: Growth and Device Applications

A. Mettenboerger*, A. P. Singh, P. Golus, N. Tosun, S. Mathur, University of Cologne, Germany

(ICACC-FS3-P153-2012) Non-vacuum type Atomic Layer Deposition of TiO₂ Thin films

W. Kwack*, S. Kwon, S. Jeong, Y. Jeong, Pusan National University, Republic of Korea

(ICACC-FS3-P154-2012) Flexible piezoelectric thin film by hydrothermal process

S. Lee, Inha University, Republic of Korea; W. Lee, H. Song, C. Kang, Korea Institute of Science and Technology, Republic of Korea; D. Jeong*, Inha University, Republic of Korea

(ICACC-FS3-P155-2012) Synthesis of Dense Nanocrystalline YSZ Coating by Room Temperature Vacuum Cold Spraying

C. Park*, K. Baik, Chungnam National University, Republic of Korea

(ICACC-FS3-P156-2012) Microstructure Evolution and Electrical Properties of Plasma Sprayed Ba-Ti-O Coating

K. Baik, D. Lee*, Chungnam National University, Republic of Korea

(ICACC-FS3-P157-2012) A study on the ternary elements (X= Cr, Zr, Mo, Cu, Si, B) addition on the Ti-Al-N coating deposited by magnetron sputtering process with single alloying targets

K. Moon*, D. Jung, C. Byun, S. Shin, KITECH, Republic of Korea

(ICACC-FS3-P158-2012) A study on the improvement of the service life of shaft-bushing tribosystems by plasma sulfur nitriding process

H. Kim*, K. Kim, J. Kim, Daekeum Geowell, Republic of Korea; K. Moon, C. Byun, KITECH, Republic of Korea

(ICACC-FS3-P159-2012) Development of a dry and wet process for the applications in boundary lubrication area

K. Moon*, T. Hwang, KITECH, Republic of Korea

(ICACC-FS3-P160-2012) A study on the lubrication properties of Diamond Like Carbon coating for industrial applications

K. Moon*, J. Kim, KITECH, Republic of Korea; J. Park, Hanyang University, Republic of Korea

(ICACC-FS3-P161-2012) Metal Nitride Coatings for Wear Resistant Aluminum Extrusion Mold

S. Lee, S. Kim*, Korea University Of Technology and Education, Republic of Korea

(ICACC-FS3-P162-2012) Temperature Dependent Thermoelectric Properties of Bismuth Antimony Telluride Prepared by Spark Plasma Sintering

K. Lee*, Y. Jeong, Pusan National University, Republic of Korea

Posters – Focused Session 4

Room: Exhibit Hall

5:00 PM

(ICACC-FS4-P163-2012) The Production of Photoactive Coatings by Plasma Electrolytic Oxidation

L. K. Mirelman*, B. Clyne, C. Dunleavy, J. Curran, University of Cambridge, United Kingdom

(ICACC-FS4-P164-2012) Crystallization, binding energy and chemical states in ion-implanted TiO₂ nanotubes and nanofibres

I. J. Low*, Curtin University, Australia; F. W. Yam, Universiti Sains Malaysia, Malaysia; V. De La Prida, University of Oviedo, Spain; M. Ionescu, Australian Nuclear Science & Technology Organisation, Australia

Wednesday, January 25, 2012**S1: Mechanical Behavior and Performance of Ceramics & Composites****In-Situ Evaluations Using X-rays/Neutrons and NDE**

Room: Coquina Salon D

Session Chairs: Goffredo de Portu, ISTECC-CNR; Jiangang Sun, Argonne National Lab

8:00 AM

(ICACC-S1-033-2012) In situ Synchrotron Studies of the Tetragonal to Monoclinic Phase Transformation in Hafnia and Zirconia

R. P. Haggerty, P. Sarin, Z. D. Apostolov, W. M. Kriven*, University of Illinois at Urbana-Champaign, USA

8:20 AM

(ICACC-S1-034-2012) Ferroelastic Phase Transformations in Rare-Earth Niobates

P. Sarin*, D. R. Lowry, J. Angelkort, Z. D. Apostolov, R. P. Haggerty, W. M. Kriven, University of Illinois at Urbana-Champaign, USA

8:40 AM

(ICACC-S1-035-2012) In-situ synchrotron x-ray diffraction and thermal analysis study of the cubic to rhombohedral phase transformation in Y_6WO_{12} and its thermal expansion behavior up to 1500°C

Z. Apostolov*, P. Sarin, R. P. Haggerty, W. M. Kriven, UIUC, USA

9:00 AM

(ICACC-S1-036-2012) Investigation of thermal properties of ZrP_2O_7 and $Zr_2P_2O_9$

J. Angelkort*, P. Sarin, Z. D. Apostolov, P. F. Keane, W. M. Kriven, University of Illinois, USA

9:20 AM

(ICACC-S1-037-2012) Microstructures of La-doped Low Thermal Expansion Cordierite Ceramics

H. Unno*, KROSAKI HARIMA CORPORATION, Japan; S. Toh, Kyushu University, Japan; J. Sugawara, K. Hattori, KROSAKI HARIMA CORPORATION, Japan; S. Uehara, S. Matsumura, Kyushu University, Japan

9:40 AM

Break

10:00 AM

(ICACC-S1-038-2012) CTEAS - A GUI based program to calculate coefficients of thermal expansion of crystalline materials from high temperature powder X-ray diffraction

Z. A. Jones*, P. Sarin, R. P. Haggerty, W. M. Kriven, University of Illinois at Urbana-Champaign, USA

10:20 AM

(ICACC-S1-039-2012) On the response of Ti_2SC & Ti_3SiC_2 to stress studied by in-situ neutron diffraction, nanoindentation and the elasto-plastic self-consistent approach

M. M. Shamma*, V. Presser, Drexel University, USA; B. Clausen, D. Brown, Los Alamos National Laboratory, USA; M. Barsoum, Drexel University, USA

10:40 AM

(ICACC-S1-040-2012) Depth-resolved strains within thermal barrier coatings from in situ thermo-mechanical characterization using high-energy x-rays

R. Diaz, M. Jansz, M. Mossaddad, S. Raghavan*, University of Central Florida, USA; J. Almer, J. Okasinski, Argonne National Laboratory, USA; H. Palaez-Perez, P. Imbrie, Purdue University, USA

11:00 AM

(ICACC-S1-041-2012) Nondestructive Evaluation of Thermal Barrier Coatings by Optical and Thermal Imaging Methods

J. Sun*, Argonne National Lab, USA

11:20 AM

(ICACC-S1-042-2012) Investigation of Non-Destructive Evaluation Methods Applied to an Oxide/Oxide Fibre Reinforced Ceramic Matrix Composite

R. E. Johnston*, M. R. Bache, Swansea University, United Kingdom; D. Liaptsis, TWI Wales, United Kingdom; I. M. Edmonds, Rolls-Royce plc, United Kingdom

11:40 AM

(ICACC-S1-043-2012) 3D Fracture Behavior Monitoring of a Novel Alumina-Based Refractory and other Composites

S. H. Lau*, Xradia, Inc., USA; E. Skierab, J. Malzbender, Forschungszentrum Jülich GmbH, Germany; C. G. Aneziris, TU Bergakademie Freiberg, Germany; R. Steinbrech, Forschungszentrum Jülich GmbH, Germany

S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications

Thermal Barrier Coatings I

Room: Ponce de Leon

Session Chairs: Uwe Schulz, German Aerospace Center; Eric Jordan, University of Connecticut

8:00 AM

(ICACC-S2-001-2012) CMAS degradation of EB-PVD thermal barrier coatings: from solubility of ceramic oxides in CMAS to the development of CMAS-resistant ceramic compositions (Invited)

M. Vidal-Setif*, N. Chellah, C. Rio, D. Boivin, O. Lavigne, ONERA, France; M. Vilasi, Faculté des Sciences et Techniques, France

8:40 AM

(ICACC-S2-002-2012) Thermochemical Interaction of EB-PVD $Gd_2Zr_2O_7$ Thermal Barrier Coatings with Artificial Volcanic Ash

P. Mechnich*, W. Braue, U. Schulz, German Aerospace Center (DLR), Germany

9:00 AM

(ICACC-S2-003-2012) Recession of EB-PVD YSZ Thermal Barrier Coatings: Interplay of Fe,Ti-rich CMAS-type Deposits and Anhydrite-type $CaSO_4$

P. Mechnich*, W. Braue, German Aerospace Center (DLR), Germany

9:20 AM

(ICACC-S2-004-2012) The Effect of CMAS and Sintering on the Thermomechanical Stability of Plasma-Sprayed TBCs

M. Shinozaki*, T. W. Clyne, University of Cambridge, United Kingdom

9:40 AM

Break

10:00 AM

(ICACC-S2-005-2012) Cyclic life of EB-PVD thermal barrier coatings having novel compositions

U. Schulz*, German Aerospace Center, Germany

10:20 AM

(ICACC-S2-006-2012) Multilayered Thermal Barrier Coating Architectures for High Temperature Applications

D. E. Wolfe, M. P. Schmitt, Penn State University Applied Research Lab, USA; D. Zhu, NASA Glenn Research Center, USA; A. K. Rai*, R. Bhattacharya, UES, Inc., USA

10:40 AM

(ICACC-S2-007-2012) Defect-dependent thermal conductivity of tetragonal yttria-stabilized zirconia

A. M. Limarga*, D. R. Clarke, Harvard University, USA

11:00 AM

(ICACC-S2-008-2012) Implications of the c/t' Transformation on Characterization Efforts of Thermally Aged TBCs

J. A. Krogstad*, M. Lepple, UCSB, USA; Y. Gao, D. M. Lipkin, GE Global Research, USA; C. G. Levi, UCSB, USA

11:20 AM

(ICACC-S2-009-2012) Development of pyrochlore materials for thermal barrier coatings deposited by suspension plasma spraying

A. Joulia*, Centre Européen de la Céramique, France; S. Rossignol, Centre Européen de la Céramique, France, Centre Européen de la Céramique, France; Centre Européen de la Céramique, France; M. Vardelle, M. Huger, S. Foucaud, Centre Européen de la Céramique, France; E. Renard, CNES, France; D. Tchou-Kien, Centre Européen de la Céramique, France, Centre Européen de la Céramique, France; CNES, France

11:40 AM

(ICACC-S2-010-2012) Structures of $(LaxGd1-x)2Zr2O7$ Oxide Systems for Thermal Barrier Coatings (TBCs)

S. Kim*, K. Kwak, S. Lee, Y. Oh, Korea Institute of Ceramics Engineering and Technology, Republic of Korea; B. Jang, National Institute of Materials Science, Japan; H. Kim, Korea Institute of Ceramics Engineering and Technology, Republic of Korea

S4: Armor Ceramics**Transparent Materials II**

Room: Coquina Salon E

Session Chair: James McCauley, Army Research Laboratory

8:00 AM**(ICACC-S4-033-2012) Nondestructive Characterization of Low Velocity Impact Damage in Transparent Laminate Systems**

R. E. Brennan*, W. H. Green, C. G. Fountzoulas, U.S. Army Research Laboratory, USA

8:20 AM**(ICACC-S4-034-2012) XCT Diagnostics of Ballistic Impact Damage in Transparent Armor Targets**

J. Wells*, Office of Naval Research Global, United Kingdom

Opaque Materials I

Room: Coquina Salon E

Session Chair: James McCauley, Army Research Laboratory

8:40 AM**(ICACC-S4-035-2012) Opportunities in Protection Materials Science and Technology for Army Applications (Invited)**

E. L. Thomas*, Rice University, USA

9:10 AM**(ICACC-S4-036-2012) The Outlook for Ceramic in Future Vehicle Armor Solutions**

M. Price*, Vector Strategy, USA

9:30 AM**Break****9:50 AM****(ICACC-S4-037-2012) Discrimination of Basic Influences on the Ballistic Strength of Opaque and Transparent Ceramics**

A. Krell*, E. Strassburger, Fraunhofer EMI, Germany

10:20 AM**(ICACC-S4-038-2012) Using Hardness Tests to Determine Plasticity & Predict Impact Performance of Ceramics**

C. Hilton*, Oak Ridge Institute for Science & Education, USA; J. McCauley, J. Swab, US Army Research Lab, USA; E. Shanholz, Oak Ridge Institute for Science & Education, USA

10:40 AM**(ICACC-S4-039-2012) An Evaluation of the Relationship between Indentation Size Effect and Ballistic Performance in a Range of Ceramic Materials**

D. Hallam*, A. Miller, M. Robinson, University of Surrey, United Kingdom; P. Brown, A. Heaton, B. James, Dstl, United Kingdom; P. Smith, J. Yeomans, University of Surrey, United Kingdom

11:00 AM**(ICACC-S4-040-2012) Colloidal Processing Method and Mechanical Properties Analysis of Silicon Carbide Ceramics sintered by SPS**

R. Bianchini, S. Miller, R. Haber*, Rutgers University, USA

11:20 AM**(ICACC-S4-041-2012) Effect of Boron Carbide Additive Size and Morphology on Spark Plasma Sintered Silicon Carbide**

V. DeLucca*, R. A. Haber, Rutgers Univ, USA

11:40 AM**(ICACC-S4-042-2012) Multi-depth imaging in complex ceramics with a microwave interference scanning system**

K. Schmidt*, J. Little, Evisive, inc., USA; W. Ellingson, ERC Company, USA; L. P. Franks, W. Green, US Army, USA; G. Jefferson, US Air Force, USA

S7: 6th International Symposium on Nanostructured Materials and Nano-Composites**Nanotubes, Nanowires and Other One-dimensional Structures**

Room: Coquina Salon B

Session Chairs: Aleksander Gurlo, Technische Universitaet Darmstadt; Jason Graetz, Brookhaven Natl Lab

8:00 AM**(ICACC-S7-029-2012) Exploring organic-inorganic interfaces in silica-based nanomaterials by a combined spectroscopic and modelling approach (Invited)**

F. Babonneau*, N. Folliet, T. Azais, C. Gervais, LCMCP / UPMC-Paris6 & CNRS, France; F. Tielens, Université Pierre et Marie Curie and CNRS, France; C. Bonhomme, LCMCP / UPMC-Paris6 & CNRS, France

8:30 AM**(ICACC-S7-030-2012) Use of Nanotubular Electrodes in Electrochemical Applications (Invited)**

B. Saruhan*, Y. Gönüllü, S. Özkan, German Aerospace Center, Germany

9:00 AM**(ICACC-S7-031-2012) Investigation of Optical and Electronic Properties of Mn Doped ZnO Nanowires and Devices**

R. Prabhakar*, N. Mathews, G. Kr, S. Pramana, J. Kochupurackal, NTU, Singapore; B. Varghese, C. Sow, NUS, Singapore; S. Mhaisalkar, NTU, Singapore

9:20 AM**(ICACC-S7-032-2012) Recent advances in membrane development for CO₂ free fossil power plants**

T. Van Gestel*, Forschungszentrum Jülich, Germany, Forschungszentrum Jülich, Germany; Forschungszentrum Jülich, Germany; S. Baumann, M. Ivanova, W. Meulenber, H. Buchkremer, Forschungszentrum Jülich, Germany

9:40 AM**Break****Nanostructured Materials and their Application**

Room: Coquina Salon B

Session Chairs: Florence Babonneau, LCMCP / UPMC-Paris6 & CNRS; Bilge Saruhan-Brings, German Aerospace Center

10:00 AM**(ICACC-S7-033-2012) Preparation of n- and p-type metal oxide nanowires and nanostructures for chemical sensing (Invited)**

E. Comini*, G. Faglia, M. Ferroni, A. Ponzoni, D. Zappa, G. Sberveglieri, Brescia University CNR-IDASC, Italy

10:30 AM**(ICACC-S7-034-2012) Selective Chemical Vapor Deposition for Enhanced Gas Sensing Applications**

T. Fischer*, I. Giebelhaus, S. Mathur, University of Cologne, Germany

10:50 AM**(ICACC-S7-035-2012) Catalysts, Membranes and Sensors for the Hydrogen Economy: Design, Synthesis and Characterization (Invited)**

A. Gurlo*, M. Bazarjani, R. Riedel, Technische Universitaet Darmstadt, Germany

11:20 AM**(ICACC-S7-036-2012) Nano-scale lithium batteries for in operando electron microscopy studies (Invited)**

J. Graetz*, F. Wang, D. Zeng, Brookhaven Natl Lab, USA; T. McGilvray, University of California San Diego, USA; N. Dudney, Oak Ridge National Laboratory, USA; Y. S. Meng, University of California San Diego, USA; Y. Zhu, Brookhaven Natl Lab, USA

11:40 AM**(ICACC-S7-037-2012) A Simple Greener Route to Metal Chalcogenide Nanoparticles (Invited)**

N. Revaprasadu*, M. N. Mntungwa, P. V. S. R. Rajasekhar, O. A. Nejo, A. A. Nejo, University of Zululand, South Africa

S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf

Green Manufacturing

Room: Coquina Salon A

Session Chairs: Richard Sisson, Worcester Polytechnic Institute; Hiroshi Tsuda, Osaka Prefecture University

8:00 AM

(ICACC-S8-029-2012) Incorporating Global Issues, Green Manufacturing and Innovation into Materials Processing Education

R. D. Sisson*, Worcester Polytechnic Institute, USA

8:20 AM

(ICACC-S8-030-2012) Raw Material Scarcity and its Impact on the US Advanced Ceramic Technology

M. D. Hill*, Trans-Tech Inc., USA

8:40 AM

(ICACC-S8-031-2012) Lithium ion battery recycling

Y. Wang*, D. Apelian, Worcester Polytechnic Institute, USA

9:00 AM

(ICACC-S8-032-2012) Green-Conscious Ceramic Injection Moulding

O. Weber*, T. Hanemann, Karlsruhe Institute of Technology, Germany

9:20 AM

(ICACC-S8-033-2012) High Volume Production for High Performance Ceramics

W. J. Walker*, Federal-Mogul Corporation, USA

9:40 AM

Break

Joining and Integration

Room: Coquina Salon A

Session Chairs: Richard Sisson, Worcester Polytechnic Institute; Hiroshi Tsuda, Osaka Prefecture University

10:00 AM

(ICACC-S8-034-2012) TEM observation of the Ti interlayer between SiC substrates during diffusion bonding (Invited)

H. Tsuda*, S. Mori, Osaka Prefecture University, Japan; M. C. Halbig, M. Singh, NASA Glenn Research Center, USA

10:20 AM

(ICACC-S8-035-2012) Hybrid ceramic-metal tubes for steam pipes

C. Spatz*, Fraunhofer-Center Lightweight design for high temperature environments, Germany; N. Langhof, W. Krenkel, University of Bayreuth, Germany

10:40 AM

(ICACC-S8-036-2012) Joining of Alumina by Alumina-Zirconia Interlayer under low pressure and high temperature

N. Kondo*, M. Hotta, H. Hyuga, K. Hirao, H. Kita, National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:00 AM

(ICACC-S8-037-2012) Low temperature joining of boron carbide ceramics

K. Sekine*, Stereo Fabric Research Association, Japan; T. Kumazawa, Mino Ceramic Co., Ltd., Japan; W. Tian, Stereo Fabric Research Association, Japan; H. Hyuga, H. Kita, National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:20 AM

(ICACC-S8-038-2012) Joining of alumina by using polymer blend

K. Kita*, N. Kondo, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Y. Izutsu, Stereo Fabric Research Association, Japan; H. Kita, National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:40 AM

(ICACC-S8-039-2012) Diffusion Bonding of Rigid Alumina Pieces Using Porous Alumina Interlayers

H. Miyazaki*, M. Hotta, H. Kita, National Institute of Advanced Industrial Science and Technology, Japan; Y. Izutsu, Stereo Fabric Research Association, Japan

S9: Porous Ceramics: Novel Developments and Applications

Applications of Porous Ceramics

Room: Coquina Salon C

Session Chair: James Zimmermann, Corning

8:00 AM

(ICACC-S9-033-2012) The State of the Diesel Particulate Filter (DPF) (Invited)

M. Murtagh*, Corning Incorporated, USA

8:30 AM

(ICACC-S9-034-2012) Ultra High Porosity Acicular Mullite Ceramic Designed for Filtration of Diesel Particles and Reduction of NOx (Invited)

A. J. Pyzik*, B. Newman, R. Ziebarth, M. Malanga, Dow Chemical Company, USA

9:00 AM

(ICACC-S9-035-2012) Solid foam monoliths as supports for zeolite catalysts

W. Schwiager*, A. Inayat, S. Lopez, Friedrich-Alexander-Universität Erlangen Nürnberg, Germany; H. Freund, Max-Planck-Institut, Germany; A. Schwab, T. Zeiser, Friedrich-Alexander-Universität Erlangen Nürnberg, Germany

9:20 AM

(ICACC-S9-036-2012) Immobilization of Silver-Modified Nitrogen-Doped Anatase TiO₂ Nanoparticles on Porous Rutile TiO₂ Ceramic Foam and its Photocatalytic Disinfection on *E. coli* bacteria under Visible Light Illumination

C. Sun, Q. Li*, L. Cao, S. Gao, Institute of Metal Research, Chinese Academy of Sciences, China; J. K. Shang, University of Illinois at Urbana-Champaign, USA

9:40 AM

Break

S5: Next Generation Bioceramics

Porous Bioceramics - Joint Session with Symposium 9 on Porous Ceramics

Room: Coquina Salon C

Session Chairs: Eldon Case, Michigan State University; Aldo Boccaccini, University of Erlangen-Nuremberg

10:00 AM

(ICACC-S5-001-2012) Requirements for Bioactive Bone Implants from a Medical Device Company's Perspective (Invited)

J. Rouleau*, M. Reiterer, Medtronic, USA

10:30 AM

(ICACC-S5-002-2012) Fabrication of Carbonate Apatite - PLGA Hybrid Foam Bone Substitute

G. M. Munar*, M. L. Munar, K. Tsuru, Kyushu University, Japan; S. Matsuya, Fukuoka Dental College, Japan; K. Ishikawa, Kyushu University, Japan

10:50 AM

(ICACC-S5-003-2012) Sustained Release of a Monoclonal Antibody from Porous Silica

J. S. Andrew*, University of Florida, USA

11:10 AM

(ICACC-S5-004-2012) Porosity-property relationships for bioceramics - is the volume fraction porosity an adequate descriptor in some cases? (Invited)

E. D. Case*, Michigan State University, USA

11:30 AM**(ICACC-S5-005-2012) Novel Cu-doped bioactive glass (45S5) derived scaffolds for bone tissue engineering**

