

Symposium 13: Advanced Ceramics and Composites for Nuclear Applications

Wednesday, January 25, 2012

Symposium 13: Poster Session

5:00 PM-7:30 PM

Room: Exhibition Hall, Ocean Center

(ICACC-S13-P131-2012) Processing of ultrafine Silicon Carbide Powder by Silicon-Carbon and Silica-Carbon Reactions

Sonak Sagar*, Ramanathan Srinivasan, Suri Ashok Kumar, Bhabha Atomic Research Centre, India

(ICACC-S13-P132-2012) Characterization of Electrodeposited FCCI barrier by ionic liquid for SFR

Seung Hyun Jee*, Seok Hee Lee, Young Soo Yoon, Yonsei Univ, Republic of Korea

Thursday, January 26, 2012

Ceramics for Nuclear Reactors and Fuels

8:00 AM-12:00 PM

Room: Coquina Salon E

Session Chair(s): Lance Snead

8:00 AM

(ICACC-S13-001-2012) Some Lessons Learned at the Fukushima Accident (Invited)

Akira Tokuhira*, U. Idaho, USA; Sean M McDeavitt, Texas A&M, USA

8:30 AM

(ICACC-S13-002-2012) Thermo-mechanical aspect of SiC/SiC composite fuel cladding in LWR (Invited)

Shinichi Higuchi*, Yoshiyuki Kawaharada, Fumihisa Kano, Toshiba Corporation, Japan

9:00 AM

(ICACC-S13-003-2012) Thermochemistry of Fully Ceramic Matrix Coated Particle Fuel

Theodore 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

Kazuya Shimoda*, Tatsuya Hinoki, Kyoto University, Japan; Kurt A Terrani, Lance L Snead, Yutai Katoh, Oak Ridge National Laboratory, USA

9:40 AM

Break

10:00 AM

(ICACC-S13-005-2012) SiC-Coated HTGR Fuel Particle Performance

Michael J Kania, -, USA; Heinz Nabielek*, Karl Verfondern, Forschungszentrum Juelich, Germany

10:30 AM

(ICACC-S13-006-2012) Modeling of Microstructural Evolution in Nuclear Fuels during Service

Veena 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

Jack B. Henderson*, Netzsch Instruments NA,

USA; Andrew T Nelson, Darrin D Byler, Kenneth J McClellan, Los Alamos National Laboratory, USA

11:20 AM

(ICACC-S13-008-2012) Thermal Conductivity of Multiphase Ceramics for Inert Matrix Nuclear Fuel

Danju A Men*, Matthew H Sullivan, Daniel R Mumm, Jesse P Angle, Marvin M Chan, University of California, Irvine, USA; Maulik K Patel, Kurt E Sickafus, Los Alamos National Laboratory, USA; Martha L Mecartney, University of California, Irvine, USA

11:40 AM

(ICACC-S13-009-2012) Structure and Property Relationship in Spark Plasma Sintered UO₂ pellets

Ghatu Subhash*, Edward McKenna, Ga LiHao, Andrew Cartas, James Tulenko, Ronald Baney, University of Florida, USA

Advanced Non-oxide Ceramics: Fabrication, Characterization, and Radiation Damage Tolerance

1:30 PM-6:10 PM

Room: Coquina Salon E

Session Chair(s): Theodore Besmann

1:30 PM

(ICACC-S13-010-2012) Characterization of Failure Behavior of Silicon Carbide Composites by Acoustic Emission

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

2:00 PM

(ICACC-S13-011-2012) Application of X-ray

Tomography to Nuclear Ceramics

Lance Snead*, John Hunn, Andrew Kercher, Eliot Sphect, ORNL, USA

2:20 PM

(ICACC-S13-012-2012) Microstructural Analysis of Nuclear-Grade Graphite Materials

Kentaro Takizawa*, Toshiaki Fukuda, Akira Kondo, Tokai Carbon Co., LTD., Japan; Yutai Katoh, Gerald E Jellison, Oak Ridge National Laboratory, USA

2:40 PM

(ICACC-S13-013-2012) Effect of Neutron Irradiation on Bonded Fiber Silicon Carbide Composite