A. Hoppe, D. Hiller, S. Narayan Rath, U. Knesser, A. R. Boccaccini*, University of Erlangen-Nuremberg, Germany

11:50 AM**(ICACC-S5-006-2012) Microstructures and physical properties of biomorphic SiSiC ceramics manufactured via LSI-technique**

S. Weber*, R. Jemmali, D. Koch, H. Voggenreiter, German Aerospace Center, Institute of Structures and Design, Germany

S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)

Structural Stability under Extreme Environments I

Room: Coquina Salon F

Session Chair: Luc Vandeperre, Imperial College London

8:00 AM**(ICACC-S12-001-2012) Oxidation Mechanisms in UHT and MAX Phase Ceramics (Invited)**

W. E. Lee*, B. Cui, E. Eakins, D. D. Jayaseelan, Imperial College, United Kingdom; P. Brown, DSTL, United Kingdom

8:20 AM**(ICACC-S12-002-2012) Testing SiC fiber-reinforced ZrB₂ sharp component in supersonic regime**

L. Silvestroni*, F. Monteverde, CNR-ISTEC, Italy; R. Savino, DIAS – University of Naples, Italy; D. Sciti, CNR-ISTEC, Italy

8:40 AM**(ICACC-S12-003-2012) High-Temperature Oxidation Testing of UHTC Composites**

A. Paul*, S. Venugopal, J. Binner, B. Vaidhyanathan, Loughborough University, United Kingdom; P. Brown, A. Heaton, Dstl, United Kingdom

9:00 AM**(ICACC-S12-004-2012) Protection against oxidation, by CVD or SPS coatings of Hafnium Carbide and Silicon Carbide, on Carbon/Carbon composites**

A. Allemand*, CEA, France; Y. Le Petitcorps, O. Szwedek, Universite de BORDEAUX, France; N. Teneze, P. David, CEA, France

9:20 AM**(ICACC-S12-005-2012) Experimental methods for reliable oxidation measurements of ultra-high temperature ceramics up to 1600°C**

M. Miller-Oana*, L. S. Walker, W. R. Pinc, E. L. Corral, University of Arizona, USA

9:40 AM

Break

Structural Stability under Extreme Environments II and Novel Processing Methods I

Room: Coquina Salon F

Session Chairs: Martin Magnuson, IFM; William Lee, Imperial College

10:00 AM**(ICACC-S12-006-2012) Charged particle irradiation of (Ti,Zr)₃(Si,Al)C₂: structural disorder and thermal diffusivity**

M. Le Flem*, X. Liu, S. Doriot, T. Cozzika, CEA Saclay, France; D. Rochais, CEA Le Ripault, France; I. Monnet, CIMAP, France

10:20 AM**(ICACC-S12-007-2012) Behaviour under ion-irradiation of Cr₂GeC and Cr₂AlC**

M. Bugnet, T. Cabioch*, V. Mauchamp, M. Jaouen, University of Poitiers, France

44

10:40 AM**(ICACC-S12-008-2012) High Strain Rate Deformation Behavior of Nanolaminated Titanium Aluminum Carbide**

S. Abotula, University of Rhode Island, USA; S. Basu, M. Radovic*, Texas A&M University, USA; A. Shukla, University of Rhode Island, USA

11:00 AM**(ICACC-S12-009-2012) Growth of Ti₃SiC₂ single crystals (Invited)**

D. Chaussende*, T. Ouisse, CNRS - Grenoble INP, France

11:20 AM**(ICACC-S12-010-2012) Growth and electrical transport properties of Cr₂GeC thin films**

P. Eklund*, Linkoping University, Sweden; M. Bugnet, V. Mauchamp, S. Dubois, C. Tromas, Université de Poitiers, France; J. Jensen, Linkoping University, Sweden; L. Piroux, L. Gence, Université catholique de Louvain, Belgium; M. Jaouen, T. Cabioch, Université de Poitiers, France

11:40 AM**(ICACC-S12-011-2012) MAX phase formation by intercalation upon annealing of TiC_x/Al (0.4 ≤ x ≤ 1) bilayer thin films**

J. Schneider*, A. Abdulkadhim, D. Music, T. Takahashi, F. Munnik, RWTH Aachen University, Germany

S14: Advanced Materials and Technologies for Rechargeable Batteries

Lithium Metal Air Batteries and Beyond Lithium Batteries

Room: Coquina Salon H

Session Chair: Reza Shahbazian Yassar, Michigan Technological University; Gabriel Veith, ORNL

8:00 AM**(ICACC-S14-027-2012) Exploring the active electrochemistry in lithium-oxygen batteries using gas-phase mass spectrometry (Invited)**

B. D. McCloskey*, IBM, USA

8:30 AM**(ICACC-S14-028-2012) Understanding Reactions in Lithium-Air Batteries (Invited)**

G. M. Veith*, N. J. Dudney, J. Nanda, J. Howe, Oak Ridge National Laboratory, USA

9:00 AM**(ICACC-S14-029-2012) Effect of Al on the phase stability and conductivity of Li₇La₃Zr₂O₁₂**

J. Wolfenstine*, J. Allen, Army Research Laboratory, USA; J. Sakamoto, E. Rangasamy, R. Malony, Michigan State University, USA

9:20 AM**(ICACC-S14-030-2012) Li₄SiO₄-Li₃PO₄ solid solution ion conducting layers for lithium batteries**

L. Cheng*, L. Zhang, J. Cabana, G. Chen, M. Doeff, T. Richardson, Lawrence Berkeley National Laboratory, USA

9:40 AM

Break

10:00 AM**(ICACC-S14-031-2012) Analytical tools for advanced Li-S batteries (Invited)**

R. Dominko*, M. Patel, National Institute of Chemistry, Slovenia; R. Demir-Cakan, ALIS-TORE-ERI, France; M. Gaberscek, National Institute of Chemistry, Slovenia; M. Morcrette, J. Tarascon, ALISTORE-ERI, France

10:30 AM**(ICACC-S14-032-2012) Non-Aqueous Single-Metal Redox Flow Batteries (Invited)**

C. W. Monroe*, A. A. Shinkle, A. Sleightholme, L. T. Thompson, University of Michigan, USA

11:00 AM

(ICACC-S14-033-2012) In-situ Fabrication of Porous Carbon Supported alpha-MnO₂ Nanoparticles at Room Temperature: Application for Rechargeable Li-air Battery (Invited)

J. Lu*, Y. Qin, Z. Chen, Y. Ren, K. Amine, Argonne National Laboratory, USA

11:20 AM

(ICACC-S14-034-2012) The Spinel Block Integrity in the β'' -Alumina Structure

D. P. Birnie*, Rutgers University, USA

11:40 AM

(ICACC-S14-035-2012) Exploration of Enhanced Beta Alumina Sintering using Microwave Assist Technology

M. Fall*, S. Allan, H. Shulman, F. Cabe, Ceralink Inc, USA

FS3: Next Generation Technologies for Innovative Surface Coatings

Low Friction Coating

Room: Coquina Salon G

Session Chairs: Oyelayo Ajayi, Argonne National Laboratory; Tim Hosenfeldt, Schaeffler Technologies GmbH & Co. KG

8:20 AM

(ICACC-FS3-030-2012) Advances in Multi-functional Nanocomposite Coatings for Demanding Automotive Applications (Invited)

A. Erdemir*, O. L. Eryilmaz, Argonne National Laboratory, USA

8:50 AM

(ICACC-FS3-031-2012) Interactions Between Amorphous Carbon Coatings and Engine Oil Additives: Prediction of the Friction Behavior Using Optimized Artificial Neural Networks (Invited)

E. Schulz*, T. Beitsprecher, Friedrich-Alexander-University Erlangen-Nuremberg, Germany; Y. Musayev, T. Hosenfeldt, Schaeffler Technologies GmbH&Co. KG, Germany; S. Tremmel, S. Wartzack, H. Meerkamm, Friedrich-Alexander-University Erlangen-Nuremberg, Germany

9:20 AM

(ICACC-FS3-032-2012) The effect of Cu content on the microstructure and wear properties of MoN- Cu Nanocomposite coatings deposited by reactive magnetron sputtering with single alloying target

K. Moon*, H. Lee, D. Jung, S. Shin, KITECH, Republic of Korea

9:40 AM

Break

10:00 AM

(ICACC-FS3-033-2012) Performance Evaluation of Hard Ceramic Coatings for Tribological Applications (Invited)

O. Ajayi*, C. Lorenzo-Martin, D. Singh, N. Demas, G. Fenske, Argonne National Laboratory, USA

10:30 AM

(ICACC-FS3-034-2012) Nanocrystalline Diamond Coatings on WC-Co with W or Ti Interlayer (Invited)

B. Na, I. Kim, J. Myung, C. Kang*, Korea Polytechnic University, Republic of Korea

10:50 AM

(ICACC-FS3-035-2012) Electronic and Grain Boundary Structure Control for Hardening in Chromium Oxynitride Based Thin Films

H. Suematsu*, T. Suzuki, Nagaoka University of Technology, Japan; J. Shirahata, UNION TOOL CO., Japan; K. Suzuki, T. Nakayama, K. Niihara, Nagaoka University of Technology, Japan

11:10 AM

(ICACC-FS3-036-2012) Low friction coatings for automotive and industry application in high volume production (Invited)

T. Hosenfeldt*, Schaeffler Technologies GmbH & Co. KG, Germany

11:40 AM

(ICACC-FS3-037-2012) Industrial large scale production of PVD/PECVD coatings for automotive components (Invited)

R. Tietema*, R. Jacobs, D. Doerwald, T. Krug, Hauzer Techno Coating BV, Netherlands

FS4: Advanced (Ceramic) Materials and Processing for Photonics and Energy

Photoelectrochemical Systems

Room: Oceanview

Session Chair: Eric Diau, National Chiao Tung University

8:00 AM

(ICACC-FS4-016-2012) Nanostructured hybrid materials for energy applications (Invited)

D. Ma*, G. Chen, D. Wang, INRS, Uni. Quebec, Canada; J. Baral, University of Quebec at Montreal, Canada; H. Zhao, B. Gonfa, S. Desinan, R. Nechache, INRS, Uni. Quebec, Canada; N. Wu, West Virginia University, USA; V. Truong, Concordia University, Canada; M. El Khakani, INRS, Uni. Quebec, Canada; R. Izquierdo, University of Quebec at Montreal, Canada; F. Rosei, INRS, Uni. Quebec, Canada; R. Rosei, Trieste University, Italy

8:30 AM

(ICACC-FS4-017-2012) Creating polymer nanostructure for organic photovoltaic devices (Invited)

C. Luscombe*, N. Doubina, S. Boyd, M. Yuan, University of Washington, USA

9:00 AM

(ICACC-FS4-018-2012) Two photon polymerization of inorganic-organic hybrid materials (Invited)

P. R. Miller, UNC/NCSU Joint Department of Biomedical Engineering, USA; A. Ovsianikov, A. Koroleva, Laser Zentrum Hannover e. V., Germany; S. D. Gittard, B. N. Chichkov, R. Narayan*, UNC/NCSU Joint Department of Biomedical Engineering, USA

9:20 AM

(ICACC-FS4-019-2012) Plasma-Enhanced CVD of Hematite: Photoelectrochemical Water Splitting for Hydrogen Production

A. P. Singh*, A. Mettenboerger, P. Golus, N. Tosun, S. Mathur, University of Cologne, Germany

9:40 AM

Break

Photovoltaics

Room: Oceanview

Session Chair: Andreas Ruediger, INRS-EMT

10:00 AM

(ICACC-FS4-020-2012) Fabrication and Characterization of Sulfur-doped Titania Nanotube Arrays for Highly Efficient Dye-Sensitized Solar Cells (Invited)

E. W. Diau*, L. Li, National Chiao Tung University, Taiwan

10:30 AM

(ICACC-FS4-021-2012) Carbon-based transparent conductors for solar applications: from Carbon Nanotubes to Graphene (Invited)

G. Fanchini*, University of Western Ontario, Canada

11:00 AM

(ICACC-FS4-022-2012) Optimizing Nanomorphology in Bulk Heterojunction Organic Photovoltaics (Invited)

Y. Lam*, Nanyang Technological University, Singapore, Singapore; Y. Lam, RWTH Aachen University, Germany; T. Salim, Nanyang Technological University, Singapore, Singapore; B. Bräuer, Stanford University, USA; S. Sun, A. Grimsdale, Nanyang Technological University, Singapore, Singapore

11:30 AM

(ICACC-FS4-023-2012) Post Porosity Plasma Protection A new platform to integrate $k < 2.4$ porous ultra low-k materials (Invited)

G. Dubois*, T. J. Frot, W. Volksen, T. Magbitang, D. Miller, IBM Almaden Research Center, USA; R. L. Bruce, M. Lofaro, S. Purushothaman, IBM T. J. Watson Research Center, USA

12:00 PM

(ICACC-FS4-024-2012) Hydrothermal synthesis of epitaxial BiFeO₃ for bulk photovoltaics

I. Velasco Davalos*, R. Nechache, A. Ruediger, INRS-EMT, Canada

S1: Mechanical Behavior and Performance of Ceramics & Composites**Environmental Effects of Ceramics and Composites**

Room: Coquina Salon D

Session Chair: Jacques Lamon, CNRS

1:30 PM

(ICACC-S1-044-2012) Evaluation of impact damage resistance of SiC/SiC composites in tension and in static fatigue at high temperatures

J. L. Lamon*, M. Picard, E. Maillet, P. Reynaud, N. Godin, M. R'Mili, G. Fantozzi, CNRS, France

1:50 PM

(ICACC-S1-045-2012) Tension-compression fatigue of a Hi-NICALON/SiC ceramic matrix composite at 1200°C in air and in steam

M. Ruggles-Wrenn*, T. Jones, Air Force Institute of Technology, USA

2:10 PM

(ICACC-S1-046-2012) Notch Sensitivity of Fatigue Behavior of a Hi-NICALON/SiC Ceramic Composite at 1200°C in Air and in Steam

M. Ruggles-Wrenn*, G. Kurtz, Air Force Institute of Technology, USA

2:30 PM

(ICACC-S1-047-2012) High Temperature Strength and Corrosion Resistance of Silicon Carbide to Silicon Carbide Joints Used in Heat Exchangers and Other Joining Arrays

H. Anderson*, J. R. Fellows, C. A. Lewinsohn, M. A. Wilson, Ceramtec, Inc., USA

2:50 PM

Break

Reliability

Room: Coquina Salon D

Session Chair: Dietmar Koch, Institute of Structures and Design

3:20 PM

(ICACC-S1-048-2012) Prediction of mechanical behavior of continuous fiber reinforced ceramics (Invited)

D. Koch*, S. Hofmann, K. Tushetev, Institute of Structures and Design, German Aerospace Center, Germany

3:40 PM

(ICACC-S1-049-2012) Prediction of lifetime in fatigue using equivalent energy of acoustic emission sources in ceramic matrix composites

E. Maillet*, N. Godin, M. R'Mili, P. Reynaud, J. Lamon, G. Fantozzi, INSA-Lyon MATEIS, France

4:00 PM

(ICACC-S1-050-2012) Lessons Learned from Failure Analyses of Electronic Components

R. Tandon*, Sandia National Lab, USA

4:20 PM

(ICACC-S1-051-2012) Alumina-Silicon Carbide Laminated Composites with Tailored Strength

F. De Genua*, V. M. Sglavo, University of Trento - Italy, Italy

4:40 PM

(ICACC-S1-052-2012) Experimental and numerical study on application of a CMC nozzle for high temperature gas turbine

K. Nita*, Y. Okita, C. Nakamata, IHI Corporation, Japan

S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications**Thermal Barrier Coatings II**

Room: Ponce de Leon

Session Chairs: Yutaka Kagawa, The University of Tokyo; Douglas Wolfe, Penn State University Applied Research Lab

1:30 PM

(ICACC-S2-011-2012) Foreign Object Damage Behavior of Thermal Barrier Coatings in Airfoil Components (Invited)

D. Faucett, M. Ayre, J. Wright, S. Choi*, Naval Air Systems Command, USA

2:00 PM

(ICACC-S2-012-2012) Solid Particle erosion of thermal spray and physical vapour deposition thermal barrier coatings

F. Cernuschi*, C. Guardamagna, L. Lorenzoni, Ricerca per il Sistema Energetico, Italy; R. Vassen, Forschung Zentrum Julich, Germany; K. von Niessen, Sulzer Metco AG, Switzerland; C. Giolli, Turbocoating SpA, Italy; S. Capelli, Ricerca per il Sistema Energetico, Italy; F. Bossi, Politecnico di Milano, Italy

2:20 PM

(ICACC-S2-013-2012) Structure Evolutions and Thermal Conductivities of Yttria-Lanthanum Zirconate Solid Solutions

Y. Wang*, F. Yang, P. Xiao, University of Manchester, United Kingdom

2:40 PM

(ICACC-S2-014-2012) Gd₂Zr₂O₇-YSZ composite for high temperature corrosion resistant thermal barrier coatings

M. Jarligo*, D. E. Mack, R. Vaßen, IEK-1, Forschungszentrum Jülich GmbH, Germany

3:00 PM

Break

3:20 PM

(ICACC-S2-015-2012) Challenges and Solutions to TGO Stress Measurement in Engine Run Gas Turbine Components (Invited)

E. Jordan*, M. Majewski, C. Kelley, J. Lake, M. Renfro, University of Connecticut, USA; W. Hassan, W. Brindley, Rolls Royce, USA

4:00 PM

(ICACC-S2-016-2012) Interfacial Delamination of Modeled APS-TBCs under Shear Loading: Effect of Difference in Chemical Composition of Bond Coat

M. Hasegawa*, S. Yamaoka, Yokohama National University, Japan

4:20 PM

(ICACC-S2-017-2012) Methods for Measurement and Analysis of Stress Components in Anisotropic TGO Growth Layer formed after Thermo-mechanical Fatigue Tests of EB-PVD Y₂O₃-ZrO₂ TBCs

R. Kitazawa*, H. Kakisawa, Y. Kagawa, The University of Tokyo, Japan

4:40 PM

(ICACC-S2-018-2012) Degradation of EB-PVD TBCs and (Ni,Pt)Al Coatings by Mixture of Sodium and Potassium Sulfate at 950°C

L. Zhou*, S. Mukherjee, Y. Sohn, University of Central Florida, USA

5:00 PM

(ICACC-S2-019-2012) Monitoring TBC Delamination Propagation during Cyclic Tests for Building of Lifting Models

G. Witz*, M. Esquerre, H. Bossmann, Alstom (Switzerland) Ltd, Switzerland

S3: 9th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

SOFC Applications and Technology Overview

Room: Coquina Salon H

Session Chairs: Narottam Bansal, NASA Glenn Research; Prabhakar Singh, Connecticut Global Fuel Center

1:30 PM

(ICACC-S3-001-2012) Recent Developments in the SECA Program (Invited)

B. White*, Dept. of Energy, USA

2:00 PM

(ICACC-S3-002-2012) Long-term evaluation of Ce-modified (Mn,Co) spinel coating for SOFC application in a 3-cell short stack geometry (Invited)

Y. Chou*, E. C. Thomsen, J. Choi, J. W. Stevenson, G. G. Xia, J. F. Bonnett, W. E. Voldrich, Pacific Northwest National Lab, USA

2:30 PM

(ICACC-S3-003-2012) Performance of electrolyte supported cells based on thin electrolyte (Invited)

M. Kusnezoff*, N. Trofimenko, Fraunhofer IKTS, Germany; J. Olenick, K. Olenick, ENrG, USA

3:00 PM

Break

SOFC Applications and IC Development

Room: Coquina Salon H

Session Chairs: Jeffry Stevenson, PNNL; Mihails Kusnezoff, Fraunhofer IKTS

3:20 PM

(ICACC-S3-004-2012) Highlighting DOE EERE Efforts for the Development of SOFC Systems for APU and Stationary Applications (Invited)

D. Peterson*, D. Papageorgopoulos, Department of Energy, Office of Energy Efficiency and Renewable Energy, USA

3:50 PM

(ICACC-S3-005-2012) La(1-y)Ca_yTi(1-x)Mn_xO₃ as an interconnect material for solid oxide fuel cells

N. Raelis Hosseini*, H. Yoon, N. Sammes, J. Chung, Pohang University of Science and Technology (POSTECH), Republic of Korea

4:10 PM

(ICACC-S3-006-2012) Coating Optimization of Commercialized MnCoO-CeO spinel and the Effect of Thickness on Electrical Conductivity

J. Choi*, J. W. Stevenson, S. Ryan, M. Chou, Pacific Northwest National Lab, USA

4:30 PM

(ICACC-S3-007-2012) A High H₂S Tolerant Ni-GDC Anode with a GDC Barrier Layer

C. Xu*, P. Gansor, J. W. Zondlo, K. Sabolsky, E. M. Sabolsky, West Virginia University, USA

4:50 PM

(ICACC-S3-008-2012) Composite Interconnector for SOFC

S. Somov*, Solid Cell Inc., USA; O. Graeve, Alfred University, USA; S. Ghosh, RocCera LLC, USA; H. Nabielek, Solid Cell Inc., USA

5:10 PM

(ICACC-S3-009-2012) Stability against chromium poisoning in ferritic cathodes

A. Arregui*, L. Rodriguez, University of Trento, Italy; S. Modena, M. Bertoldi, Sofcpower S.p.A., Spain; V. Sglavo, University of Trento, Italy

5:30 PM

(ICACC-S3-010-2012) Component interactions after long-term operation of an SOFC stack with LSM cathode

J. Malzbender*, P. Batfalsky, R. Vassen, V. Shemet, F. Tietz, Forschungszentrum Jülich, Germany

S4: Armor Ceramics

Opaque Materials II

Room: Coquina Salon E

Session Chair: Matthew Bratcher, U.S. Army Research Laboratory

1:20 PM

(ICACC-S4-043-2012) Submicron Theoretically Dense Boron Carbide via Pressureless Sintering

C. S. Wiley, R. Speyer*, Verco Materials, LLC, USA

1:40 PM

(ICACC-S4-044-2012) Submicron Boron Carbide Synthesis Through Rapid Carbothermal Reduction

S. L. Miller*, F. Toksoy, W. Rafaniello, R. Haber, Rutgers University, USA

2:00 PM

(ICACC-S4-045-2012) Pressure Induced Amorphization as a Function of Commination in Boron Carbide

D. Maiorano*, R. Haber, V. Domnich, Rutgers University, USA

2:20 PM

(ICACC-S4-046-2012) Understanding the high-pressure phase transitions in Silicon-doped Boron Carbide

V. Bhakhri*, Imperial College London, United Kingdom; J. Proctor, T. Scheler, University of Edinburgh, United Kingdom; S. G. Macleod, Imperial College London, United Kingdom; E. Gregoryanz, University of Edinburgh, United Kingdom; F. Giuliani, Imperial College London, United Kingdom

2:40 PM

(ICACC-S4-047-2012) Investigation of ISE in a Commercial SiAlON

E. R. Shanholtz*, J. C. LaSalvia, Army Research Lab, USA

3:00 PM

Break

3:20 PM

(ICACC-S4-048-2012) Further Results on Nanocrystallization Features in Ballistically-Impacted Boron Carbide

J. C. LaSalvia*, E. R. Shanholtz, U.S. Army Research Laboratory, USA

3:40 PM

(ICACC-S4-049-2012) Raman Spectroscopic Analysis of Nano Zirconia Toughened Alumina for Ceramic Armour Applications

S. Huang*, J. Binner, B. Vaidyanathan, Loughborough University, United Kingdom; P. Brown, Defence Science and Technology Laboratory (DSTL), United Kingdom; C. Hampson, Morgan Advanced Ceramics Limited, United Kingdom; C. Spacie, Morganite Electrical Carbon Ltd, United Kingdom

4:00 PM

(ICACC-S4-050-2012) Metal-complexionized alumina ceramics

A. Lawrence*, Lehigh University, USA

4:20 PM

(ICACC-S4-051-2012) Processing, Sintering and Dynamic Mechanical Behavior of 8Y-TZP Doped Carbide Based Cermet

A. Ozer, Gebze Institute of Technology, Turkey; X. Nie, Purdue University, USA; Y. K. Tur, Gebze Institute of Technology, Turkey; W. M. Kriven*, University of Illinois at Urbana-Champaign, USA; W. Chen, Purdue University, USA

4:40 PM

(ICACC-S4-052-2012) Surface preparation of alumina for improved adhesive bond strength in armour

A. Harris*, University of Surrey, United Kingdom; S. Burnage, G. Miles, B. Vaughan, Lockheed Martin UK - Ampthill, United Kingdom; J. Yeomans, P. Smith, University of Surrey, United Kingdom

S5: Next Generation Bioceramics**Advanced Processing of Bioceramics I**

Room: Coquina Salon C

Session Chairs: Min Wang, The University of Hong Kong; Jerome Chevalier, INSA-LYON

1:30 PM**(ICACC-S5-007-2012) Interfaces in Biocomposites (Invited)**

C. Bonhomme*, UPMC, France

1:50 PM**(ICACC-S5-008-2012) Electrospinning and Electrospun Fibrous Structures for Medical Applications (Invited)**

M. Wang*, The University of Hong Kong, Hong Kong

2:10 PM**(ICACC-S5-009-2012) Organic-Inorganic Scaffolds for Bone Substitute Applications (Invited)**

J. Chevalier*, P. Marianna, N. Ginsac, L. Gremillard, S. Meille, J. Chenal, L. Chazeau, C. Gauthier, INSA-LYON, France

2:30 PM**(ICACC-S5-010-2012) Direct foaming of a sponge-like bioactive glass/gelatin composite scaffold for bone tissue engineering**

D. Nadeem*, University of Bristol, United Kingdom; X. Yang, University of Leeds, United Kingdom; B. Su, University of Bristol, United Kingdom

2:50 PM**Break****Advanced Processing of Bioceramics II**

Room: Coquina Salon C

Session Chairs: Masahiro Yoshimura, National Cheng Kung University; Leif Hermansson, Doxa AB

3:10 PM**(ICACC-S5-011-2012) Possible Degradation-Tolerable Zirconia Ceramics for Biomedical Applications (Invited)**

M. Yoshimura*, C. Hwang, National Cheng Kung University, Taiwan

3:40 PM**(ICACC-S5-012-2012) ZBLAN glass ceramics for X-ray Imaging (Invited)**

J. Johnson*, University of Tennessee Space Institute, USA; C. Passlick, Martin-Luther-University of Halle-Wittenberg, Germany; S. Schweizer, Fraunhofer Center for Silicon Photovoltaics, Germany

4:00 PM**(ICACC-S5-013-2012) Laser deposition of bioactive glasses on titanium alloys (Invited)**

S. R. Paital, Y. Xiang, J. Du, N. Dahotre*, University of North Texas, USA

4:20 PM**(ICACC-S5-014-2012) Aspects of Antibacterial Nanostructurally Integrating Ca-aluminate Based Biomaterials (Invited)**

L. Hermansson*, Doxa AB, Sweden

4:40 PM**(ICACC-S5-015-2012) Hydroxyapatite, TCP and Bioglass Coatings for Biomedical Applications made by High Velocity Suspension Flame Spraying (HVSFS)**

R. Gadow*, A. Killinger, N. Stiegler, University of Stuttgart, Germany

S7: 6th International Symposium on Nanostructured Materials and Nano-Composites**Bio-active Nanomaterials and Nanostructured Materials for Bio-medical Applications**

Room: Coquina Salon B

Session Chairs: Sonia Estrade, Universitat de Barcelona; Cheng Sun, Nanyang Technological University ERI@N

1:30 PM**(ICACC-S7-038-2012) Optimizing Iron Oxide Nanoparticles as Diagnostic Tracers for Magnetic Particle Imaging (Invited)**

D. Burdinski*, Cologne University of Applied Sciences, Germany; C. Bohlender, N. Haex, H. Grull, Philips Research, Netherlands

2:00 PM**(ICACC-S7-039-2012) Water-soluble and Biocompatible Superparamagnetic Magnetite Nanoparticles for Enhanced Magnetic Resonance Imaging (MRI)**

L. Xiao*, University of Cologne, Germany; D. F. Brougham, E. K. Fox, Dublin City University, Ireland; F. Kiessling, University Hospital Aachen-RWTH, Germany; N. Feliu, B. Fadeel, Karolinska Institutet, Sweden; S. Mathur, University of Cologne, Germany

2:20 PM**(ICACC-S7-040-2012) Application of Nanomaterials in Drug Targeting (Invited)**

N. Nagib Afifi*, German University in Cairo, Egypt

2:40 PM**(ICACC-S7-041-2012) Biological application of nanomaterials: Benefits versus risk**

O. Heikal*, German University in Cairo, Egypt

3:00 PM**Break****Synthesis and Characterization Techniques for Nanostructures**

Room: Coquina Salon B

Session Chairs: Eun Dong Kim, Korea Electrotechnology Research Institute; Dirk Burdinski, Cologne University of Applied Sciences

3:20 PM**(ICACC-S7-042-2012) Advanced Transmission Electron Microscopy Solutions for Nanoscience Problems**

S. Estrade*, J. M. Rebled, L. Yedra, A. Eljarrat, L. López Conesa, F. Peiró, Universitat de Barcelona, Spain

3:50 PM**(ICACC-S7-043-2012) Electrical characterization of individual metal-oxide nanowires using AC impedance spectroscopy**

G. Karra Raveendran*, J. Kochupurackal, H. Yizhong, S. G. Mhaisalkar, Nanyang Technological University, Singapore

4:10 PM**(ICACC-S7-044-2012) Mobility Edge in High-Performance Transistors Based on Aligned Tin Oxide Nanonets (Invited)**

C. Sun*, Nanyang Technological University, Singapore; N. Mathews, Nanyang Technological University, Singapore; L. H. Wong, Nanyang Technological University, Singapore; S. G. Mhaisalkar, Nanyang Technological University, Singapore

4:30 PM**(ICACC-S7-045-2012) Low temperature (< 150 deg C) synthesis of TiO2 photoanodes for use in plastic substrate flexible dye-sensitized solar cells (Invited)**

J. Ting*, C. Hsu, National Cheng Kung University, Taiwan

5:00 PM

(ICACC-S7-046-2012) Electrospinning of Nanocomposite Scaffolds for Bone Tissue Engineering: Emitting Electrode Polarity and Charge Retention

H. Tong, M. Wang*, The University of Hong Kong, Hong Kong

5:20 PM

(ICACC-S7-047-2012) Nanoparticle Toxicity for Mycobacteria in Biofilms and the Planktonic State

I. Nettleship*, C. Larimer, M. Islam, A. Ojha, University of Pittsburgh, USA

5:40 PM

(ICACC-S7-048-2012) Antimicrobial properties of copper and silver loaded silica nanomaterials

S. Santra*, P. ManiPrasad, R. Menezes, University of Central Florida, USA

S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf

Novel Processing

Room: Coquina Salon A

Session Chairs: Ian Nettleship, University of Pittsburgh; Yi-Bing Cheng, Monash University

1:30 PM

(ICACC-S8-040-2012) The Processing of Materials Systems for Perfusion Bioreactors used in Regenerative Medicine (Invited)

I. Nettleship*, A. Finoli, E. Schmelzer, J. Gerlach, University of Pittsburgh, USA

2:00 PM

(ICACC-S8-041-2012) Optimization of the sintering process for multi-layer CGO membranes by in situ techniques

A. F. Kaiser*, Risø DTU National Laboratory for Sustainable Energy, Denmark; A. S. Prasad, Banaras Hindu University, India; S. P. Foghmoes, Risø DTU National Laboratory for Sustainable Energy, Denmark, Risø DTU National Laboratory for Sustainable Energy, Denmark; Banaras Hindu University, India; V. Esposito, Risø DTU National Laboratory for Sustainable Energy, Denmark

2:20 PM

(ICACC-S8-042-2012) Quantitative validation of a multi-scale model of pyrocarbon chemical vapor infiltration from propane

G. L. Vignoles*, W. Ros, University Bordeaux 1, France; G. Chollon, F. Langlais, CNRS, France; C. Germain, University Bordeaux, France

2:40 PM

(ICACC-S8-043-2012) Fabrication of Dendritic Electrodes for Solid Oxide Fuel Cells by Using Micro Stereolithography

N. Komori*, K. Noritake, Osaka University, Japan; S. Tasaki, S. Kiriha, Osaka University Joining and Welding Research Institute, Japan

3:00 PM

Break

3:20 PM

(ICACC-S8-044-2012) Sol-gel processing of TiC Composites (Invited)

Y. Cheng*, J. Zhing, Monash University, Australia; S. Liang, Central South University, China; K. Wang, H. Wang, T. Williams, Monash University, Australia; H. Huang, The University of Queensland, Australia

3:40 PM

(ICACC-S8-045-2012) Preparation of highly crystalline nano zeolites by bead milling and post-milling recrystallization method

T. Wakihara*, J. Tatami, K. Komeya, T. Meguro, Yokohama National University, Japan

4:00 PM

(ICACC-S8-046-2012) Phase Pure SiAlON Ceramics from Preceramic Polymers Filled with Nano-particles

E. Bernardo*, G. Parcianello, S. Pilati, P. Colombo, University of Padova, Italy

4:20 PM

(ICACC-S8-047-2012) Novel Cladding Technologies of Thermal Nanoparticle Spraying and Patterning

S. Kiriha*, Y. Itakura, Y. Uehara, S. Tasaki, Osaka University, Japan

4:40 PM

(ICACC-S8-048-2012) Fabrication and Characterization of Zeolite-geopolymer Hybride Materials

S. Hashimoto*, H. Takeda, T. Iwata, S. Honda, Y. Iwamoto, Nagoya Institute of Technology, Japan

5:00 PM

(ICACC-S8-049-2012) Influence of Nd2O3 on Willemite Crystalline Glazes

N. Sharma*, L. K. Sharma, H. Kaur, N.A.S. (P.G.) College, India

S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)

New Methods for Joining

Room: Coquina Salon F

Session Chairs: Erica Corral, University of Arizona; Guo-Jun Zhang, Shanghai Institute of Ceramics

1:30 PM

(ICACC-S12-013-2012) Spark Plasma Joining of Ultra-High Temperature Ceramics with Zirconium-Boron Filler Materials

W. Pinc*, L. S. Walker, University of Arizona, USA; Z. Wing, Advanced Ceramics Manufacturing, USA; E. L. Corral, University of Arizona, USA

1:50 PM

(ICACC-S12-014-2012) Effect of Current Density on the In Situ Temperature Measurement During Rapid Joining of ZrB₂-SiC Using a Spark Plasma Sintering Furnace

W. Pinc*, L. Walker, University of Arizona, USA; Z. Wing, Advanced Ceramics Manufacturing, USA; E. L. Corral, University of Arizona, USA

2:10 PM

(ICACC-S12-015-2012) Effect of Carbon Additions on the Thermal and Electrical Properties of Hot Pressed ZrB₂

G. Harrington*, G. E. Hilmas, W. G. Fahrenholtz, Missouri S&T, USA

2:30 PM

(ICACC-S12-016-2012) Thermal Properties of ZrB₂-TiB₂ Solid Solutions

M. Thompson*, W. G. Fahrenholtz, G. Hilmas, Missouri University of Science and Technology, USA

2:50 PM

(ICACC-S12-017-2012) Lattice thermal conductivity of ultra high temperature ceramics (UHTC) ZrB₂ and HfB₂ from atomistic simulations

J. W. Lawson*, NASA Ames Research Center, USA; M. S. Daw, Clemson University, USA; C. W. Bauschlicher, NASA Ames Research Center, USA

Novel Processing Methods II

Room: Coquina Salon F

Session Chairs: Marion Le Flem, CEA; Miladin Radovic, Texas A&M University

3:30 PM

(ICACC-S12-018-2012) Synthesis and crystal growth of MAX-phases from molten metals (Invited)

H. Hillebrecht*, D. Kotzot, H. Leuckeroth, M. Kleczek, University of Freiburg, Germany

3:50 PM**(ICACC-S12-019-2012) Hysteresis in MAX phases (Invited)**

W. J. Clegg*, C. Humphrey, University of Cambridge, United Kingdom; F. Giuliani, Imperial College, United Kingdom

4:10 PM**(ICACC-S12-020-2012) Processing and Mechanical Properties of Ti₂AlC Reinforced with Alumina Fibers**

K. Jeon, S. Basu, F. Schaff, Texas A&M University, USA; M. W. Barsoum, Drexel University, USA; M. Radovic*, Texas A&M University, USA

4:30 PM**(ICACC-S12-021-2012) Crystallisation and annealing of Cr₂AlC: a Raman investigation**

V. Vishnyakov*, P. Dobrosz, J. Colligon, Manchester Metropolitan University, United Kingdom

4:50 PM**(ICACC-S12-022-2012) Effect of lattice anisotropy on plasticity mechanisms in Ti₂AlN studied by in-situ compression of micro-pillars under synchrotron micro-beam**

L. Thilly*, J. Roa, A. Guittou, P. Villechaise, C. Tomas, A. Joulain, University of Poitiers, France; C. Marichal, S. Van Petegem, H. Van Swygenhoven, Paul Scherrer Institut, Switzerland

5:10 PM**(ICACC-S12-023-2012) Effects of Porosity and Pore Size on Room Temperature Thermal Conductivity and Mechanical Properties of Porous Ti₂AlC**

L. Hu*, S. Basu, R. Benitez, I. Karaman, M. Radovic, Texas A&M University, USA

5:30 PM**(ICACC-S12-024-2012) Properties of Hot-Pressed Ti₂AlC Obtained by SHS Process**

L. Chlubny*, J. Lis, AGH-University of Science and Technology, Poland

5:50 PM**(ICACC-S12-025-2012) Deposition of MAX-phases coating by cold spray**

S. Rech, A. Trentin, A. Patelli, A. Surpi, S. Vezzù*, CIVEN, Italy; P. Eklund, J. Frodelius, L. Hultman, Linköping University, Sweden; J. Glor, Sandvik AB, Sweden

Global Young Investigators Forum**Frontiers in Ceramic Sensors I**

Room: Coquina Salon G

Session Chairs: Thomas Fischer, University of Cologne; J. Daniel Prades, Universitat de Barcelona

1:30 PM**(ICACC-GYIF-001-2012) A hunt for scientific opportunities: the business of science**

E. V. Timofeeva*, Argonne National Laboratory, USA

1:50 PM**(ICACC-GYIF-002-2012) Influence of the electrodes on a SnO₂ thick film sensor: DRIFTS and sensors study**

S. Rank*, N. Barsan, U. Weimar, University of Tuebingen, Germany

2:10 PM**(ICACC-GYIF-003-2012) Field-effect gas sensor for high water vapor environments**

O. Casals Guillen*, University of Barcelona, Spain; T. Becker, EADS Deutschland GmbH, Germany; P. Godignon, IMB-CNM-CSIC, Spain; A. Romano-Rodriguez, University of Barcelona, Spain

2:30 PM**(ICACC-GYIF-004-2012) FSP synthesized In₄Sn₃O₁₂, a novel gas sensing material**

J. Kemmler*, University of Tübingen, Germany; S. Pokhrel, L. Mädler, University of Bremen, Germany; N. Barsan, U. Weimar, University of Tübingen, Germany

2:50 PM**Break****Frontiers in Ceramic Sensors II**

Room: Coquina Salon G

Session Chairs: Sven Rank, University of Tuebingen; Elena Timofeeva, Argonne National Laboratory

3:10 PM**(ICACC-GYIF-005-2012) Synthesis and Application of Doped TiO₂ based nano structures**

Y. Goenuellue*, B. Saruhan Brings, German Aerospace Center, Germany

3:30 PM**(ICACC-GYIF-006-2012) Chemical sensors based on individual metal oxide nanowires: breakthroughs accomplished and pending challenges**

J. Prades*, Universitat de Barcelona, Spain; F. Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; R. Jimenez-Diaz, A. Romano-Rodriguez, Universitat de Barcelona, Spain; J. Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

3:50 PM**(ICACC-GYIF-007-2012) Thermal and chemical stability of metal oxide nanowire based gas sensors**

A. Ponzoni*, CNR-IDASC SENSOR Lab and University of Brescia, Italy; C. Baratto, CNR-IDASC SENSOR Lab and University of Brescia, Italy; E. Comini, CNR-IDASC SENSOR Lab and University of Brescia, Italy; G. Faglia, CNR-IDASC SENSOR Lab and University of Brescia, Italy; G. Sberveglieri, CNR-IDASC SENSOR Lab and University of Brescia, Italy

4:10 PM**(ICACC-GYIF-009-2012) Click chemistry based magnetic nanoparticles for targeted drug delivery on breast carcinoma**

B. Kumar*, N. Puvvada, S. Rajput, G. Dey, A. Pathak, M. Mandal, Indian Institute of Technology, India

FS4: Advanced (Ceramic) Materials and Processing for Photonics and Energy**Multiferroics for Photovoltaics**

Room: Oceanview

Session Chair: Christine Luscombe, University of Washington

1:30 PM**(ICACC-FS4-025-2012) Multiferroics for photovoltaics (Invited)**

R. Nechache*, INRS & NAST, Canada

2:00 PM**(ICACC-FS4-026-2012) Ferroelectric thick and thin films with large piezoelectric and electrocaloric effect (Invited)**

M. Kosec*, Jožef Stefan Institute, Slovenia, Jožef Stefan Institute, Slovenia, Jožef Stefan Institute, Slovenia, Jožef Stefan Institute, Slovenia, CO NA-MASTE, Slovenia

2:30 PM**(ICACC-FS4-027-2012) On the relevance of interfaces in bulk photovoltaics (Invited)**

A. Ruediger*, INRS-EMT, Canada

3:00 PM**Break****Advanced Materials for Environmental Applications II**

Room: Oceanview

Session Chair: Mauro Epifani, CNR-IMM

3:20 PM**(ICACC-FS4-028-2012) Organic electrochemical transistors in sensing and bioelectronics (Invited)**

F. Ciccoira*, Polytechnique Montréal, Canada

3:50 PM**(ICACC-FS4-029-2012) Hydrogen and CO2 reduction as sun light fuel precursors using metal oxide nanostructures (Invited)**

T. Andreu, C. Fabrega, A. Parra, M. Manzanares, C. Reza, IREC, Catalonia Institute for Energy Research, Spain; J. Arbiol, ICREA Institució Catalana de Recerca i Estudis Avançats and Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Spain; J. R. Morante*, IREC, Catalonia Institute for Energy Research, Spain

4:20 PM**(ICACC-FS4-030-2012) Functionalized carbon nanotube and graphene devices for nanoscale chemical and biological sensing (Invited)**

K. Balasubramanian, T. Kurkina, R. Sundaram, M. Burghard, K. Kern*, Max Planck Institute for Solid State Research, Germany

4:50 PM**(ICACC-FS4-031-2012) Advanced nanocomposite materials for functional magnetic refrigeration (Invited)**

H. Srikanth*, M. Phan, University of South Florida, USA

Posters – Symposium 2

Room: Exhibit Hall

5:00 PM**(ICACC-S2-P027-2012) Original in-situ method to quantify the SiC active oxidation rate in Ar/H2O gas mixtures at very high temperatures**

M. Q. Brisebourg*, F. Rebillat, F. Teyssandier, LCTS, France

(ICACC-S2-P028-2012) Silicon Carbide Nanotube Oxidation at High Temperatures

N. Ahlborg*, The Ohio State University, USA; D. Zhu, NASA Glenn Research Center, USA

(ICACC-S2-P029-2012) Actual Toughness of Environmental Barrier Oxide Coatings on SiC/SiC Substrate

T. Matsumoto*, H. Kakisawa, Y. Kagawa, The University of Tokyo, Japan

(ICACC-S2-P030-2012) Thermal Conductivity and Microstructure of Y2O3-ZrO2 Coatings Fabricated by EB-PVD

B. Jang*, H. Murakami, National Institute for Materials Science, Japan; J. Sun, Argonne National Laboratory, USA; S. Kim, Y. Oh, H. Kim, Korea Institute of Ceramic Engineering and Technology, Republic of Korea

(ICACC-S2-P031-2012) Mesoporous Ti-Si-O-C composite thin film obtained by metalorganic chemical vapor deposition

S. M. El sheikh*, O. A. Fouad, Y. Y. Ahmed, Central Metallurgical Research and Development Institute, Egypt

(ICACC-S2-P032-2012) Nanostructured Coating Process by Inductively Coupled Plasma Assisted Magnetron Sputtering

S. Chun*, D. Seo, D. Yoon, Mokpo National University, Republic of Korea

(ICACC-S1-P033-2012) The Effect of Erbium and Ytterbium Oxide on the Creep Properties of 10 % SiC containing SiAlON Ceramics