Yutai Katoh*, Kazumi Ozawa, Sosuke Kondo, Oak Ridge National Lab, USA; Yoshiyuki Kawaharada, Shinichi 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

Feiyu Kang*, Ke Shen, Zheng-Hong Huang, Tsinghua University, China; Junhe Yang, University of Shanghai for Science and Technology, China; Wanci Shen, Tsinghua University, China

3:50 PM

(ICACC-S13-015-2012) Study of the ceramic matrix composites densification by film boiling process

Aurelie Marie Serre*, Fabienne Audubert, CEA, France; Sylvie Bonnamy, CNRS, France; Blein Joëlle, David Patrick, CEA, France

4:10 PM

(ICACC-S13-016-2012) Microstructural

Development in Cubic Silicon Carbide and SiC/SiC Composites During Neutron Irradiation

Peng Dou*, Yutai Katoh, Lance 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

Gregory Markham*, Herbert Feinroth, Rodney 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

Emilien Buet*, Cédric Sauder, Sylvie Poissonnet, Roger Gadiou, Cathie 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

Stephen T. Gonczy*, Gateway Materials Technology, USA; Michael G Jenkins, California State University, Fresno, USA

5:30 PM

(ICACC-S13-020-2012) High Temperature Oxidation of SiC in Steam-Hydrogen Environments

Ting Cheng*, James R Keiser, Michael P Brady, Bruce A Pint, Kurt 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

Chunghao Shih*, Yutai Katoh, Gokul Vasudevamurthy, Peng Dou, Oak Ridge

National Laboratory, USA; Takashi Nozawa, Japan Atomic Energy Agency, Japan; Hongbin Bei, Oak Ridge National Laboratory, USA

Friday, January 27, 2012
Ceramics and Glass for Waste Immobilization

8:00 AM-10:00 AM

Room: Coquina Salon E

Session Chair(s): Josef Matyas

8:00 AM

(ICACC-S13-022-2012) Characterisation of nuclear metal wastes in magnesium silicate hydrate cement

Luc Jean Vandeperre*, Ting-Ting Zhang, Chris 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

Kyle Scott Brinkman*, Kevin Fox, Savannah River National Laboratory (SRNL), USA; Ming Tang, Los Alamos National Laboratory (LANL), USA

8:40 AM

(ICACC-S13-024-2012) The effect of temperature on densification behavior of silica aerogels

Josef Matyas*, Glen Fryxell, Matthew Robinson, Pacific Northwest National Lab, USA

9:00 AM

(ICACC-S13-025-2012) A Model Waste Form of ⁹⁰Sr in SrTiO₃

Weilin Jiang*, Libor Kovarik, Mark Bowden, Zihua Zhu, Bruce Arey, Pacific Northwest National Laboratory, USA

9:20 AM

(ICACC-S13-026-2012) Incorporation of High TiO₂ Concentrations in Nuclear Waste Glass

Kevin M. Fox*, Fabienne C Johnson, Thomas B Edwards, Savannah River National Laboratory, USA

9:40 AM

Break

Joining and Coating

10:00 AM-11:20 AM

Room: Coquina Salon E

Session Chair(s): Josef Matyas

10:00 AM

(ICACC-S13-027-2012) Joining Silicon Carbide for Nuclear and Fusion Energy Applications

Yutai Katoh*, Oak Ridge National Lab, USA;
Monica Ferraris, Politecnico di Torino, Italy;
Tatsuya Hinoki, Kyoto University, Japan;
Charles H Henager, Pacific Northwest National Lab, USA

10:20 AM

(ICACC-S13-028-2012) Joining of SiC Monolithic Components for Nuclear Applications

Hesham E. Khalifa*, C. P Deck, O. Gutierrez, C. A Back, General Atomics, USA

10:40 AM

(ICACC-S13-029-2012) Glass-ceramics as joining materials for nuclear applications

Monica Ferraris*, Valentina Casalegno, Shaohua Han, Stefano Rizzo, Milena Salvo, Andrea Ventrella, Politecnico di Torino, Italy