D. Turan*, A. Uludag, Y. Deniz, S. Kayhan, Anadolu University, Turkey

(ICACC-S1-P034-2012) The Effect of Ytterbium and Cerium Oxide Double Doping on Atomic Scale Microstructure and Properties of SiAlON Ceramics

S. Turan*, H. Yurdakul, Anadolu University, Turkey; J. C. Idrobo, Oak Ridge National Laboratory, USA; S. J. Pennycook, Vanderbilt University, USA; E. Okunishi, JEOL Ltd., Japan

Posters – Symposium 3

Room: Exhibit Hall

5:00 PM**(ICACC-S3-P035-2012) CdMnS Thin Film Synthesis using CBD: Application in Photoelectrochemical Cell**

J. S. Dargad*, N. S. Korde, Dayanand Science College, Latur, MS, India, India

(ICACC-S3-P036-2012) Investigation of novel solid oxide fuel cell cathodes based on impregnation of SrTi_xFe_{1-x}O_{3-δ} into ceria-based backbones

M. Brinch-Larsen*, M. Sogaard, J. Hjelm, H. L. Frandsen, Risø DTU, Denmark

(ICACC-S3-P037-2012) Interface and grain boundary effects on the electrical conductivity of epitaxial and nanocrystalline ceria thin films

G. Gregori*, M. C. Göbel, Max Planck Institute for Solid State Research, Germany; X. Guo, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; J. Maier, Max Planck Institute for Solid State Research, Germany

(ICACC-S3-P038-2012) Development of GDC-(LiNa)CO3 Nano-Composite Electrolytes for Low Temperature Solid Oxide Fuel Cells

R. Chockalingam*, A. K. Ganguli, S. Basu, Indian Institute of Technology, India

(ICACC-S3-P039-2012) Sintering and thermo-mechanical behavior investigation of strontium and cobalt doped LaCrO3 ceramic interconnect

C. R. Sousa*, W. Acchar, L. Silva, UFRN, Brazil; S. Castanho, IPEN, Brazil

(ICACC-S3-P040-2012) Fabrication of Dual Layer Ceramic Interconnect on a NiO-YSZ Anode Support for Flat Tubular Solid Oxide Fuel Cells

M. Yoon*, H. Hwang, Inha University, Republic of Korea; R. Song, Korea Institute of Energy Research, Republic of Korea

(ICACC-S3-P041-2012) Methane Oxidation behavior of Perovskite Type Catalysts for Solid Oxide Fuel Cells

J. Yoon*, INHA university, Republic of Korea; B. Choi, M. Ji, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; H. Hwang, INHA university, Republic of Korea

(ICACC-S3-P043-2012) Characterization of scandium doped lanthanum strontium ferrite as cathodes for solid oxide fuel cells

J. Park*, J. Zou, H. Yoon, J. Chung, POSTECH, Republic of Korea

(ICACC-S3-P044-2012) Preparation and evaluation of Ca_{3-x}BixCo₄O_{9+δ} (0 < x ≤ 0.5) as novel cathodes for intermediate temperature-solid oxide fuel cells

J. Zou*, J. Park, H. Yoon, T. Kim, J. Chung, Pohang University of Science and Technology, Republic of Korea

(ICACC-S3-P045-2012) n-Dodecane reforming over Ni-YSZ cermet catalysts with K₂Ti₂O₅

T. Kim*, H. Kim, J. Chung, POSTECH, Republic of Korea

(ICACC-S3-P046-2012) Deposition of Mn_{1.5}Co_{1.5}O₄ thin films by thermal co-evaporation on Crofer 22APU interconnects for chromium poisoning SOFC electrolyte protection purpose

M. Bindi*, D. Beretta, Edison.S.p.A., Italy; F. Smeacetto, L. Ajitdoss, Polytechnic of Turin, Italy

(ICACC-S3-P047-2012) A Comparative assessment of Chromium Evaporation from Bulk and Surface Aluminized Iron and Nickel Base Alloys

L. Ge*, P. Singh, University of Connecticut, USA

(ICACC-S3-P170-2012) Structure, morphology and transport properties of rapidly quenched YSZ

M. Dragan*, A. Verma, University of Connecticut, USA; P. Strutt, NanoCell Systems Inc., USA; R. Maric, University of Connecticut, USA

Posters

Room: Exhibit Hall

5:00 PM**(ICACC-S5-P069-2012) In Vitro Evaluation of Silicate and Borate Bioactive Glass Scaffolds Prepared by Robocasting of Organic-Based Suspensions**

A. M. Deliormanli*, M. N. Rahaman, Missouri University of Science and Technology, USA

(ICACC-S5-P070-2012) Evaluation of Borate Bioactive Glass Scaffolds with Different Pore Sizes in a Rat Subcutaneous Implantation Model

A. M. Deliormanli*, M. N. Rahaman, Missouri University of Science and Technology, USA

(ICACC-S5-P071-2012) The effect of silicocarnotite on the behavior of rat bone marrow stromal cells

C. Ning*, W. Duan, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

Posters – Symposium 7

Room: Exhibit Hall

5:00 PM**(ICACC-S7-P072-2012) Evolution of structure, microstructure and hyperfine properties of nanocrystalline FeAl powders**

Z. Hamlati*, University of Blida, Algeria; A. Guittoun, Nuclear Research Center of Algiers, Algeria; S. Berghoul, University of Blida, Algeria; M. Azzaz, U.S.T.H.B, Algeria

(ICACC-S7-P073-2012) Low Temperature Solution based Synthesis of ZnO and Ag admixed ZnO Nanoparticles (NPs) their Structural and Optical Characterization

J. Singh*, P. Kumar, R. S. Tiwari, O. N. Srivastava, B H U, India

(ICACC-S7-P074-2012) Physical-Chemical, Mechanical, Thermal, and Radiation Resistance of Hard and Super-Hard Nano-Structured Coatings

A. D. Pogrebnjak*, Sumy Institute for Surface Modification, Ukraine; M. Tashmetov, Institute of Nuclear Physics, NAS of Uzbekistan, Uzbekistan; M. Il'yashenko, Sumy State University, Ukraine; N. Makhmudov, Samarkand Branch of Tashkent State University of Information, Uzbekistan; V. Beresnev, Kharkov National University, Ukraine; A. Shypylenko, Sumy State University, Ukraine; I. Kulik, M. Kaverin, Sumy Institute for Surface Modification, Ukraine; V. Baidak, A. Dem'yanenko, Sumy State University, Ukraine

(ICACC-S7-P075-2012) Real-Time Oxidation Kinetics of Dielectric-Embedded Ag Nanoparticles: Revealing Physicochemical Properties via In Situ Optical Microspectroscopy

K. McAlpine*, J. A. Jimenez, M. Sendova, New College of Florida, USA

(ICACC-S7-P076-2012) In situ Synthesis of Multi-Walled Carbon Nanotubes/ Al₂O₃ Nanocomposite With Non-metallic ZrO₂ Catalyst by Chemical Vapor Deposition

A. Kumar*, J. Karpf, D. Amit, K. Wu, Florida International University, USA

(ICACC-S7-P077-2012) Synthesis and Characterization of Boron/Nitrogen Incorporated Diamond-Like-Carbon Thin Films

L. Zhang*, Q. Yang, Y. Li, Y. Tang, C. Zhang, L. Yang, University of Saskatchewan, Canada

(ICACC-S7-P078-2012) Photocatalytic degradation of waste liquid from biomass gasification in supercritical water with simultaneous hydrogen production

W. Tang*, D. Jing, S. Guo, J. Yin, L. Guo, State Key Laboratory of Multiphase Flow in Power Engineering, China

(ICACC-S7-P079-2012) Graphitic Carbon Nitride Doped with Silicon for Improved Visible-light-Driven Photocatalysis

P. Wu*, J. Shi, L. Guo, Xi'an Jiaotong University, China

(ICACC-S7-P080-2012) Remarkable enhancement of photocatalytic hydrogen evolution over Cd_{0.5}Zn_{0.5}S by bismuth-doping

S. Peng, R. An, Y. Li*, Nanchang University, China; G. Lu, S. Li, Lanzhou Institute of Chemical Physics, Chinese Academy of Science, Lanzhou, China

(ICACC-S7-P081-2012) Fabrication of CdS-ZnO core/shell Nanofibers by Electrospinning and Their Photocatalytic Activity

W. Yan*, G. Yang, Xi'an Jiaotong University, China

(ICACC-S7-P082-2012) Structural, Optical and Photoelectrochemical Characterization of Hydrogen Plasma Treated TiO₂ Thin Films

A. Mettenboerger*, A. P. Singh, P. Golus, N. Tosun, S. Mathur, University of Cologne, Germany

(ICACC-S7-P083-2012) One-dimensional heterostructures based on SnO₂@Nb₂O₅ and SnO₂@Fe₂O₃ core-shell architectures and functional applications

R. Fiz*, T. Fischer, M. Hoffmann, A. P. Singh, S. Mathur, University of Cologne, Germany

(ICACC-S7-P084-2012) Fabrication and Characterization of a Novel Nanostructured Solar Diode Sensor

A. Gad*, M. Hoffmann, H. Shen, S. Mathur, University of Cologne, Germany

(ICACC-S7-P085-2012) Novel Precursor Libraries for Gas Phase Synthesis of Functional Metal Oxide Coatings and Nanostructures

L. Brueckmann*, C. Hegemann, J. Schlaefer, I. Giebelhaus, G. Fornalczyk, L. Appel, W. Tyrre, S. Stucky, S. Mathur, University of Cologne, Germany

(ICACC-S7-P086-2012) Metal Oxide Nanoparticles for Biomedical Applications

L. Wortmann*, L. Xiao, O. Arslan, S. Mathur, University of Cologne, Germany

(ICACC-S7-P088-2012) Structural and Optical Studies of ZnO & Mg doped ZnO Nanowires

J. Singh*, R. S. Tiwari, O. N. Srivastava, B H U, India

(ICACC-S7-P089-2012) Strengthening Effect of Kaolinite on Porous Kaolinite-Silica Nanocomposites

K. Lu*, W. Li, J. Walz, Virginia Tech, USA

(ICACC-S7-P090-2012) Preparation of novel SiC nanostructures by arc plasma heat treatment method

B. B. Nayak, B. K. Mishra*, IMMT, India

(ICACC-S7-P091-2012) Nanostructured Zr-doped Hematite Thin Films for Photoelectrochemical Water Splitting

P. Kumar*, P. Sharma, R. Shrivastav, S. Dass, V. R. Satsangi, Dayalbagh Educational Institute, India

(ICACC-S7-P092-2012) Enhanced Photoelectrochemical Response of Doped BaTiO₃ for Solar Hydrogen Generation: Experiments and First-Principles Analysis

S. Dass, S. Upadhyay*, J. Shrivastava, A. Solanki, S. Choudhary, N. Singh, V. Sharma, P. Kumar, Deemed University, India; V. R. Satsangi, Dayalbagh Educational Institute, Deemed University, India; R. Shrivastav, Deemed University, India; U. V. Waghmare, Jawaharlal Nehru Centre for Advanced Scientific Research, India

(ICACC-S7-P093-2012) Solubility of NiO in Pechini-derived ZrO₂ Examined with SQUID Magnetometry

J. T. White, I. E. Reimanis, Colorado School of Mines, USA; J. R. O'Brien, Quantum Design, Incorporated, USA; A. Morrissey*, Colorado School of Mines, USA

(ICACC-S7-P094-2012) Optimisation of Spray Freeze Dried Nanozirconia Granules

Y. Zhang*, J. Binner, C. Rielly, B. Vaidhyanathan, Loughborough University, United Kingdom

(ICACC-S7-P095-2012) Chemical Vapor Deposition Growth of Carbon Nanotubes on Carbon Fiber

W. McKinley*, K. Wu, Florida International University, USA; A. Datye, University of Tennessee, USA; M. Gomes, J. Karpf, A. Zaretski, Florida International University, USA

(ICACC-S7-P096-2012) Titania Suspension for Fabrication of Micron Feature Arrays via Template-assisted Approach

K. Lu*, Y. Liang, Virginia Tech, USA

(ICACC-S7-P097-2012) Enhanced Properties of Multiferroic Nanocomposite Materials

J. Starr, J. S. Andrew*, University of Florida, USA

(ICACC-S7-P098-2012) Laser-Induced Enhanced Plasmonic Response in Ag Nanocomposite Glasses Monitored in Real Time via In Situ Optical Microspectroscopy

J. A. Jimenez*, University of North Florida, USA; M. Sendova, New College of Florida, USA

Posters – Symposium 8

Room: Exhibit Hall

5:00 PM**(ICACC-S8-P099-2012) Research in Recycling Technology of Fiber Reinforced Polymers by Superheated Steam: Effect of Surface Treatment on Recycled Glass Fiber**

J. Shi*, Interdisciplinary Graduate School of Science and Technology of Shinshu University, Japan; R. Kobayashi, J. Katou, L. Bao, Faculty of Textile Science and Technology, Shinshu University, Japan

(ICACC-S8-P100-2012) Microstructure and Dielectric Properties of MnCO₃ and Nb₂O₅ Doped BaTiO₃-ceramics

V. Mitic*, V. Paunovic, J. Purenovic, J. Nedin, Faculty of Electronic Engineering, Serbia; M. Mijlkovic, Laboratory for Electron Microscopy, Serbia

(ICACC-S8-P101-2012) Additives for the Preparation of Al-Al₂O₃-Precursor Powders

N. Holstein*, T. Schlorrdt, University of Applied Science Koblenz, Germany; R. Janssen, Hamburg University of Technology, Germany; J. Kriegesmann, University of Applied Science Koblenz, Germany

(ICACC-S8-P102-2012) Laser machining of melt infiltrated ceramic matrix composite

G. Ojard*, Pratt & Whitney, USA; D. Jarmon, United Technologies Research Center, USA; D. Brewer, NASA - Langley Research Center, USA

(ICACC-S8-P103-2012) De-NO_x Evaluation of SCR Catalyst Fabricated Using Aluminum Dross

M. Bea*, H. Kim, K. Kim, M. Lee, Korea Institute of Industrial Technology, Republic of Korea

(ICACC-S8-P104-2012) Effect of Debinding and Sintering Condition on Thermal Conductivity of Pressureless Sintered AlN Ceramics

S. Lee*, Mokpo National University, Republic of Korea; S. Na, S. Kim, S. Go, YJC CO., LTD., Republic of Korea

(ICACC-S8-P105-2012) Thermal and Dielectric Properties of Metal Substrate Coated for Ceramic-Based Insulating Thin Film

S. Honda*, Y. Takeuchi, Nagoya Institute of Technology, Japan; N. Komada, Meijiyo University, Japan; H. Usami, Meijiyo University, Japan; Y. Iwamoto, Nagoya Institute of Technology, Japan

(ICACC-S8-P106-2012) Structural and optical properties of Zn1-xMgxO blue phosphors synthesized by chemical solution method

Y. Inata*, Nagoya Institute of Technology, Japan; K. Inoue, Mie Prefecture Industrial Research Institute, Japan; S. Honda, S. Hashimoto, Y. Iwamoto, Nagoya Institute of Technology, Japan

(ICACC-S8-P107-2012) Mechanochemical Synthesis of ReB2 Powder

N. Orlovskaya, Z. Xie*, M. Klimov, H. Heinrich, D. Restrepo, R. Blair, C. Suryanarayana, University of Central Florida, USA

(ICACC-S8-P108-2012) Flash sintering mechanisms in fully dense yttria-stabilized zirconia

J. Downs*, University of Trento, Italy; R. Raj, University of Colorado, USA; V. M. Sglavo, University of Trento, Italy

Posters – Symposium 10

Room: Exhibit Hall

5:00 PM

(ICACC-S10-P114-2012) Examination of the Interconnectivity of SiC in a Si:SiC Composite System and the Effects on Thermal Properties

A. Marshall*, M Cubed Technologies, Inc., USA

(ICACC-S10-P115-2012) Extremely high thermal properties of Boron Nitride-epoxy composite with high orientation

K. Miyata*, T. Yamagata, Denki kagaku kogyo kabushiki kaisha, Japan; T. Adschiri, Tohoku University, Japan

Posters – Symposium 11

Room: Exhibit Hall

5:00 PM

(ICACC-S11-P116-2012) Theoretical Modeling of NH3 Adsorption on SnO2

F. Shao*, Institut de Recerca en Energia de Catalunya (IREC), Spain; N. López, Institut Català d'Investigació Química (ICIQ), Spain; F. H. Ramírez, Institut de Recerca en Energia de Catalunya (IREC), Spain; J. D. Prades, Universitat de Barcelona, Spain; J. R. Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

(ICACC-S11-P117-2012) Nanowire based gas sensors in wireless and power-autonomous detector systems

J. Llosa, Universitat de Barcelona, Spain; M. Martínez de Marigorta, J. Bécares, WorldSensing, S.L.N.E., Spain; O. Monereo, J. Prades*, Universitat de Barcelona, Spain; F. Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; I. Vilajosana, WorldSensing, S.L.N.E., Spain; S. Mathur, Universität zu Köln, Germany; A. Cirera, Universitat de Barcelona, Spain

(ICACC-S11-P118-2012) Insight into ethanol sensing mechanism and its relation with humidity using individual SnO2 nanowires

J. Prades, Universitat de Barcelona, Spain; F. Hernandez-Ramirez, J. Morante*, Institut de Recerca en Energia de Catalunya (IREC), Spain

(ICACC-S11-P119-2012) Metal oxide mesoporous structures for resistive CO2 gas sensors

T. Andreu, M. Manzanares, J. Morante*, Catalonia Institute for Energy Research (IREC), Spain; J. Morante, University of Barcelona, Spain

Posters – Symposium 12

Room: Exhibit Hall

5:00 PM

(ICACC-S12-P120-2012) Thermal expansion and structural parameters of Cr₂(Al,Ge_{1-x})C studied by X-ray diffraction

T. Cabioch*, University of Poitiers, France; P. Eklund, Linköping University, Sweden

(ICACC-S12-P121-2012) Ultrarefractory carbides for applications in Concentrating Solar Power systems

D. Sciti*, L. Silvestroni, ISTECC-CNR, Italy; J. Sans, L. Charpentier, M. Balat-Pichelin, L. Mercatelli, CNRS, France; E. Sani, CNR, Italy

(ICACC-S12-P122-2012) Effect of Oxy-acetylene Torch Test Flame Conditions on the Ablation Resistance of Ultra-High Temperature Ceramic Composites at Elevated Temperatures

M. A. Valdez*, W. R. Pinc, L. S. Walker, E. L. Corral, University of Arizona, USA

(ICACC-S12-P123-2012) Mechanical Properties & Residual Thermal Stresses of Spark Plasma Sintered ZrB₂-SiC Composites

R. Stadelmann*, N. Orlovskaya, University of Central Florida, USA; V. Sglavo, University of Trento, Italy

(ICACC-S12-P124-2012) Oxidation-resistant ZrB₂-SiC composites

A. Goodarzi*, Amirkabir University of Tech., Islamic Republic of Iran; H. Taylor, Imperial College London, United Kingdom

(ICACC-S12-P125-2012) Tensile Creep of Coarse-Grained Ti2AlC in the 900-1150 °C Temperature Range

D. J. Tallman*, M. Abdelmalak, M. Barsoum, Drexel University, USA

(ICACC-S12-P126-2012) Study of NiTi-MAX Phase Composites Prepared via Spark Plasma Sintering

A. Kothalkar*, L. Hu, S. Basu, F. Schaff, I. Karaman, M. Radovic, Texas A&M University, USA

(ICACC-S12-P127-2012) Interfacial Study between Ti3SiC2 and NiTi Shape Memory Alloy via Diffusion Bonding

A. Kothalkar*, S. Basu, P. Mahaffey, M. Radovic, I. Karaman, Texas A&M University, USA

(ICACC-S12-P128-2012) Thermal atomic displacements in select MAX phases through first-principles phonon calculations

N. Lane*, Drexel University, USA; A. Togo, Kyoto University, Japan; L. Chaput, Université de Nancy, France; G. Hug, ONERA-CNRS, France; M. Barsoum, Drexel University, USA

(ICACC-S12-P129-2012) Microstructural characterization and compression properties of TiC0.61/Cu(Al) composites synthesized from Cu and Ti3AlC2 powders

Z. Huang, School of Mechanical and Electronic Control Engineering, China; V. Gauthier-Brunet, J. Bonneville, Institut PPRIME, France; H. Zhai, School of Mechanical and Electronic Control Engineering, China; A. Joulain, S. Dubois*, Institut PPRIME, France

(ICACC-S12-P130-2012) Structure and properties of oxide coatings on Al-Cu and Al-Mg alloys

A. D. Pogrebnyak*, Sumy State University, Ukraine; M. K. Klyshkanov, Serikbayev East Kazakhstan state technical University, Kazakhstan; Y. N. Tyurin, The E.O.Paton Electric Welding Institute, Ukraine; A. S. Kaverina, I. V. Yakushevchenko, Sumy State University, Ukraine

Posters – Symposium 13

Room: Exhibit Hall

5:00 PM

(ICACC-S13-P131-2012) Processing of ultrafine Silicon Carbide Powder by Silicon-Carbon and Silica-Carbon Reactions

S. Sagar*, R. Srinivasan, S. Ashok Kumar, Bhabha Atomic Research Centre, India

(ICACC-S13-P132-2012) Characterization of Electrodeposited FCCI barrier by ionic liquid for SFR

S. Jee*, S. Lee, Y. Yoon, Yonsei Univ, Republic of Korea

Posters – GYIF

Room: Exhibit Hall

5:00 PM

(ICACC-GYIF-P166-2012) Nanocrystalline ferrites NixZn(1-x)Fe2O4: acid sites on the surface and sensor properties

A. Kazin*, M. Rumyantseva, Moscow State University, Russian Federation; V. Prusakov, I. Suzdalev, Y. Maximov, V. Imshennik, S. Novochikhin, Semenov Institute of Chemical Physics, Russian Federation; A. Gaskov, Moscow State University, Russian Federation

(ICACC-GYIF-P167-2012) Influence of ZnO(Ga) defect structure on sensor properties to ammonia

N. Vorobyeva*, M. Rumyantseva, A. Gaskov, E. Konstantinova, D. Grishina, Moscow State University, Russian Federation

(ICACC-GYIF-P168-2012) Oxygen isotope exchange study on SiO2-supported mixed 3d-metal oxides with spinel structure

D. Frolov*, Y. Kotovshikov, I. Morozov, A. Boltalin, A. Fedorova, Moscow State University, Russian Federation; E. Sadovskaya, Borekov Institute of Catalysis, Russian Federation; V. Ivanov, Kurnakov Institute of General and Inorganic Chemistry, Russian Federation

(ICACC-GYIF-P169-2012) Photoconductivity of nanocrystalline SnO₂ sensitized with colloidal CdSe quantum dots

A. Babynina*, R. Vasiliev, O. Maslova, M. Rumyantseva, A. Gaskov, Moscow State University, Russian Federation

Posters – Focused Session 1

Room: Exhibit Hall

5:00 PM**(ICACC-FS1-P136-2012) Influence of activating solution's composition on products stability and thermomechanical properties of volcanic ash-based geopolymers**

P. N. Lemounga, U. F. Chinje Melo, University of Yaoundé, Cameroon; M. Delplancke, Université Libre de Bruxelles, Belgium; H. Rahier*, Vrije Universiteit Brussel, Belgium

(ICACC-FS1-P137-2012) Thermal Resistance Properties of Geopolymers Containing Ground Granulated Blast Furnace Slag

J. Eichler*, T. Metroke, Universal Technology Corporation, USA; M. Henley, Air Force Research Laboratory, USA

(ICACC-FS1-P138-2012) Properties of low calcium fly ash based geopolymer pastes

Y. Choi*, J. Kim, G. Moon, Y. Cho, B. Lee, S. Jung, Korea Conformity Institute, Republic of Korea

(ICACC-FS1-P139-2012) Effect of elevated temperature exposure on the performance of fly ash based geopolymer

Y. Choi*, J. Kim, B. Lee, S. Jung, Korea Conformity Institute, Republic of Korea

Thursday, January 26, 2012**S1: Mechanical Behavior and Performance of Ceramics & Composites****Processing-Microstructures-Properties Correlations I**

Room: Coquina Salon D

Session Chairs: Yanchun Zhou, Aerospace Research Institute of Materials & Processing Technology; Dechang Jia, Harbin Institute of Technology

8:00 AM**(ICACC-S1-053-2012) Microstructure and Mechanical Property Characterization of SiB_{0.5}C_{1.5}N_{0.8}Al_{0.3} Ceramics Produced by Mechanical Alloying and Subsequent Hot-pressing (Invited)**

D. Jia*, D. Ye, Z. Yang, Z. Sun, Y. Zhou, Harbin Institute of Technology, China

8:30 AM**(ICACC-S1-054-2012) Microstructure Evolution from Mechanically Alloyed Amorphous SiBCN Powder to Hot Pressed Nanocrystalline Ceramic**

P. Zhang*, D. Jia, Z. Yang, X. Duan, Y. Zhou, Harbin Institute of Technology, China

8:50 AM**(ICACC-S1-055-2012) Effect of AlN content on the microstructure and mechanical properties of BN-based composites**

Z. Tian, D. Jia*, Z. Yang, X. Duan, Y. Zhou, Harbin Institute of Technology, China

9:10 AM**(ICACC-S1-056-2012) Utilizing Pressure-Induced Transformations for Toughening of Ceramics**

S. Ramalingam*, I. E. Reimanis, C. E. Packard, Colorado School of Mines, USA

9:30 AM

Break

9:40 AM**(ICACC-S1-057-2012) Microstructural Variations in Bulk Monoclinic Y₂O₃ Transformed under High Pressure**

S. Deutsch*, J. F. Al-Sharab, B. H. Kear, S. D. Tse, Rutgers University, USA

10:00 AM**(ICACC-S1-058-2012) Mechanical Properties of Zirconia Toughened Alumina with 10-24 vol-% 1Y-TZP Reinforcement**

F. Sommer*, R. Landfried, F. Kern, R. Gadow, University of Stuttgart, Germany

10:20 AM**(ICACC-S1-059-2012) Tailoring microstructures in mullite for toughness enhancement**

D. Glymond*, Imperial College London, United Kingdom; M. Vick, M. Pan, Naval Research Laboratory, USA; F. Giuliani, L. Vandeperre, Imperial College London, United Kingdom

10:40 AM**(ICACC-S1-060-2012) Microstructural, Thermal, Electrical and Mechanical Characterisation of Silica Matrix Composites reinforced with Carbon Nanotubes**

T. Subhani*, Imperial College London, United Kingdom; M. Mackovic, E. Spiecker, A. R. Boccaccini, University of Erlangen-Nuremberg, Germany; M. S. Shaffer, W. E. Lee, Imperial College London, United Kingdom

11:00 AM**(ICACC-S1-061-2012) Influence of Carbon Doping on the Mechanical Properties of Alumina**

N. A. Yahya*, R. I. Todd, University of Oxford, United Kingdom

11:20 AM**(ICACC-S1-062-2012) Relationship between the number density of coarser defects and strength and their fluctuations in dry-pressed ceramics**

S. Tanaka*, S. Goi, R. Furushima, K. Uematsu, Nagaoka University of Technology, Japan

11:40 AM**(ICACC-S1-063-2012) The Preparation and microstructure of ZrC based ceramics**

R. Zhidan*, L. Yufu, Southeast University, China

S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications**Environmental Barrier Coatings and Protective Coating-Component Systems for Extreme Environments**

Room: Ponce de Leon

Session Chairs: Peter Mechnich, German Aerospace Center (DLR); Sung Choi, Naval Air Systems Command

8:00 AM**(ICACC-S2-020-2012) Hot gas corrosion and EBC development of non-oxide ceramic materials (Invited)**

H. Klemm*, A. Bales, K. Schoenfeld, A. Michaelis, Fraunhofer IKTS, Germany

8:40 AM**(ICACC-S2-021-2012) The effect of oxidation resistant fillers on bond-coats for EBC on silicon-based ceramics**

C. Lewinsohn*, H. Anderson, J. Johnston, Ceramtec, Inc., USA; R. Bhatt, D. Zhu, NASA Glenn Research Center, USA

9:00 AM**(ICACC-S2-022-2012) Thermal Stability and Expansion Properties of Rare Earth Monosilicates**

P. Sarin*, D. R. Lowry, Z. D. Apostolov, J. Angelkort, Z. A. Jones, W. M. Kriven, University of Illinois at Urbana-Champaign, USA

9:20 AM**(ICACC-S2-023-2012) Thermal Expansion and Phase Transitions of Rare Earth Disilicates**

T. Key*, E. E. Boakye, UES / AFRL, USA; K. F. Presley, R. S. Hay, AFRL, USA

9:40 AM

Break

10:00 AM

(ICACC-S2-024-2012) Develop Eu³⁺ doped YPO₄ Environmental Barrier Coating for Self-health-monitoring (Invited)

Y. Wang*, W. Liu, L. Cheng, Northwestern Polytechnical University, China

10:30 AM

(ICACC-S2-025-2012) Testing of Candidate Rigid Heatshield Materials at LHMEI for the Entry, Descent, and Landing Technology Development Project

S. Sepka*, ERC/NASA-Ames, USA; R. Beck, S. White, NASA Ames Research Center, USA

11:00 AM

(ICACC-S2-026-2012) A SiC/SiC-MoSi₂-ZrB₂ double-layer oxidation resistant coating for carbon/carbon composites

H. Li*, X. Yao, Y. Zhang, X. Shi, Northwestern Polytechnical University, China

11:20 AM

(ICACC-S2-027-2012) Novel PDC based composite coating to protect mild steel in very harsh environments

G. Motz*, M. Guenther, U. Glatzel, A. Schuetz, University of Bayreuth, Germany; K. Wang, R. K. Bordia, University of Washington, USA

11:40 AM

(ICACC-S2-028-2012) In-situ observation of the active/passive transition of SiC oxidation under Ar/O₂ gas mixtures at very high temperatures

M. Q. Brisebourg*, F. Rebillat, F. Teyssandier, LCTS, France

S3: 9th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology**Electrode Materials and Microstructural Engineering I**

Room: Coquina Salon H

Session Chairs: Briggs White, Dept. of Energy; S. Elangovan, Ceramatec, Inc.

8:00 AM

(ICACC-S3-011-2012) Improved Anodic Performance of Ce(Mn,Fe)O₂-La(Sr)Fe(Mn, Co)O₃ Composite Oxide For Direct Hydrocarbon Type SOFCs (Invited)

T. Ishihara*, T. Shin, Y. Ju, Kyushu University, Japan

8:30 AM

(ICACC-S3-012-2012) Silver Based Composite Cathodes for High Performance SOFCs

A. Sarikaya*, V. Petrovsky, F. Dogan, Missouri University of Science and Technology, USA

8:50 AM

(ICACC-S3-013-2012) Production and Characterization of Micro-Tubular Solid Oxide Fuel Cells

M. Casarin*, R. De la Torre Garcia, V. M. Sglavo, University of Trento, Italy

9:10 AM

(ICACC-S3-014-2012) In-situ XRD of Operating LSFC Cathode Suggests Gradual Compositional Change

J. S. Hardy*, J. W. Templeton, D. J. Edwards, Z. Lu, J. W. Stevenson, Pacific Northwest National Laboratory, USA

9:30 AM

(ICACC-S3-015-2012) Performance and Accelerated Degradation of Infiltrated Cathode Systems for Solid Oxide Fuel Cells (Invited)

A. Call*, M. Shah, S. A. Barnett, Northwestern University, USA

9:50 AM

Break

Electrode Materials and Microstructural Engineering II

Room: Coquina Salon H

Session Chairs: Briggs White, Dept. of Energy; S. Elangovan, Ceramatec, Inc.

10:00 AM

(ICACC-S3-016-2012) Investigation of Microstructural Effect of Ni-Yttria Stabilized Zirconia for SOFC Anode (Invited)

T. Suzuki*, K. Hamamoto, B. Liang, T. Yamaguchi, H. Sumi, Y. Fujishiro, National Institute of Advanced Industrial Science and Technology, Japan; B. Ingram, J. Kropf, J. D. Cater, Argonne National Laboratory, USA

10:30 AM

(ICACC-S3-017-2012) Manganese induced Structural Modifications in Yttria Stabilized Zirconia (YSZ)

M. K. Mahapatra*, N. Li, W. Ahmad, M. Aindow, P. Singh, University of Connecticut, USA

10:50 AM

(ICACC-S3-018-2012) Interactions of Electrolyte-(La_{0.8}Sr_{0.2})xMnO₃ Air Electrode-Interconnect Tri-layers for Solid Oxide Fuel Cells (Invited)

K. Lu*, T. Jin, Virginia Tech, USA

11:10 AM

(ICACC-S3-019-2012) Investigation of cobalt-free perovskite Ba_{0.95}La_{0.05}FeO_{3-δ} as a cathode for proton-conducting solid oxide fuel cells

L. Yan, X. Xue*, University of South Carolina, USA

11:30 AM

(ICACC-S3-020-2012) Freeze-Tape Casting for the Design of Anode and Cathode Materials in Solid Oxide Fuel Cells (SOFCs)

J. Bunch*, Y. Chen, University of South Carolina, USA; M. May, Citadel, USA; F. Chen, University of South Carolina, USA

11:50 AM

(ICACC-S3-021-2012) Liquid Tin Anode Direct JP-8 Fuel Stack Performance and System Development

M. Koslowski*, J. Brodie, C. MacKean, J. Bentley, T. Tao, CellTech Power, LLC, USA

S5: Next Generation Bioceramics**Bioinspired, Biomimetic, and Biologically-derived Ceramics I**

Room: Coquina Salon C

Session Chairs: Xiaodong Li, University of South Carolina; A. Cuneyt Tas, University of Oklahoma, College of Dentistry

8:00 AM

(ICACC-S5-016-2012) Granules of brushite and octacalcium phosphate from marble (Invited)

A. Tas*, University of Oklahoma, USA

8:20 AM

(ICACC-S5-019-2012) Bio-inspired synthesis of bone-like matrix

Y. Wang*, N. Nassif, T. Azais, G. Laurent, M. Giraud-Guille, F. Babonneau, Laboratory of la chimie de la matiere condensee de Paris, France

8:40 AM

(ICACC-S5-017-2012) Unveiling the Strengthening and Toughening Mechanisms of Nacre – Lessons from Nature (Invited)

X. Li*, University of South Carolina, USA

9:00 AM

(ICACC-S5-018-2012) Antibiotics-incorporated Apatite and Apatite/Collagen Coatings on NiTi Shape Memory Alloy Formed by Electrochemical Deposition (Invited)

W. Lee, M. Wang*, The University of Hong Kong, Hong Kong

9:20 AM

(ICACC-S5-020-2012) UV-irradiation modifies chemistry of anatase layer pertinent to in vitro apatite nucleation (Invited)

K. Uetsuki, S. Nakai, Y. Shirosaki, S. Hayakawa, A. Osaka*, Okayama University, Japan

9:40 AM

Break

Bioinspired, Biomimetic, and Biologically-derived Ceramics II

Room: Coquina Salon C

Session Chairs: Federico Rosei, INRS; Akiyoshi Osaka, Okayama University

10:00 AM

(ICACC-S5-021-2012) Nanoscale Properties of Implantable Biomaterials (Invited)

F. Rosei*, INRS, Canada

10:20 AM

(ICACC-S5-022-2012) Bioactive Glass Scaffolds for Bone Tissue Engineering (Invited)

M. N. Rahaman*, Missouri University of Science and Technology, USA

10:40 AM

(ICACC-S5-023-2012) Residual stress and phase transformation in zirconia restoration ceramics (Invited)

M. Allahkarami, J. C. Hanan*, Oklahoma State University, USA

11:00 AM

(ICACC-S5-032-2012) Structural Investigation of substituted Hydroxyapatites : Strengths of Solid State NMR (Invited)

F. Babonneau*, T. Azais, LCMCP / UPMC-Paris6 & CNRS, France; C. Coelho, IMPC / UPMC-Paris6 & CNRS, France; C. Bonhomme, LCMCP / UPMC-Paris6 & CNRS, France

11:20 AM

(ICACC-S5-025-2012) Preparation and Characterization of Mg-based Silicate Bioceramics from a Pre-ceramic Polymer Filled with Nano-particles (Invited)

E. Bernardo*, P. M. Dias, P. Colombo, University of Padova, Italy; L. Treccani, U. Hess, K. Rezwan, University of Bremen, Germany

S7: 6th International Symposium on Nanostructured Materials and Nano-Composites**Synthesis, Functionalization, Processing and Self-assembly of Nanoparticles I**

Room: Coquina Salon B

Session Chairs: Gunnar Westin, Uppsala University; Kathy Lu, Virginia Tech

8:00 AM

(ICACC-S7-049-2012) ZnO nanoparticle-based surface templating (Invited)

K. Lu*, B. Chen, K. Ramsburg, Virginia Tech, USA

8:20 AM

(ICACC-S7-050-2012) Thin complex oxide, composite and metal coatings through solution processes (Invited)

G. Westin*, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden; A. Pohl, Uppsala University, Sweden

8:50 AM

(ICACC-S7-051-2012) Hot wire and spark pyrolysis as simple new routes to silicon nanoparticle synthesis (Invited)

M. R. Scriba*, CSIR, South Africa; D. T. Britton, M. Harting, University of Cape Town, South Africa

9:20 AM

(ICACC-S7-052-2012) Materials modelling for electrochemical applications (Invited)

T. T. Jaervi*, L. Mayrhofer, L. Pastewka, M. Moseler, Fraunhofer Institute for Mechanics of Materials IWM, Germany; T. Kaib, S. Kaib-Haddadpour, S. Dehnen, Philipps-University Marburg, Germany; H. F. Andersen, K. Möller, Fraunhofer Institute for Silicate Research (ISC), Germany

9:40 AM

Break

Synthesis, Functionalization, Processing and Self-assembly of Nanoparticles II

Room: Coquina Salon B

Session Chairs: Kathy Lu, Virginia Tech; Ashok Singh, Defence Institute of Advanced Technology

10:00 AM

(ICACC-S7-053-2012) Mechanism-Based Design of Precursors for the Deposition of Inorganic Films and Nanoparticles (Invited)

L. McElwee-White*, D. Wei, T. J. Anderson, University of Florida, USA

10:30 AM

(ICACC-S7-054-2012) Plasma-enabled, environment-friendly nanomaterials synthesis: from precursor-free silicon nanowires to catalyst-free vertical nanotubes and graphenes (Invited)

K. Ostrikov*, CSIRO Materials Science and Engineering, Australia

11:00 AM

(ICACC-S7-055-2012) CNT based nanocomposite strain sensor for structural health monitoring (Invited)

A. K. Singh*, Defence Institute of Advanced Technology, India

11:20 AM

(ICACC-S7-056-2012) Microwave Assisted Synthesis of Si(B)CN-MWCNT Free-Standing Paper for High Temperature Applications

R. Bhandavat*, G. Singh, W. Kuhn, Kansas State University, USA; E. Mansfield, National Institute of Standards and Technology, USA

11:40 AM

(ICACC-S7-057-2012) Carbon nanotube - Nanocrystalline diamond composite coatings: processing conditions and growth mechanism

S. Vasudevan*, J. Rankin, Brown University, USA; B. Walden, Trinity college, USA; B. W. Sheldon, Brown University, USA

S8: 6th International Symposium on Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT) in honor of Professor R. Judd Diefendorf**Processing, Structure and Properties**

Room: Coquina Salon A

Session Chairs: Vojislav Mitic, Faculty of Electronic Engineering; Junichi Tatami, Yokohama National University

8:10 AM

(ICACC-S8-050-2012) Texturing Technologies for Group IVB Metal Diboride Ceramics (Invited)

G. Zhang*, Shanghai Institute of Ceramics, China

8:40 AM

(ICACC-S8-051-2012) Contact Surface Influence on Microstructure and Dielectric Properties of Doped BaTiO₃-ceramics

V. Mitic*, V. Paunovic, J. Purenovic, Faculty of Electronic Engineering, Serbia; S. Jankovic, Faculty of Mathematics, Serbia; V. Pavlovic, Faculty of Agriculture, Serbia

9:00 AM**(ICACC-S8-052-2012) Numerical Analysis of Fracture Behavior in Anisotropic Microstructures**

H. Serizawa*, S. Tomiyama, T. Hajima, H. Murakawa, Osaka University, Japan

9:20 AM**(ICACC-S8-053-2012) Grain boundary structures of silicon nitrides with Lu₂O₃-SiO₂ and Lu₂O₃-Yb₂O₃-SiO₂ additives**

K. Fukunaga*, AIST, Japan; N. Kondo, H. Kita, T. Ohji, National Institute of Advanced Industrial Science and Technology (AIST), Japan; T. Saito, Japan Fine Ceramics Center, Japan; Y. Ikuhara, The University of Tokyo, Japan

9:40 AM**Break****10:00 AM****(ICACC-S8-054-2012) Amorphous Silicon nitride - Carbon nanotube composite coatings: the impact of nanotube structure and density on mechanical properties**

S. Vasudevan*, B. W. Sheldon, K. Sena, Brown University, USA

10:20 AM**(ICACC-S8-055-2012) Development of electrical discharge machinable ZTA ceramics with 24 vol.-% of TiC, TiN, TiCN, TiB₂ and WC as electrically conductive phase**

R. Landfried*, F. Kern, R. Gadow, University of Stuttgart, Germany

10:40 AM**(ICACC-S8-056-2012) Electrical conductivity of CNT-dispersed Si₃N₄ ceramics fabricated by using HfO₂ as a sintering aid**

M. Matsuoka*, S. Yoshio, J. Tatami, T. Wakiyama, K. Komeya, T. Meguro, Yokohama National University, Japan

11:00 AM**(ICACC-S8-057-2012) Electrically Conductive Si₃N₄/TiN Nanocomposites Prepared by Pressureless Sintering of TiN-Coated Si₃N₄ Powder**

K. Krnel*, Jozef Stefan Institute, Slovenia; A. Maglica, Lek d.d., Slovenia; T. Kosmac, Jozef Stefan Institute, Slovenia

11:20 AM**(ICACC-S8-058-2012) The influence of SiC coating on the ablation of ZrB₂-coated Carbon/Carbon composites prepared by low pressure chemical vapor deposition**

D. Yao*, H. Li, Q. Fu, X. Shi, K. Li, X. Yao, Northwestern Polytechnical University, China

11:40 AM**(ICACC-S8-059-2012) Physical and mechanical properties of nano- and microstructure of Al₂O₃ and Zr₂O₃ oxide coatings**

A. D. Pogrebnyak*, Sumy State University, Ukraine; V. M. Beresnev, Kharkov National University, Ukraine; A. S. Kaverina, Sumy State University, Ukraine; D. A. Kolesnikov, Belgorod State University, Russian Federation; I. V. Yakuschenko, M. V. Ilyashenko, Sumy State University, Ukraine; N. A. Makhmudov, Samarkand branch of the Tashkent State University of Informatics, Uzbekistan

S11: Nanomaterials for Sensing Applications: From Fundamentals to Device Integration**Sensing Devices I**

Room: Oceanview

Session Chair: Francisco Hernandez-Ramirez, Catalonia Institute for Energy Research

8:00 AM**(ICACC-S11-001-2012) Integration and testing of quasi-one-dimensional tin oxide nanomaterials in chemical microsensors (Invited)**

K. D. Benkstein*, E. N. Dattoli, C. B. Montgomery, S. Semancik, National Institute of Standards & Technology, USA; S. Donthu, V. Draid, Northwestern University, USA

8:30 AM**(ICACC-S11-002-2012) Structural and Electrical Characterization of BaTiO₃ Nanorods**

K. Zagar*, Jozef Stefan Institute, Slovenia; F. Hernandez-Ramirez, Catalonia Institute for Energy Research (IREC), Spain; J. Prades, University of Barcelona, Spain; J. Morante, Catalonia Institute for Energy Research (IREC), Spain; A. Recnik, M. Ceh, Jozef Stefan Institute, Slovenia

8:50 AM**(ICACC-S11-003-2012) NH₃ Sensing with Single SnO₂ Nanowire and the Humidity Influence**

F. Shao*, Catalonia Institute of Energy Research (IREC), Spain; R. J. Diaz, University of Barcelona, Spain; F. H. Ramirez, Catalonia Institute of Energy Research (IREC), Spain; J. D. Prades, University of Barcelona, Spain; S. Mathur, Inorganic Chemistry, Germany; J. R. Morante, Catalonia Institute of Energy Research (IREC), Spain

9:10 AM**(ICACC-S11-004-2012) Effects of the UV illumination and temperature on the conductometric detection of CO using SnO₂ nanowires from room temperature**

J. Prades, Universitat de Barcelona, Spain; F. Hernandez-Ramirez, J. Morante*, Institut de Recerca en Energia de Catalunya (IREC), Spain

9:30 AM**Break****10:00 AM****(ICACC-S11-005-2012) Nanowire Chemiresistors: The Devices Where the Joule Heating is Beneficial (Invited)**

A. Kolmakov*, Southern Illinois University at Carbondale, USA

10:30 AM**(ICACC-S11-006-2012) Improved gas selectivity to the humidity using self-heated nanowires in pulsed-operation**

J. Prades*, Universitat de Barcelona, Spain; F. Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; T. Fischer, M. Hoffmann, R. Müller, Universität zu Köln, Germany; N. López, Institut Català d'Investigació Química (ICIQ), Spain; S. Mathur, Universität zu Köln, Germany; J. Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

10:50 AM**(ICACC-S11-007-2012) Combined Resistive-Surface Ionisation Gas Sensor Response in Individual Nanowires**

F. Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; J. Prades*, Universitat de Barcelona, Spain; A. Hackner, EADS Innovation Works, Germany; T. Fischer, Universität zu Köln, Germany; G. Müller, EADS Innovation Works, Germany; S. Mathur, Universität zu Köln, Germany; J. Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)**Processing, Structure and Property Relationships**

Room: Coquina Salon F

Session Chairs: Yutaka Kagawa, The University of Tokyo; James Zimmermann, Corning

8:00 AM**(ICACC-S12-026-2012) Mechanical Behavior of ZrB₂/SiC Particulate Composites Produced with varying SiC Particle Sizes**

J. Watts*, G. Hilmas, W. G. Fahrenholtz, Missouri University of S & T, USA

8:20 AM**(ICACC-S12-027-2012) TaB₂-based ceramics: microstructure, mechanical properties and oxidation resistance**

L. Silvestroni*, S. Guicciardi, C. Melandri, D. Sciti, CNR-ISTEC, Italy

8:40 AM**(ICACC-S12-028-2012) Densification Behavior and Mechanical Properties of ZrB₂ Processed Using Spark Plasma Sintering**

D. Pham*, W. R. Pinc, L. S. Walker, E. L. Corral, University of Arizona, USA

9:00 AM**(ICACC-S12-029-2012) High-temperature bending strength of ZrB₂-20vol%SiC ceramics (Invited)**

G. Zhang*, J. Zou, Shanghai Institute of Ceramics, CAS, China; C. Hu, T. Nishimura, Y. Sakka, H. Tanaka, Nano Ceramics Center, NIMS, Japan; J. Vleugels, O. Van der Biest, Katholieke Universiteit Leuven, Belgium

9:20 AM**(ICACC-S12-030-2012) Room Temperature Fatigue of Ultra High Temperature ZrB₂-SiC Ceramic Composites**

N. Orlovskaya*, R. Stadelmann, University of Central Florida, USA; T. Graule, J. Kuebler, Swiss Federal Laboratories for Materials Science and Technology, Switzerland; M. Lugovy, Institute for Problems of Materials Science, Ukraine; C. Aneziris, M. Neubert, TU Bergakademie Freiberg, Germany

9:40 AM**Break****Novel Characterization Methods**

Room: Coquina Salon F

Session Chairs: Jochen Schneider, RWTH Aachen University; Jeremy Watts, Missouri University of S & T

10:00 AM**(ICACC-S12-031-2012) Identification of new stable MAX phases with tunable properties (Invited)**

J. Rosen*, The department of Physics, Chemistry and Biology, Linköping University, Sweden

10:20 AM**(ICACC-S12-032-2012) Synthesis, microstructural characterization and transport properties of Ti₂Al[C_xN_(1-x)]_y MAX phase solid solutions**

W. Yu, V. Gauthier-Brunet, T. Cabioch, Institut PPRIME, France; L. Gence, L. Piroux, Université Catholique de Louvain, Belgium; Z. Buck, J. Hettinger, S. Lofland, Rowan University, USA; M. Barsoum, Drexel University, USA; S. Dubois*, Institut PPRIME, France

10:40 AM**(ICACC-S12-033-2012) A first-principles investigation of the phase stability of known and hypothetical MAX phases**

M. Dahlqvist*, B. Alling, J. Rosén, Thin Film Physics Division, Sweden

11:00 AM**(ICACC-S12-034-2012) The MAX Phases: The Next Horizons (Invited)**

M. Barsoum*, Drexel University, USA

11:20 AM**(ICACC-S12-035-2012) Zero-Recession Lightweight Ablators with UHTC surface layers**

T. Aoki*, M. Mizuno, T. Suzuki, T. Ogasawara, Y. Ishida, K. Fujita, T. Yamada, Japan Aerospace Exploration Agency, Japan

11:40 AM**(ICACC-S12-036-2012) Effect of Transition Metal Additives on the Oxidation Behavior of ZrB₂**

M. Kazemzadeh Dehdashti*, W. G. Fahrenholtz, G. E. Hilmas, Missouri University of Science and Technology, USA

S13: Advanced Ceramics and Composites for Nuclear Applications**Ceramics for Nuclear Reactors and Fuels**

Room: Coquina Salon E

Session Chair: Lance Snead, ORNL

8:00 AM**(ICACC-S13-001-2012) Some Lessons Learned at the Fukushima Accident (Invited)**

A. Tokuhira*, U. Idaho, USA; S. M. McDevitt, Texas A&M, USA

8:30 AM**(ICACC-S13-002-2012) Thermo-mechanical aspect of SiC/SiC composite fuel cladding in LWR (Invited)**

S. Higuchi*, Y. Kawaharada, F. Kano, Toshiba Corporation, Japan

9:00 AM**(ICACC-S13-003-2012) Thermochemistry of Fully Ceramic Matrix Coated Particle Fuel**

T. M. Besmann*, Oak Ridge National Laboratory, USA

9:20 AM**(ICACC-S13-004-2012) Processing of inert SiC matrix with TRISO coated fuel by liquid phase sintering**

K. Shimoda*, T. Hinoki, Kyoto University, Japan; K. A. Terrani, L. L. Snead, Y. Katoh, Oak Ridge National Laboratory, USA

9:40 AM**Break****10:00 AM****(ICACC-S13-005-2012) SiC-Coated HTGR Fuel Particle Performance (Invited)**

M. J. Kania, -, USA; H. Nabielek*, K. Verfondern, Forschungszentrum Juelich, Germany

10:30 AM**(ICACC-S13-006-2012) Modeling of Microstructural Evolution in Nuclear Fuels during Service (Invited)**

V. Tikare*, Sandia National Laboratories, USA

11:00 AM**(ICACC-S13-007-2012) The Role of Defect Structure on the Sinterability of Non-stoichiometric Oxide Fuel**

J. B. Henderson*, Netzsch Instruments NA, USA; A. T. Nelson, D. D. Byler, K. J. McClellan, Los Alamos National Laboratory, USA

11:20 AM**(ICACC-S13-008-2012) Thermal Conductivity of Multiphase Ceramics for Inert Matrix Nuclear Fuel**

D. A. Men*, M. H. Sullivan, D. R. Mumm, J. P. Angle, M. M. Chan, University of California, Irvine, USA; M. K. Patel, K. E. Sickafus, Los Alamos National Laboratory, USA; M. L. Mecartney, University of California, Irvine, USA

11:40 AM**(ICACC-S13-009-2012) Structure and Property Relationship in Spark Plasma Sintered UO₂ pellets**

G. Subhash*, E. McKenna, G. LiHao, A. Cartas, J. Tulenko, R. Baney, University of Florida, USA

Global Young Investigators Forum**Frontiers in Ceramic Hybrid Materials and Composites for Biomedical Applications**

Room: Coquina Salon G

Session Chairs: Satoko Tasaki, Osaka University; Eva Hemmer, Tokyo University of Science

8:00 AM**(ICACC-GYIF-010-2012) Fluorescent Carbon Nanowires for Targeted Drug Delivery for Breast Cancer Therapy and Optical Imaging (Invited)**

N. Puvvada*, B. Kumar, N. Babu, H. Kalita, M. Mandal, A. Pathak, Indian Institute of Technology Kharagpur, India

8:20 AM**(ICACC-GYIF-011-2012) Design, Fabrication and *In Situ* Surface Modification of the Selectively Doped Advanced ZnO Nanohybrid Materials and their Biological Activities (Invited)**

K. Namratha*, K. Byrappa, S. Rajesh, V. Ravishankar Rai, University of Mysore, India

8:40 AM**(ICACC-GYIF-012-2012) Covalent Immobilization and Time Dependent Release of Sparfloxacin on SiO₂@FeOx Nanoparticles**

L. Wortmann*, University of Cologne, Germany; N. El-Gamel, Cairo University, Egypt; K. Arroub, S. Mathur, University of Cologne, Germany

9:00 AM

(ICACC-GYIF-014-2012) Bio-inspired synthesis of bone-like matrix (Invited)

Y. Wang*, N. Nassif, T. Azais, G. Laurent, M. Giraud-Guille, F. Babonneau, University Pierre et Marie Curie (UPMC), France

9:40 AM

Break

Frontiers in Ceramic Chemistry and Biomedical Applications

Room: Coquina Salon G

Session Chairs: Laura Wortmann, University of Cologne

10:00 AM

(ICACC-GYIF-015-2012) Fabrication of Ceramics Implants with Biocompatibility Structures by Using Laser Scanning Stereolithography

S. Tasaki*, S. Kirihara, Osaka University, Japan

10:20 AM

(ICACC-GYIF-016-2012) PEG-*b*-PAAc Modified Gd₂O₃:Er³⁺, Yb³⁺ Nanostructures as Over-1000-nm Near-Infrared Fluorescence Biomarkers

E. Hemmer*, T. Yamano, H. Takeshita, T. Fujiki, H. Kishimoto, Tokyo University of Science, Japan; R. B. Goldfarb, National Institute of Standards and Technology (NIST), USA; K. Soga, Tokyo University of Science, Japan

10:40 AM

(ICACC-GYIF-017-2012) Immunotoxicity Assessment of Carbon-Based Nanomaterials (Invited)

F. Torres-Andon*, Karolinska Institutet, Sweden; L. Xiao, University of Cologne, Germany; H. Salminen-Mankonen, S. Tuomela, University of Turku and Abo Akademi University, Finland; R. Autio, Tampere University of Technology, Finland; R. Lahesmaa, University of Turku and Abo Akademi University, Finland; A. Shvedova, West Virginia University, USA; S. Mathur, University of Cologne, Germany; B. Fadeel, Karolinska Institutet, Sweden

11:00 AM

(ICACC-GYIF-018-2012) Novel scaffolds made from metallic ion doped bioactive glasses: fabrication and characterization (Invited)

A. Hoppe*, Institute of Biomaterials, Germany; D. Hiller, U. Kneser, University of Erlangen, Germany; A. R. Boccaccini, Institute of Biomaterials, Germany

11:20 AM

(ICACC-GYIF-019-2012) Science in between Fun, Funding and Fundamentals (Invited)

T. Fischer*, University of Cologne, Germany

11:40 AM

(ICACC-GYIF-020-2012) On the optical measurement of interlaminar stress-strain response of double notched compression specimens from woven Carbon/Carbon composites

T. Krause*, University of Bremen, Germany; S. Ladisch, Fraunhofer Institute for Mechanics of Materials, Germany; K. Tushetev, University of Bremen, Germany; R. Schäuble, Fraunhofer Institute for Mechanics of Materials, Germany; G. Grathwohl, University of Bremen, Germany; D. Koch, Institute of Structures and Design, Germany

S1: Mechanical Behavior and Performance of Ceramics & Composites**Processing-Microstructure-Properties Correlations II**

Room: Coquina Salon D

Session Chairs: Michael Halbig, NASA Glenn Research Center; Lalit Sharma, Central Glass Research Institute

1:30 PM

(ICACC-S1-064-2012) Investigation of the Mechanical Properties of an Oxide/Oxide Fibre Reinforced Ceramic Matrix Composite

R. E. Johnston*, M. R. Bache, Swansea University, United Kingdom; D. Thompson, Umeco Composite Structural Materials, United Kingdom; P. J. Withers, S. Van Boxel, Manchester University, United Kingdom; I. M. Edmonds, Rolls-Royce plc, United Kingdom

1:50 PM

(ICACC-S1-065-2012) Stochastic models of fragmentation of brittle fibers or matrix in ceramic matrix composites

J. L. Lamon*, CNRS, France

2:10 PM

(ICACC-S1-066-2012) Oxide Fiber Composites with cellular YAG/ZrO₂-matrices

T. Wamser*, J. Lehmann, S. Scheler, W. Krenkel, Ceramic Materials Engineering, Germany

2:30 PM

(ICACC-S1-067-2012) Mechanical and microstructural characterization of C/C-SiC manufactured via triaxial and biaxial braided fiber preforms

F. Breede*, M. Friess, D. Koch, H. Voggenreiter, Institute of Structures and Design, German Aerospace Center (DLR), Germany; V. Frenzel, K. Drechsler, University of Stuttgart, Germany

2:50 PM

(ICACC-S1-068-2012) Influence of Fiber Fabric Density and Matrix Fillers as well as Fiber Coating on the Properties of OXIPOL Materials

S. Hoenig*, E. Klatt, M. Friess, D. Koch, C. Martin, I. Naji, German Aerospace Center, Germany

3:10 PM

Break

3:20 PM

(ICACC-S1-069-2012) Innovative clay-cellulosic biosourced composite: formulation and processing

G. Lecomte-Nana*, ENSCI - GEMH, France; O. Barré, C. Nony, Société Bibliontek, AVRUL Dpt Incubateur, France; G. Lecomte, ENSCI - GEMH, France

3:40 PM

(ICACC-S1-070-2012) Shape-memory effect in glassy carbon

Y. Shinoda*, T. Akatsu, F. Wakai, Tokyo Institute of Technology, Japan

4:00 PM

(ICACC-S1-071-2012) Novel Silicon Carbide Composites without Interface Layer

T. Hinoki*, K. Shimoda, Y. Park, Kyoto University, Japan

4:20 PM

(ICACC-S1-072-2012) Bonding of Silicon Carbide Ceramics to Metals using Particulate Reinforced Ag-Cu-Ti Alloys

M. C. Halbig*, NASA Glenn Research Center, USA; B. P. Coddington, University of Wisconsin-Madison, USA; R. Asthana, University of Wisconsin-Stout, USA; M. Singh, Ohio Aerospace Institute, USA

4:40 PM

(ICACC-S1-073-2012) Biaxial Flexure tests of Carbon Fiber – SiC Matrix Hybrid Ceramics

N. Nakagawa*, Japan Ultra-High Temperature Materials Research Center, Japan; S. Aonuma, Covalent Materials Co., Japan; S. Guo, National Institute for Materials Science, Japan; K. Goto, Japan Aerospace Exploration Agency, Japan; Y. Kagawa, University of Tokyo, Japan

5:00 PM

(ICACC-S1-074-2012) Strategies to Optimize the Strength and Toughness of Ceramic Laminates

R. Bermejo*, Montanuniversitaet Leoben, Austria; L. Sestakova, O. Sevecek, Materials Center Leoben Forschung GmbH, Austria; Z. Chlup, Academy of Sciences of the Czech Republic, Czech Republic; R. Danzer, Montanuniversitaet Leoben, Austria

5:20 PM

(ICACC-S1-075-2012) High Pressure Seawater Impingement Resistance of High Purity Aluminum Oxides

T. S. Dyer*, Energy Recovery Inc, USA; R. Quiazon, Energy recovery Inc, USA; M. Rodgers, Rio Tinto Alcan, France

5:40 PM

(ICACC-S1-076-2012) Production and study of stability of Ca₂Al₂SiO₆ ceramics in crude petroleum for their application in petroleum extraction industry

Y. P. Yadava*, M. M. Lima, J. S. Oliveira, R. A. Sanguinetti Ferreira, Universidade Federal de Pernambuco, Brazil

S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications

Coatings to Resist Wear, Erosion and Extreme Environments

Room: Ponce de Leon

Session Chairs: Oyelayo Ajayi, Argonne National Laboratory; Irene Spitsberg, Kennametal

1:30 PM

(ICACC-S2-029-2012) Investigation of Coating Failure Behavior under Extremely High Impact and Sliding Load Conditions (Invited)

J. F. Su, X. Nie*, H. Hu, University of Windsor, Canada

2:00 PM

(ICACC-S2-030-2012) Modeling and Ab-Initio Simulation of Amorphous Coatings (Invited)

P. Kroll*, UT Arlington, USA

2:30 PM

(ICACC-S2-031-2012) Effect of stoichiometry of ceramic interlayers pre-coated on WC-Co on diamond coatings by MPCVD

Y. Li*, Y. Tang, L. Zhang, Q. Yang, A. Hirose, University of Saskatchewan, Canada

2:50 PM

Break

3:10 PM

(ICACC-S2-032-2012) Effect of Hard Coatings on Tribochemical Film Behavior in Lubricated Sliding Contact

M. Lorenzo Martin*, O. O. Ajayi, S. Torrel, N. Demas, G. Fenske, Argonne National Laboratory, USA

3:30 PM

(ICACC-S2-033-2012) Evaluations of Multilayer Coatings for Galvanic Corrosion Resistance Applications

C. Qu, Alfred University, USA; R. Kasica, NIST, USA; R. Wei, Southwest Research Institute, USA; E. McCarty, 4. Materials Technologies Consulting, USA; J. Fan, D. Edwards, G. Wynick, X. Wang*, Alfred University, USA

3:50 PM

(ICACC-S2-034-2012) Formation of nano dispersed ceramic-metallic composite coatings

R. Saha*, M. A. Farrokhzad, T. I. Khan, University of Calgary, Canada

4:10 PM

(ICACC-S2-035-2012) Nanoindentation and tribological properties of magnetron sputtered WC-C coatings

F. Lofaj*, M. Ferdinandy, P. Hornak, Institute of Materials Research of SAS, Slovakia; G. Cempura, AGH-UST, Poland

4:30 PM

(ICACC-S2-036-2012) Enhancing the performance and lifetime of ceramic components in critical applications through the use of carbon based coating technology

C. H. Walker*, Diamond Hard Surfaces Ltd, United Kingdom

4:50 PM

(ICACC-S2-037-2012) Rare earth oxide reinforced Al₂O₃-TiO₂ ceramics coating for metal matrix in petroleum industry

Y. P. Yadava*, S. A. Rêgo, C. E. Mendes, R. A. Sanguinetti Ferreira, Universidade Federal de Pernambuco, Brazil

5:10 PM

(ICACC-S2-038-2012) A Novel Hybrid Nanomanufacturing Ceramic Coating and Surface Engineering Process: Cubic Boron Nitride Coating, a Case Study

A. Malshe*, NanoMech Inc., USA; W. Jiang, University of Arkansas, USA

S3: 9th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology

Mechanical and Thermal Properties

Room: Coquina Salon H

Session Chairs: Toshio Suzuki, National Institute of Advanced Industrial Science and Technology; Yeong-Shyung Chou, Pacific Northwest National Lab

1:30 PM

(ICACC-S3-022-2012) Weibull strength variations between room temperature and high temperature Ni-3YSZ anode supports

D. J. Curran*, H. Lund Frandsen, S. Rasmussen, P. Vang Hendriksen, DTU, Denmark

1:50 PM

(ICACC-S3-023-2012) (Sc₂O₃)_{0.1}(CeO₂)_{0.01}(ZrO₂)_{0.89} / (Y₂O₃)_{0.08}(ZrO₂)_{0.92} layered electrolytes

Y. Chen*, N. Orlovskaya, University of Central Florida, USA; J. Neutzler, J. Sightler, X. Huang, University of South Carolina, USA; T. Graule, J. Kuebler, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

2:10 PM

(ICACC-S3-024-2012) Thermomechanical Degradation Behavior of SOFC Materials

H. Lee, E. R. Kupp*, G. L. Messing, Penn State University, USA

2:30 PM

(ICACC-S3-025-2012) Characterization of Zirconia by Means of Thermoanalytical Methods: From the Green Body to Dense Bulk Ceramics

E. Post*, NETZSCH Geraetebau GmbH, Germany; B. Fidler, NETZSCH Instruments North America, LLC, USA

2:50 PM

Break

SOFC Electrolyte and Seal

Room: Coquina Salon H

Session Chairs: Tatsumi Ishihara, Kyushu University; Prabhakar Singh, Connecticut Global Fuel Center

3:10 PM

(ICACC-S3-026-2012) Evaluation of Approaches to Improving Long Term Stability of Solid Oxide Electrolysis Stack (Invited)

S. Elangovan*, J. J. Hartvigsen, F. Zhao, D. Larsen, I. Bay, Ceramtec, Inc., USA

3:40 PM

(ICACC-S3-027-2012) A Techno-Economic Model of Solid Oxide Electrolysis Systems for H₂ or Syngas Production

J. J. Hartvigsen*, S. Elangovan, D. Milobar, Ceramtec, Inc., USA

4:00 PM

(ICACC-S3-028-2012) Improved Air Electrode Materials for Solid Oxide Electrolysis Cells

M. Keane*, A. Verma, P. Singh, University of Connecticut, USA

4:20 PM

(ICACC-S3-029-2012) Compliant sealing glass for SOFC applications: electrical stability with YSZ and alumina coating under DC loading (Invited)

Y. Chou*, E. C. Thomsen, J. Choi, W. E. Voldrich, J. W. Stevenson, Pacific Northwest National Lab, USA

4:50 PM

(ICACC-S3-030-2012) Viscous Sealants for Intermediate Temperature Solid Oxide Fuel Cells (Invited)

M. O. Naylor*, S. Mixture, J. Shelby, Kazuo Inamori School of Engineering, Alfred University, USA

5:10 PM**(ICACC-S3-031-2012) Glass-ceramic sealant in planar SOFC short stack; thermal cycle stability and chemical compatibility with stack components**

F. Smeacetto*, M. Salvo, P. Leone, M. Santarelli, G. Ortigoza Villalba, Politecnico di Torino, Italy; M. Bindi, Edison Spa, Italy; L. C. Ajitdoss, M. Ferraris, Politecnico di Torino, Italy

5:30 PM**(ICACC-S3-032-2012) Development of Viscous Sealing Glasses for Solid Oxide Fuel Cells**

C. Kim*, MO-SCI Corporation, USA; R. K. Brow, Missouri University of Science and Technology, USA

5:50 PM**(ICACC-S3-033-2012) Effect of environmental exposure on the microstructural stability of two alkali barium silicate glasses**

A. Shyam*, R. Trejo, V. Garcia-Negrón, A. Ladouceur, M. Kirkham, D. McClurg, Z. Ladouceur, E. Lara-Curzio, Oak Ridge National Laboratory, USA

S5: Next Generation Bioceramics**Advanced Processing of Bioceramics III**

Room: Coquina Salon C

Session Chair: Aldo Boccaccini, University of Erlangen-Nuremberg

1:30 PM**(ICACC-S5-026-2012) Metal Matrix-Bioactive Glass Composite Coatings via Flame Spray (Invited)**

J. A. Nychka, G. M. Nelson*, Univ of Alberta, Canada; A. G. McDonald, University of Alberta, Canada

2:00 PM**(ICACC-S5-027-2012) Composite materials with biomimetic apatite matrix for bone substitution (Invited)**

D. Grossin, F. Brouillet*, C. Rey, CIRIMAT Carnot institut (Toulouse university), France

2:30 PM**(ICACC-S5-028-2012) Fracture Origins in a High Strength Dental Porcelain**

G. Quinn*, American Dental Association foundation, USA; K. Hoffman, American Dental Association foundation, USA; J. Quinn, American Dental Association foundation, USA

2:50 PM**(ICACC-S5-029-2012) Cellular response to ionic dissolution products from bioactive glasses and glass-ceramics (Invited)**

A. R. Boccaccini*, A. Hoppe, University of Erlangen-Nuremberg, Germany

3:10 PM

Break

Advanced Processing of Bioceramics IV

Room: Coquina Salon C

Session Chair: Steven Jung, Mo-Sci Corporation

3:30 PM**(ICACC-S5-030-2012) Fabrication of custom specific dental crown through green stage machining of ceramics**

S. Mohanty, S. Dhara*, IIT Kharagpur, India

3:50 PM**(ICACC-S5-031-2012) Heterogeneous structure of hydroxyapatite and in vitro degradability (Invited)**

S. Hayakawa*, T. Ohiwa, Y. Shirosaki, A. Osaka, Okayama University, Japan; J. Christian, BAM, Germany

4:10 PM**(ICACC-S5-024-2012) Carbonate Apatite Formation During The Setting Reaction of Apatite Cement**

A. Cahyanto*, I. Artilia, K. Tsuru, K. Ishikawa, Faculty of Dental Science, Kyushu University, Japan

4:30 PM**(ICACC-S5-033-2012) Potential Toxicity of Bioactive Borate Glasses In-vitro and In-vivo (Invited)**

S. Jung*, Mo-Sci Corporation, USA; R. Brown, Missouri University of Science and Technology, USA; L. Bonewald, University of Missouri - Kansas City, USA; D. Day, Missouri University of Science and Technology, USA

4:50 PM**(ICACC-S5-034-2012) Investigation of the local environment of cations in apatites and bone**

D. Laurencin*, Université Montpellier 2, France; M. E. Smith, University of Warwick, United Kingdom; F. Fayon, UPR3079 CNRS, France; N. de Leeuw, University College London, United Kingdom; C. Gervais, C. Bonhomme, Université Pierre et Marie Curie, France

5:10 PM**(ICACC-S5-035-2012) Preparation of Magnesium-containing TiO2 Ceramic Layer on Titanium by Hydrothermal Treatment and its in vitro Bioactivity**

X. Shi*, M. Nakagawa, A. Valanezhad, K. Tsuru, K. Ishikawa, Faculty of Dental Science, Kyushu University, Japan

S10: Thermal Management Materials and Technologies**Characterization of Thermal Management Materials**

Room: Coquina Salon B

Session Chair: Andrew Gyekenyesi, OAI/NASA GRC

1:30 PM**(ICACC-S10-001-2012) Modeling Thermal Mechanical Properties of TPS (Thermal Protection Systems) and Porous Ceramics with a novel 3D X-ray Microscope**

S. H. Lau*, Xradia, Inc., USA; T. H. Squire, J. W. Lawson, Nasa Ames Research Center, USA

1:50 PM**(ICACC-S10-002-2012) Measurement of Thermal Conductivity of Graphitic Foams**

K. Alam*, K. Drummond, Ohio University, USA

2:10 PM**(ICACC-S10-003-2012) Potential of Black Alumina Coatings: Effect of Thickness on Thermal behaviors**

H. Kakisawa*, M. Yamazoe, Y. Kagawa, The University of Tokyo, Japan

2:30 PM**(ICACC-S10-004-2012) Thermal Conductivity of Wood-Derived Graphitic Carbon and Carbon/Copper Composites**

M. Johnson*, K. Faber, Northwestern University, USA; H. Wang, Oak Ridge National Lab, USA

2:50 PM

Break

Processing and Integration Strategies for Thermal Management Materials

Room: Coquina Salon B

Session Chair: Andrew Gyekenyesi, OAI/NASA GRC

3:10 PM**(ICACC-S10-005-2012) Bonding Ceramic Parts for High Temperature Applications using Pre-ceramic Polymer based Adhesives**

H. Chen*, T. A. Parthasarathy, M. K. Cinibulk, M. Chen, AFRL, USA

3:30 PM**(ICACC-S10-006-2012) Bonding High Conductivity Graphite Foams to Metals for Thermal Management Applications**

R. Asthana*, University of Wisconsin-Stout, USA; M. Singh, C. E. Smith, A. L. Gyekenyesi, Ohio Aerospace Institute, USA

3:50 PM**(ICACC-S10-007-2012) Fabrication and thermal properties of diamond-copper composite produced by the pulse plasma sintering technique (PPS)**

M. Rosinski*, L. Ciupinski, A. Michalski, K. J. Kurzydowski, Warsaw University of Technology, Poland

4:10 PM**(ICACC-S10-008-2012) Improving the heat transfer efficiency of synthetic oil with silica nanoparticles**

E. V. Timofeeva*, M. R. Moravek, D. Singh, Argonne National Laboratory, USA

4:30 PM**(ICACC-S10-009-2012) Using Science to Improve Upon Nature: Why Engineered Thermal Transfer and Thermal Management Media Out Perform Natural Materials**

T. Szymanski*, Saint-Gobain NorPro, USA

S11: Nanomaterials for Sensing Applications: From Fundamentals to Device Integration

Sensing Devices II

Room: Oceanview

Session Chair: Francisco Hernandez-Ramirez, Catalonia Institute for Energy Research

1:30 PM**(ICACC-S11-009-2012) Sensors and Catalysts in Automotive Exhaust Gas Aftertreatment - an Overview on recent developments and research trends (Invited)**

R. Moos*, Bayreuth Engine Research Center (BERC), Germany

2:00 PM**(ICACC-S11-010-2012) Improvement of NO₂-Sensing with Cr-Doped TiO₂-Nanotubular Sensor Electrodes**

B. Saruhan-Brings*, Y. Gönüllü, German Aerospace Center, Germany

2:20 PM**(ICACC-S11-011-2012) Effect of Ion-Implantation on the Binding Energy, Electronic and Chemical States in ZnO nanorods**

I. J. Low*, Curtin University, Australia; A. Djuricic, University of Hong Kong, Hong Kong; M. Ionescu, Australian Nuclear Science & Technology Organisation, Australia

2:40 PM**(ICACC-S11-012-2012) SWAP: a wireless and power-autonomous new generation sensor node**

J. Llosa, X. Vilajosana, I. Vilajosana*, WorldSensing, S.L.N.E., Spain; J. Prades, Universitat de Barcelona, Spain

S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)

Design of New Compositions/Composites with Fascinating Properties

Room: Coquina Salon F

Session Chairs: Michel Barsoum, Drexel University; Laura Silvestroni, CNR-ISTEC

1:30 PM**(ICACC-S12-037-2012) Mechanical Properties of ZrB₂ Ceramics: Performance Improvements (Invited)**

Y. Kagawa*, The University of Tokyo, Japan; S. Guo, National Institute for Materials Science, Japan

1:50 PM**(ICACC-S12-038-2012) Processing of ZrB₂-SiC Matrix/SiC Fiber Composites by Means of Polymer Impregnation and Pyrolysis**

B. J. Lai*, J. Watts, G. Hilmas, W. G. Fahrenholtz, Missouri University of Science & Technology, USA

2:10 PM**(ICACC-S12-039-2012) Mechanical Properties and Characterization of a Heat Treated ZrB₂-SiC Composite**

E. W. Neuman*, G. Hilmas, W. Fahrenholtz, Missouri University of S & T, USA

2:30 PM**(ICACC-S12-040-2012) Polyureasilazane Based SiC/ZrB₂-SiC Fiber Reinforced Ceramic Composites**

J. Nicholas*, V. Menta, K. Chandrashekhara, J. Watts, B. Lai, G. Hilmas, W. Fahrenholtz, Missouri University of Science and Technology, USA

2:50 PM**(ICACC-S12-041-2012) Synthesis of Nano-Hafnium Diboride Powder using a Modified Spark Plasma Sintering Method**

S. Lee*, KIMS, Republic of Korea; H. Wang, Zhengzhou Univ., China; H. Kim, KIMS, Republic of Korea

3:10 PM**(ICACC-S12-042-2012) In situ synthesis mechanism and characterization of ultra-high temperature ceramics**

A. Goodarzi*, Amirkabir University of Tech., Islamic Republic of Iran; H. Taylor, Imperial College London, United Kingdom

Fundamental Understanding and Novel Processing Methods

Room: Coquina Salon F

Session Chairs: Takuya Aoki, Japan Aerospace Exploration Agency; John Lawson, NASA Ames Research Center

3:30 PM**(ICACC-S12-043-2012) Hardness measurements above 1723 K (Invited)**

L. J. Vandeperre*, J. Wang, E. Feilden-Irving, F. Giuliani, Imperial College London, United Kingdom

3:50 PM**(ICACC-S12-044-2012) Investigation of Room Temperature Dislocation Mobility in metal diborides (ZrB₂) using Nano Indentation and Confinement Studies**

G. Subhash*, D. Ghosh, University of Florida, USA

4:10 PM**(ICACC-S12-045-2012) Powder Processing Effects on the Rapid Low-Temperature Densification of ZrB₂-SiC Ultra-High Temperature Ceramic(UHTC) Composites Using Spark Plasma Sintering**

L. S. Walker*, W. R. Pinc, E. L. Corral, The University of Arizona, USA

4:30 PM**(ICACC-S12-046-2012) Processing and Thermal Properties of ZrB₂ with Varying Boron Isotope Ratios**

J. M. Lonergan*, B. Fahrenholtz, G. Hilmas, Missouri Science & Technology, USA

4:50 PM**(ICACC-S12-047-2012) Investigations on the Mechanism of Zirconium Carbide Formation via Carbothermal Reduction of Yttria Stabilized Zirconia**

A. Sondhi*, University of North Texas, USA; C. Morandi, Pennsylvania State University, USA; R. F. Reidy, T. W. Scharf, University of North Texas, USA

5:10 PM**(ICACC-S12-048-2012) Processing Thin, Homogeneous and Flexible Tapes of ZrB₂ and ZrB₂-SiC Using a Solvent-Based Tape Casting Approach**

D. Pham*, W. R. Pinc, L. S. Walker, E. L. Corral, University of Arizona, USA

5:30 PM**(ICACC-S12-049-2012) Application of the Horizontal Dip-Spin Casting (HDSC) Process to Ultra-High Temperature Ceramic Composites Fabricated with Aligned Reinforcing Phases**

M. Acosta, J. P. Youngblood, R. W. Trice, V. L. Wiesner*, Purdue University, USA

5:50 PM**(ICACC-S12-050-2012) HfC and HfB₂ Powders and Coatings via Sol-Gel Processing**

S. Venugopal*, A. Paul, J. Binner, B. Vaidhyanathan, Loughborough university, United Kingdom; P. Brown, A. Heaton, DSTL, United Kingdom

S13: Advanced Ceramics and Composites for Nuclear Applications**Advanced Non-oxide Ceramics: Fabrication, Characterization, and Radiation Damage Tolerance**

Room: Coquina Salon E

Session Chair: Theodore Besmann, Oak Ridge National Laboratory

1:30 PM**(ICACC-S13-010-2012) Characterization of Failure Behavior of Silicon Carbide Composites by Acoustic Emission (Invited)**

T. Nozawa*, K. Ozawa, H. Tanigawa, Japan Atomic Energy Agency, Japan

2:00 PM**(ICACC-S13-011-2012) Application of X-ray Tomography to Nuclear Ceramics**

L. Snead*, J. Hunn, A. Kercher, E. Sphect, ornl, USA

2:20 PM**(ICACC-S13-012-2012) Microstructural Analysis of Nuclear-Grade Graphite Materials**

K. Takizawa*, T. Fukuda, A. Kondo, Tokai Carbon Co., LTD., Japan; Y. Katoh, G. E. Jellison, Oak Ridge National Laboratory, USA

2:40 PM**(ICACC-S13-013-2012) Effect of Neutron Irradiation on Bonded Fiber Silicon Carbide Composite**

Y. Katoh*, K. Ozawa, S. Kondo, Oak Ridge National Lab, USA; Y. Kawaharada, S. Higuchi, Toshiba Corporation, Japan

3:00 PM**Break****3:20 PM****(ICACC-S13-014-2012) Preparation of isotropic graphite with mesocarbon microbeads and their carbonization mechanism (Invited)**

F. Kang*, K. Shen, Z. Huang, Tsinghua University, China; J. Yang, University of Shanghai for Science and Technology, China; W. Shen, Tsinghua University, China

3:50 PM**(ICACC-S13-015-2012) Study of the ceramic matrix composites densification by film boiling process**

A. M. Serre*, F. Audubert, CEA, France; S. Bonnamy, CNRS, France; B. Joëlle, D. Patrick, CEA, France

4:10 PM**(ICACC-S13-016-2012) Microstructural Development in Cubic Silicon Carbide and SiC/SiC Composites During Neutron Irradiation**

P. Dou*, Y. Katoh, L. Snead, Oak Ridge National Laboratory, USA

4:30 PM**(ICACC-S13-017-2012) Recision of Silicon Carbide in Steam under Nuclear Plant LOCA conditions up to 1400 °C**

G. Markham*, H. Feinroth, R. Hall, Ceramic Tubular Products, USA

4:50 PM**(ICACC-S13-018-2012) Influence of interphase properties and fiber/matrix coupling on the mechanical behaviour of SiC/SiC composites**

E. Buet*, C. Sauder, S. Poissonnet, R. Gadiou, C. Vix-Guterl, CEA Saclay, France

5:10 PM**(ICACC-S13-019-2012) A New ASTM C28 Test for the Uniaxial Tensile Properties of Carbon-Carbon and SiC-SiC Composite Tubes**

S. T. Gonczy*, Gateway Materials Technology, USA; M. G. Jenkins, California State University, Fresno, USA

5:30 PM**(ICACC-S13-020-2012) High Temperature Oxidation of SiC in Steam-Hydrogen Environments**

T. Cheng*, J. R. Keiser, M. P. Brady, B. A. Pint, K. Terrani, Oak Ridge National Laboratory, USA

5:50 PM**(ICACC-S13-021-2012) Measurement of Interfacial Mechanical Properties of SiC Fiber Reinforced SiC Composites with Micro-pillar Mini Samples**

C. Shih*, Y. Katoh, G. Vasudevamurthy, P. Dou, Oak Ridge National Laboratory, USA; T. Nozawa, Japan Atomic Energy Agency, Japan; H. Bei, Oak Ridge National Laboratory, USA

Global Young Investigators Forum**Frontiers in Ceramic Energy Generation and Storage**

Room: Coquina Salon G

Session Chairs: Karra Raveendran Girish Karthik, Nanyang Technological University; Lucky Sikhvivilu, CSIR

1:30 PM**(ICACC-GYIF-021-2012) Efficient dye sensitized solar cell using developed transparent conductive films (Invited)**

D. Sahu*, University of the Witwatersrand, South Africa

1:50 PM**(ICACC-GYIF-022-2012) Electrospinning as a Versatile Method for Production of Ceramic and Composite Nanofibers (Invited)**

M. Büyükyazi, A. Lepcha, S. Mathur, R. von Hagen*, University of Cologne, Germany

2:10 PM**(ICACC-GYIF-023-2012) Design and characterization of inorganic/organic nanohybrid materials for solar cell applications (Invited)**

S. Makuta*, A. Azarifar, Y. Tachibana, Royal Melbourne Institute of Technology (RMIT University), Australia

2:30 PM**(ICACC-GYIF-024-2012) Synthesis and characterization of down-converting nanoparticles/PMMA nanocomposites for improving photovoltaic silicon solar cell efficiency**

M. Dai Pre*, A. Martucci, Università di Padova, Italy

2:50 PM**(ICACC-GYIF-025-2012) Glass ceramic electrolytes for protecting Li-anodes in Lithium ion/air batteries: Fabrication and characterization**

N. Gupta*, R. Yazami, M. Srinivasan, Nanyang Technological University, Singapore

3:10 PM**Break**

Frontiers in Ceramic Characterization and Catalytical Properties

Room: Coquina Salon G

Session Chairs: Diptiranjan Sahu, University of the Witwatersrand; Robin von Hagen, University of Cologne

3:30 PM

(ICACC-GYIF-026-2012) Electrical characterization of individual metal-oxide nanowires using AC impedance spectroscopy

K. Karthik*, K. B. Jinesh, Y. Huang, S. G. Mhaisalkar, Nanyang Technological University, Singapore

3:50 PM

(ICACC-GYIF-027-2012) Computational and Experimental studies on doped NaTaO₃ photocatalysts

P. Kanhere*, Nanyang Technological University, Singapore; J. Zheng, Institute of High Performance Computing, Singapore; Z. Chen, Nanyang Technological University, Singapore

4:10 PM

(ICACC-GYIF-028-2012) Hierarchically ordering of hybrid ceramic catalysts

M. Adam*, M. Wilhelm, G. Grathwohl, University of Bremen, Germany

4:30 PM

(ICACC-GYIF-029-2012) Effects of Synthesis Conditions and Thermal Treatment of Nanostructured Materials on Textural Properties

L. Sikhwivhulu*, S. Sinha Ray, National Centre for Nano-Structured Materials, South Africa

4:50 PM

(ICACC-GYIF-030-2012) Properties of organic semiconductor-metal oxide nanowire composite transistors

S. Cheng*, N. Mathews, L. H. Wong, S. G. Mhaisalkar, Nanyang Technological University, Singapore

5:10 PM

(ICACC-GYIF-031-2012) XAFS study of mixed metal oxide Cu_{0.6}Co_{1.2}Mn_{1.2}O_x with spinel structure (Invited)

A. Fedorova*, D. Frolov, I. Morozov, Moscow State University, Russian Federation; Y. Zubavichus, Kurchatov Institute National Research Centre, Russian Federation

5:30 PM

(ICACC-GYIF-032-2012) Enhanced charge separation for high efficiency photocatalytic hydrogen production

S. Shen*, Xi'an Jiaotong University, China

FS1: Geopolymers, Inorganic Polymers, Hybrid Organic-Inorganic Polymer Materials

Chemistry, Processing and Microstructure

Room: Coquina Salon A

Session Chairs: Hubert Rahier, Vrije Universiteit Brussel; John Provis, University of Melbourne

1:30 PM

(ICACC-FS1-001-2012) Geopolymers and other alkali-activated binders – Design, characterization and optimization of performance and durability (Invited)

J. L. Provis*, S. Bernal, R. San Nicolas, L. Gordon, University of Melbourne, Australia; P. Duxson, Zeobond Pty Ltd., Australia; J. van Deventer, University of Melbourne, Australia

2:00 PM

(ICACC-FS1-002-2012) On the Effects of Water Content and Si/Al on the Structure and Properties of Geopolymers (Invited)

M. Radovic*, M. Lizcano, Texas A&M University, USA

2:30 PM

(ICACC-FS1-003-2012) Dissolution rate of silica in solution required to form geopolymer binder (Invited)

S. Rossignol*, CEC-GEMH -ENSCI, France; A. Autef, CEC-GEMH -ENSCI, France; E. Joussein, GRESE, France; G. Gasgnier, IMERYS, France

3:00 PM

Break

3:20 PM

(ICACC-FS1-004-2012) Advanced Characterization of Geopolymer Pore Architecture Using Gas Adsorption

K. Cychosz*, Quantachrome Inc., USA; T. Metroke, Universal Technology Corporation, USA; M. Thommes, Quantachrome Inc., USA; M. Henley, Air Force Research Laboratory, USA

3:40 PM

(ICACC-FS1-005-2012) Porosity Characteristics of Geopolymers: Influence of Synthesis Conditions

T. Metroke*, Universal Technology Corporation, USA; M. Thommes, K. Cychosz, Quantachrome Inc., USA; M. Henley, Air Force Research Laboratory, USA

4:00 PM

(ICACC-FS1-006-2012) Lime-potassium carbonate as an alkali activator for untreated kaolinite (Invited)

H. Rahier*, M. Esayfan, Vrije Universiteit Brussel, Belgium; H. Khoury, University Jordan, Jordan; T. Tysmans, J. Wastiels, Vrije Universiteit Brussel, Belgium

4:30 PM

(ICACC-FS1-007-2012) Geopolymerization technology for manufacture of cold setting building materials (Invited)

B. D. Nayak, S. D. Muduli, D. S. Rao, B. Mishra*, CSIR-IMMT, India

5:00 PM

(ICACC-FS1-008-2012) PVA-fibre reinforced fly-ash based geopolymer composites (Invited)

K. Krnel*, N. Petkovic, T. Kosmac, Jozef Stefan Institute, Slovenia

Friday, January 27, 2012

S1: Mechanical Behavior and Performance of Ceramics & Composites

Tribological Applications

Room: Coquina Salon D

Session Chair: Maria De La Cinta Lorenzo-Martin, Argonne National Laboratory

8:30 AM

(ICACC-S1-077-2012) Tribological Behaviour of Ceramics Laminates Containing Residual Stresses (Invited)

G. de Portu*, ISTECCNR, Italy

9:00 AM

(ICACC-S1-079-2012) Use of ceramic sliding systems in a prototype gasoline pump with operating pressures of up to 80 MPa

C. Pfister*, H. Kubach, U. Spicher, Karlsruhe Institute of Technology, Germany

9:20 AM

(ICACC-S1-078-2012) Real time performance of carbide based cermets versus hardened/alloy steels for cutting tool applications

A. Ozer, Y. K. Tur, Gebze Institute of Technology, Turkey; W. M. Kriven*, University of Illinois at Urbana-Champaign, USA

9:40 AM

(ICACC-S1-080-2012) Grain Size Dependence of Nanoindentation and Nanoscratch Behavior in Polycrystalline Alumina Fabricated by Spark Plasma Sintering

L. Huang*, W. Yao, Y. Xiong, A. K. Mukherjee, J. M. Schoenung, UC Davis, USA

10:00 AM

(ICACC-S1-081-2012) The fretting wear response of TiC and Ti(C,N) cermets prepared with a ductile Ni₃Al binder

S. Buchholz, Z. N. Farhat, G. J. Kipouros, K. P. Plucknett*, Dalhousie University, Canada

10:20 AM

(ICACC-S1-082-2012) Development of Nickel Coated Carbon Fiber Reinforced Stellite Alloy Based Composites

A. Khoddamzadeh*, R. Liu, Carleton University, Canada; M. Liang, University of Ottawa, Canada

Characterization

Room: Coquina Salon D

Session Chairs: Maria De La Cinta Lorenzo-Martin, Argonne National Laboratory; Goffredo de Portu, ISTECC-CNR

10:40 AM

(ICACC-S1-083-2012) Torsion tests on joined SiC

M. Ferraris*, A. Ventrella, M. Salvo, M. Avalle, Politecnico di Torino, Italy

11:00 AM

(ICACC-S1-084-2012) Investigation of Compression Strengths of SiC(0001) and ZrC(001) Micropillars

S. Kiani*, J. Yang, S. Kodambaka, UCLA, USA

11:20 AM

(ICACC-S1-085-2012) Micromechanical properties of aligned and continuous multi-walled carbon nanotube/aluminoborosilicate glass composites

G. Otieno*, A. Koos, F. Dillon, N. Yahya, N. Grobert, R. I. Todd, University of Oxford, United Kingdom

11:40 AM

(ICACC-S1-086-2012) Quantification of Grinding-Induced Phase Changes in Y-TZP

M. Strasberg*, A. A. Barrett, K. J. Anusavice, J. J. Mecholsky, J. C. Nino, University of Florida, USA

12:00 PM

(ICACC-S1-087-2012) Study on the stiffness of comeld composites joints

H. Zhang*, W. Wen, H. Cui, Nanjing University of Aeronautics and Astronautics, China

S2: Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications**Advanced Processing and Protective Coating Systems for Extreme Environments**

Room: Ponce de Leon

Session Chairs: Houzheng Wu, Loughborough University; Byung-Koog Jang, National Institute for Materials Science

8:20 AM

(ICACC-S2-039-2012) Growing Integration Layer [GIL] Method: Direct Fabrication of Compositionally, Structurally and Functionally Graded Ceramic Films and/or Coatings from Mother Materials in Solution (Invited)

M. Yoshimura*, National Cheng Kung University, Taiwan; N. Matsushita, Tokyo Institute of Technology, Japan

9:00 AM

(ICACC-S2-040-2012) Acoustic field assisted drying of electrophoretically deposited green bodies for ceramic coatings

C. Ji, H. Wu*, Loughborough University, United Kingdom

9:20 AM

(ICACC-S2-041-2012) Failure Mechanism and Reliability of Pt-Pt/Rh Temperature Sensor in Extreme Environments

E. Allain, Watlow R&D, USA; H. Lin*, Watlow Sensor Division, USA

9:40 AM

Break

10:00 AM

(ICACC-S2-042-2012) Improvement in corrosion resistance of reaction bonded Si₃N₄-SiC ceramics to molten aluminum alloy using oxide coatings

M. Wada*, K. Kashiwagi, S. Kitaoka, Japan Fine Ceramics Center, Japan

10:20 AM

(ICACC-S2-043-2012) Characterization of sealing treatments on the behavior of aluminium phosphate sealed plasma – sprayed alumina coatings operating in extreme environment

A. Joly*, P. Brun, J. Lacombe, Commissariat à l'énergie atomique, France; G. Tricot, Université des Sciences et Technologies de Lille, France; A. Denoirjean, Centre Européen de la Céramique, France; S. Rossignol, Centre Européen de la Céramique, France

10:40 AM

(ICACC-S2-044-2012) Electrochemical and morphological study on nanoceramic based conversion coating on CRS: The effect of solution pH

H. Eivaz Mohammadloo*, A. Sarabi, Amirkabir university of technology, Islamic Republic of Iran; A. Sabbagh Alvani, Color and Polymer Research Center, Amirkabir University of Technology, Islamic Republic of Iran; R. Salimi, H. Samei, Amirkabir university of technology, Islamic Republic of Iran

S3: 9th International Symposium on Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology**Novel Processing Approaches for Cell and Stack Materials**

Room: Coquina Salon H

Session Chair: Amit Shyam, Oak Ridge National Laboratory

8:00 AM

(ICACC-S3-034-2012) Fabrication of Cathode Layer by Non-contact Printing Process

K. Kikuta*, N. Yashiro, S. Ayabe, Nagoya University, Japan

8:20 AM

(ICACC-S3-035-2012) Current Developments in Solid Oxide Fuel Cell Development at Forschungszentrum Juelich

R. Steinberger-Wilckens, L. Blum, H. Buchkremer, L. Haart, J. Malzbender*, M. Pap, Forschungszentrum Juelich, Germany

8:40 AM

(ICACC-S3-036-2012) Enhanced Ionic Conductivity of CeO₂-YSZ Nanocomposite Electrolyte

A. Gupta*, S. Sharma, S. Omar, K. Balani, Indian Institute of Technology Kanpur, India

9:00 AM

(ICACC-S3-037-2012) Synthesis and Calorimetric Studies of La_{9.33+x}(Si/GeO₄)₆O_{2+3x/2}: Fast Oxide Ion Conductors

S. Hosseini*, A. Navrotsky, University of California, Davis, USA

9:20 AM

(ICACC-S3-038-2012) Sr Doped LaPO₄ Monazite for Proton Conductivity

J. P. Angle*, M. Ng, P. Morgan, M. L. Mecartney, UC Irvine, USA

9:40 AM

Break

Cell Component, Cell Design and Reliability

Room: Coquina Salon H

Session Chairs: Nguyen Minh, Consultant; Jeffry Stevenson, PNNL

10:00 AM

(ICACC-S3-039-2012) Processing of CGO electrolyte layers with a thickness of ~1 μm: thin film wet coating methods and PVD

T. Van Gestel*, F. Han, H. Moon, S. Uhlenbruck, H. Buchkremer, Forschungszentrum Jülich, Germany

10:20 AM**(ICACC-S3-040-2012) Low temperature proton conduction in nanocrystalline ceria**

G. Gregori*, M. Shirpour, R. Merkle, J. Maier, Max Planck Institute for Solid State Research, Germany

10:40 AM**(ICACC-S3-041-2012) Mixed conducting praseodymium cerium gadolinium oxide (PCGO) nano-composite cathode for ITSOFC applications**

R. Chockalingam*, A. Ganguli, S. Basu, Indian Institute of Technology, India

11:00 AM**(ICACC-S3-042-2012) High Protonic Conductivity in LaBaGaO4**

K. Huang*, X. Zhao, N. Xu, University of South Carolina, USA

11:20 AM**(ICACC-S3-043-2012) Portable 100W Power Generator based on Efficient Planar SOFC Technology**

A. Poenicke*, S. Reuber, M. Schneider, M. Stelter, A. Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany

11:40 AM**(ICACC-S3-044-2012) Nano-crystalline 8-mol% Scandia Stabilized Zirconia: Synthesis, Characterization and Its Chemical Compatibility with SOFC Cathode Material**

S. Koley*, A. K. Sahu, A. Laik, S. J. Patwe, N. S. Achary, Bhabha Atomic Research Centre, India

12:00 PM**(ICACC-S3-045-2012) Development of improved tubular metal supported solid oxide fuel cells resistant to high fuel utilization**

L. Otaegui*, L. Rodriguez-Martinez, A. Arregi, A. Laresgoiti, I. Villarreal, Ikerlan, Spain

S5: Next Generation Bioceramics**Medical and Dental Applications of Bioceramics I**

Room: Coquina Salon C

Session Chairs: Jay Hanan, Oklahoma State University; Paulo Coelho, New York University

8:00 AM**(ICACC-S5-036-2012) Evaluating Flaws in Ceramic Dental Crowns Using Microfocus X-ray Computed Tomography (Invited)**

Y. Zhang, J. C. Hanan*, Oklahoma State University, USA

8:30 AM**(ICACC-S5-037-2012) Slow crack growth velocities (v-K curves) of dental bioceramics**

H. N. Yoshimura*, Federal University of ABC, Brazil; C. C. Gonzaga, Positivo University, Brazil; W. G. Miranda, P. F. Cesar, University of São Paulo, Brazil

8:50 AM**(ICACC-S5-038-2012) Validating FEM of Ceramic Dental Restorations**

P. Coelho*, New York University, USA; J. C. Hanan, Oklahoma State University, USA; H. Bale, University of California, Berkeley, USA; Y. Zhang, Oklahoma State University, USA; N. Silva, New York University, USA; V. Thompson, New York University College of Dentistry, USA

9:10 AM**(ICACC-S5-039-2012) Fracture Surface Analysis of Multilayer Ceramic – Polymer Composites**

P. A. Robinson*, C. A. Wilson, J. J. Mecholsky, University of Florida, USA

9:30 AM

Break

Medical and Dental Applications of Bioceramics II

Room: Coquina Salon C

Session Chairs: Laura Wortmann, University of Cologne; Janet Krevolin, Bio2 Technologies

9:50 AM**(ICACC-S5-040-2012) Fabrication of Monophasic HAp Discs from Tricalcium Phosphate by Hydrothermal Treatment in Ammonia Solution**

N. Ahmad*, M. Nakagawa, M. L. Munar, Kyushu University, Japan; S. Matsuya, Fukuoka Dental College, Japan; K. Ishikawa, Kyushu University, Japan

10:10 AM**(ICACC-S5-041-2012) Role of ultrasonic irradiation and drying on the physical properties of nanohydroxyapatite**

E. K. Girija*, G. Kumar, Periyar University, India; A. Thamizhavel, Tata Institute of Fundamental Research, India; Y. Yokogawa, Osaka City University, Japan; S. Kalkura, Anna University, India

10:30 AM**(ICACC-S5-042-2012) Resorption rate and strength degradation of a novel bioactive scaffold**

J. Krevolin*, J. Liu, V. Valant, Bio2 Technologies, USA

10:50 AM**(ICACC-S5-043-2012) Nano grain sized silica-zirconia glass ceramics for dental applications**

W. Xia, C. Persson, E. Unosson, M. Andersson, J. Engstrand, H. Engqvist*, Uppsala University, Engineering Sciences, Applied Materials Science, Sweden

11:10 AM**(ICACC-S5-044-2012) Surface properties of nano-structured TiO2 for dental implants design**

S. Issa*, IICMPE-MCMC, CNRS UMR 7182, 2-8, rue Henri Dunant, 94320 THIAIS, France; P. Cenedese, C. Azavedo, P. Dubot, Université Paris 7, France

S12: Materials for Extreme Environments: Ultrahigh Temperature Ceramics (UHTCs) and Nanolaminated Ternary Carbides and Nitrides (MAX Phases)**Methods for Improving Mechanical, Oxidation and Thermal Shock Resistance**

Room: Coquina Salon F

Session Chairs: Per Eklund, Linköping University; Sea-Hoon Lee, KIMS

8:00 AM**(ICACC-S12-051-2012) Anisotropy in the electronic structure of Cr2GeC probed by x-ray emission spectroscopy in comparison to ab initio calculations (Invited)**

M. Magnuson*, Linköping University, Sweden; M. Mattesini, Instituto de Geociencias (CSIC-UCM), Spain; M. Bugnet, V. Mauchamp, T. Cabioch, Université de Poitiers, France

8:20 AM**(ICACC-S12-052-2012) Microstructural evolution during oxidation and its effect on strength of ultra-high temperature ceramics (UHTCs)**

E. Zapata-Solvas*, D. D. Jayaseelan, Imperial College London, United Kingdom; P. Brown, DSTL, United Kingdom; W. E. Lee, Imperial College London, United Kingdom

8:40 AM**(ICACC-S12-053-2012) Micromechanics Modeling of Oxidation Effects on Mechanical Behavior of ZrB2 at High Temperature**

J. Wei*, L. R. Dharani, Missouri University of Science and Technology, USA; G. E. Hilmas, Missouri University of Science and Technology, USA; W. G. Fahrenholtz, Missouri University of Science and Technology, USA

9:00 AM**(ICACC-S12-054-2012) New Energy Applications for Ultra-Thin, Durable, Dense Zirconia Membranes**

V. Venkateswaran, J. Olenick*, K. Olenick, ENrG Inc., USA

9:20 AM

(ICACC-S12-055-2012) The Melt Infiltrated C/ZrC Composite by Using a Zr-Si Alloy

L. Zou*, S. Prikhodko, University of California, Los Angeles, USA; T. Stewart, Ultramet, USA; J. M. Yang, University of California, Los Angeles, USA

9:40 AM

Break

Fundamental Understanding of the Structure-Property Relationships

Room: Coquina Salon F

Session Chairs: Thierry Cabioch, University of Poitiers; Luke Walker, The University of Arizona

10:00 AM

(ICACC-S12-056-2012) Rapid Single-Step Synthesis of Ultrahigh Temperature Ceramic Hafnium, Tantalum, and Zirconium Diborides by Sol-Gel Processing for Carbon-Carbon Reverse infiltrated Ceramic Matrix Composites

L. S. Walker*, V. R. Marotto, E. L. Corral, The University of Arizona, USA

10:20 AM

(ICACC-S12-057-2012) Phase Stability of Al₃BC₃ under High Temperature and Pressure: An in situ Raman Analysis

H. Xiang*, J. Wang, Institute of Metal Research, China; Y. Zhou, Aerospace Research Institute of Materials and Processing Technology, China

10:40 AM

(ICACC-S12-058-2012) Effect of Boron on the Thermodynamic Stability of Amorphous Polymer-Derived Si-(B)-C-N Ceramics

A. Tavakoli*, University of California at Davis, USA; J. A. Golczewski, Max Planck Institute for Intelligent Systems (Former Max Planck Institute for Metals Research), Germany; J. Bill, University of Stuttgart, Germany; A. Navrotsky, University of California at Davis, USA

11:00 AM

(ICACC-S12-059-2012) A Comparative Study of Kinetics of Decomposition in MAX Phases at Elevated Temperature

I. J. Low*, Curtin University, Australia; W. Pang, Tatung University, Taiwan

11:20 AM

(ICACC-S12-060-2012) Insights into high temperature oxidation of Al₂O₃-forming Ti₃AlC₂

Y. Zhou*, X. H. Wang, F. Z. Li, Aerospace Research Institute of Materials & Processing Technology, China; J. X. Chen, Institute of Metal Research, Chinese Academy of Sciences, China

S13: Advanced Ceramics and Composites for Nuclear Applications**Ceramics and Glass for Waste Immobilization**

Room: Coquina Salon E

Session Chair: Josef Matyas, Pacific Northwest National Lab

8:00 AM

(ICACC-S13-022-2012) Characterisation of nuclear metal wastes in magnesium silicate hydrate cement

L. J. Vandeperre*, T. Zhang, C. R. Cheeseman, Imperial College London, United Kingdom

8:20 AM

(ICACC-S13-023-2012) Progress in the Development of Crystalline Ceramic Waste Forms for an Advanced Nuclear Fuel Cycle

K. S. Brinkman*, K. Fox, Savannah River National Laboratory (SRNL), USA; M. Tang, Los Alamos National Laboratory (LANL), USA

8:40 AM

(ICACC-S13-024-2012) The effect of temperature on densification behavior of silica aerogels

J. Matyas*, G. Fryxell, M. Robinson, Pacific Northwest National Lab, USA

9:00 AM

(ICACC-S13-025-2012) A Model Waste Form of ⁹⁰Sr in SrTiO₃

W. Jiang*, L. Kovarik, M. Bowden, Z. Zhu, B. Arey, Pacific Northwest National Laboratory, USA

9:20 AM

(ICACC-S13-026-2012) Incorporation of High TiO₂ Concentrations in Nuclear Waste Glass

K. M. Fox*, F. C. Johnson, T. B. Edwards, Savannah River National Laboratory, USA

9:40 AM

Break

Joining and Coating

Room: Coquina Salon E

Session Chair: Josef Matyas, Pacific Northwest National Lab

10:00 AM

(ICACC-S13-029-2012) Glass-ceramics as joining materials for nuclear applications

M. Ferraris*, V. Casalegno, S. Han, S. Rizzo, M. Salvo, A. Ventrella, Politecnico di Torino, Italy

10:20 AM

(ICACC-S13-028-2012) Joining of SiC Monolithic Components for Nuclear Applications

H. E. Khalifa*, C. P. Deck, O. Gutierrez, C. A. Back, General Atomics, USA

10:40 AM

(ICACC-S13-027-2012) Joining Silicon Carbide for Nuclear and Fusion Energy Applications

Y. Katoh*, Oak Ridge National Lab, USA; M. Ferraris, Politecnico di Torino, Italy; T. Hinoki, Kyoto University, Japan; C. H. Henager, Pacific Northwest National Lab, USA

Global Young Investigators Forum**Frontiers in Hybrid Materials and Composites**

Room: Coquina Salon G

Session Chairs: Lisa Brueckmann, University of Cologne; Mohammad Imteyaz Ahmad, Iowa State University

8:00 AM

(ICACC-GYIF-033-2012) Dielectric and Ferroelectric Studies of SBN-PVDF Composites

S. N. Kumar*, P. Kumar, National Institute of Technology, India

8:20 AM

(ICACC-GYIF-034-2012) Microstructure, oxidation resistance and mechanical properties of fiber bonded silicon carbide ceramics

M. Vera*, J. Ramirez-Rico, J. Martinez Fernandez, Universidad de Sevilla - CSIC, Spain; M. Singh, NASA Glenn Research Center, USA

8:40 AM

(ICACC-GYIF-035-2012) Mechanical Properties of Topologically Interlocked Ceramic-Based Structures with Various Degrees of Porosity

A. Molotnikov, Monash University, Australia; T. Krause*, M. Carlesso, J. Rente, K. Rezwan, University of Bremen, Germany; D. Koch, German Aerospace Center, Germany; Y. Estrin, Monash University, Australia

9:00 AM

(ICACC-GYIF-036-2012) Graphitic carbon obtained from pyrolysis of natural precursors

A. Gutierrez-Pardo*, J. Ramirez-Rico, J. Martinez Fernandez, Universidad de Sevilla - CSIC, Spain

9:20 AM

(ICACC-GYIF-037-2012) Mechanical property of CNT-dispersed Si₃N₄ ceramics

S. Yoshio*, M. Matuoka, J. Tatami, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

9:40 AM

Break

Frontiers in Precursor and Ceramic Chemistry

Room: Coquina Salon G

Session Chairs: Yakup Goenuellue, German Aerospace Center; Sara Yoshio, Yokohama National University

10:00 AM**(ICACC-GYIF-038-2012) New and well analysed route to obtain water soluble gold, gold/silver or gold/copper Nanoparticles by hydrolising $[\text{Au}(\text{CF}_3)_2]$ -species (Invited)**

D. Zopes*, W. Tyrra, S. Mathur, University of Cologne, Germany

10:20 AM**(ICACC-GYIF-039-2012) Thermal barrier coatings on fluorine treated γ -TiAl alloys**

N. Niessen*, R. Braun, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany; S. Friedle, M. Schütze, DEHEMA e.V, Germany

10:40 AM**(ICACC-GYIF-041-2012) New Air-Stable and Volatile Heteroarylalkenolate palladium(II) and platinum (II) Complexes (Invited)**

L. Brückmann*, W. Tyrra, S. Mathur, University of Cologne, Germany

11:00 AM**(ICACC-GYIF-042-2012) Synthesis of metaloxides via hydrothermal and microwave technique**

T. Lehnen*, S. Mathur, University of Cologne, Germany

11:20 AM**(ICACC-GYIF-043-2012) Single crystal growth of ZrMo_2O_8 (Invited)**

M. Ahmad*, M. Akinc, Iowa State University, USA

Bioapplications, Inorganic-organic Hybrids, and Phosphate-based Inorganic Polymers

Room: Coquina Salon A

Session Chair: Waltraud Kriven, University of Illinois at Urbana-Champaign

10:00 AM**(ICACC-FS1-013-2012) Metakaolin Nanosilver as Biocide Agent in Geopolymer (Invited)**

J. S. Moya*, B. Cabal, J. Sanz, ICMM-CSIC, Spain

10:30 AM**(ICACC-FS1-014-2012) Organic-Aluminosilicate Interface Interactions (Invited)**

B. E. Glad*, W. M. Kriven, University of Illinois at Urbana-Champaign, USA

11:00 AM**(ICACC-FS1-015-2012) Ligational Aspects of the Mesogenic Schiff-base, N,N' -di-(4'-octadecyloxybenzoate) salicylidene diaminoethane with Some Rare Earth Metal Ions**

S. Kumari*, T. R. Rao, A. K. Singh, Banaras Hindu University, India

11:20 AM**(ICACC-FS1-016-2012) CeramicAsh: a new ultra low cost chemically bonded ceramic material**

H. A. Colorado*, J. Yang, UCLA, USA

11:40 AM**(ICACC-FS1-017-2012) Chemically bonded phosphate ceramics for stabilizations of high-sodium containing waste streams**

H. A. Colorado*, R. Ganga, D. Singh, Argonne National Laboratory, USA

FS1: Geopolymers, Inorganic Polymers, Hybrid Organic-Inorganic Polymer Materials**Fiber-reinforced Geopolymer Composites**

Room: Coquina Salon A

Session Chair: Waltraud Kriven, University of Illinois at Urbana-Champaign

8:00 AM**(ICACC-FS1-009-2012) Fibre-Matrix Interactions in Geopolymer Matrix Composites**

M. Welter*, K. MacKenzie, Victoria University of Wellington, New Zealand

8:20 AM**(ICACC-FS1-010-2012) Properties of Basalt Fiber Reinforced Geopolymer Composites**

G. P. Kutyla*, S. Musil, W. M. Kriven, University of Illinois at Urbana-Champaign, USA

8:40 AM**(ICACC-FS1-011-2012) High Temperature 4-Pt Flexural Strength of Chopped Fiber Reinforced Geopolymer Composites (Invited)**

T. P. Dietz, W. M. Kriven*, University of Illinois at Urbana-Champaign, USA

9:10 AM**(ICACC-FS1-012-2012) Microwave Processing of Chopped Silicon Carbide Reinforced Geopolymers (Invited)**

M. L. Fall*, S. M. Allan, Ceralink Inc., USA; W. M. Kriven, University of Illinois at Urbana-Champaign, USA; H. S. Shulman, Ceralink Inc., USA

9:40 AM

Break