

Symposium 1: Mechanical Behavior and Performance of Ceramics & Composites

Monday, January 23, 2012
**Fracture, Mechanical
Properties I**

1:30 PM-5:40 PM

Room: Coquina Salon D

Session Chair(s): Jon Salem, Joaquin Ramirez-Rico

1:30 PM

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

Frank Zok*, University Of California, Santa Barbara, USA

2:00 PM

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

Rajesh 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

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

2:40 PM

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

Gregory Morscher*, Jarod Dainoviec, The University of Akron, USA; Craig 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

Mark D Novak*, Frank 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

Craig Smith*, Ohio Aerospace Institute, USA; J. Douglas Kiser, Robert Okojie, Laura Evans, NASA GRC, USA; Anthony Calomino, NASA LARC, USA

4:00 PM

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

Jesse P Angle*, Marvin M Chan, Martha 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

Yali Dong*, Hideki Kakisawa, Yutaka Kagawa, The University of Tokyo, Japan

4:40 PM

(ICACC-S1-009-2012) Tensile fracture mechanism of silicon impregnated C/C composite

Akio Ohtani*, Ken 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

David Calvin Faucett*, Matthew Ayre, Jennifer M Wright, Sung 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

Akshay Maheshwari*, Ashwin Kumar Erode Natarajan, Anuttam S Teja, Sri Venkateswara College Of Engineering, India

Tuesday, January 24, 2012
Fracture, Mechanical Properties II

8:00 AM-12:00 PM

Room: Coquina Salon D

Session Chair(s): Dileep Singh, Andrew Wereszczak

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

Richard I Todd*, University of Oxford, United Kingdom; Xiaoxiao Huang, Harbin Institute of Technology, China; Sheng 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

Rajan Tandon*, Sandia National Lab, USA

8:40 AM

(ICACC-S1-014-2012) SPM observation of crack propagation behavior of Si₃N₄ ceramics

Junichi Tatami*, Masahiro Ohnishi, Toru Wakihara, Katsutoshi Komeya, Takeshi

Meguro, Yokohama National University, Japan

9:00 AM

(ICACC-S1-015-2012) Mixed-Mode Fracture in an R-Curve Material

Karthik Gopalakrishnan*, John 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

Kewei Zhang, Hong Wang, Hua-Tay Lin*, Oak Ridge National Lab, USA

9:40 AM

Break

10:00 AM

(ICACC-S1-017-2012) Glass Cracking Near Edges and Interfaces

Rajan Tandon*, Sandia National Lab, USA; David Shahin, Missouri University of Science and Technology, USA

10:20 AM

(ICACC-S1-018-2012) Edge Chip Fracture Resistance of Dental Materials

George Quinn*, Kathleen Hoffman, Janet Quinn, American dental association foundation, USA

10:40 AM

(ICACC-S1-019-2012) Fretting fatigue failure of engineering ceramics

Claudius Woerner*, Karl-Heinz Lang, Insitut 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

Juergen Malzbender*, Goran Pecanac,

Forschungszentrum Jülich, Germany

11:20 AM

(ICACC-S1-021-2012) Controlled Crack Propagation Tests in Novel Alumina-Based Refractories

Erik Skiera*, Rolf W Steinbrech, Juergen Malzbender, Forschungszentrum Juelich, Germany; Christos G Aneziris, Steffen Dudczig, Technical University Bergakademie Freiberg, Germany

11:40 AM

(ICACC-S1-022-2012) Nanoscratch Induced Deformation in Sapphire

Lin Huang*, Cecile Bonifacio, Klaus van Benthem, Amiya K Mukherjee, Julie M Schoenung, UC Davis, USA

Ceramic Fiber Reinforced Composites

1:30 PM-5:10 PM

Room: Coquina Salon D

Session Chair(s): Walter Krenkel, Randall Hay

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

Katrin Schoenfeld*, TU, Germany; Hagen Klemm, Alexander Michaelis, FhG IKTS, Germany

1:50 PM

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

Jacques L Lamon*, Mohamed R'Mili, Nathalie 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

Randall Hay*, Geoff Fair, Air Force Research Laboratory, USA; Allison Hart, University of Cincinnati, USA; Ryan Bouffieux, New Mexico Tech., USA

2:30 PM

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

Fabio Pavia*, William 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

Hu Jianbao*, Dong Shaoming, Zhang Xiangyu, Hu Zhihui, Yang Jinshan, Li Qinggang, Wu Bin, Lu 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

Daniel Heim*, Swen Zarembo, Klaus Drechsler, Technical University of Munich, Germany

3:50 PM

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

Emmanuel E Boakye*, Kristin A Keller, Pavel Mogilevsky, Triplicane Parthasarathy, UES Inc., USA; Michael K Cinibulk, Randall S Hay, AFRL, USA; Mark 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)

Sonya Rachel Pemberton*, University of Cambridge, United Kingdom; Lee Marston, Fiberstone 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

Mohamed Hassan Radwan Gabr*, Kazuyo Okubo, Toru Fujii, Doshisha University, Japan

4:50 PM

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

Hongjian Zhang*, Weidong Wen, Haitao Cui, Nanjing University of Aeronautics and Astronautics, China

Symposium 1: Poster Session

5:00 PM-8:00 PM

Room: Exhibition Hall, Ocean Center

(ICACC-S1-P001-2012) Evaluation of ceramic materials and joints using UT and X-Ray

Yoshihiro Nishimura*, Takayuki Suzuki, Naoki Kondou, Hideki Kita, Kiyoshi 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

Takeki Hara*, Tokyo University of Science, Japan; Takuya Aoki, Toshio Ogasawara, Japan

Aerospace Exploration Agency (JAXA), Japan; Yasuo Kogo, Tokyo University of Science, Japan

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

Rodrigo Portavales Silva*, Celio A Costa, Universidade Federal do Rio de Janeiro - UFRJ, Brazil

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

Oleg A. Tokariev*, Jürgen Malzbender, Rolf W Steinbrech, Forschungszentrum Jülich GmbH, Germany; Lars Schnetter, CeramTec-ETEC GmbH, Germany

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

Yeon Hwang*, Doh-Hyung Riu, Hong-Jeon Kang, Seoul National University of Science & Technology, Republic of Korea; Dongil Chun, Youngseok Kim, Inocera Inc., Republic of Korea

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

Sam Salamone*, Michael Aghajanian, Oscar Spriggs, M Cubed Technologies Inc., USA; Suzanne E Horner, PM Soldier Protection and Individual Equipment, USA

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

Jun-sung Hong*, Yong-Ryun Cho, Mi-Suk Kang, Hyo-Ryoung Lim, Hong-Jeon Kang, Seoul National University of Science and Technology, Republic of Korea; Kwang-Yeon Cho, Korea Institute of Ceramic Engineering and Technology, Republic of Korea; Doh-Hyung 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

Hong-Jeon Kang*, Jun-Young Cho, Doh-Hyung Riu, Seoul National University of Science and Technology, Republic of Korea; Dong-Geun 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

Krishan Kumar*, Crystal Lab, India; Binay Kumar, University of Delhi, India

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

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

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

Miriana Vadala*, Doru C Lupascu, University of Duisburg Essen, Germany

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

Ryo Inoue*, Yutaka Kagawa, Hideki Kakisawa, The University of Tokyo, Japan

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

Victoria R Marotto*, Mario A Valdez, Luke S Walker, Erica L Corral, University of Arizona, USA

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

Michael Aghajanian*, Brian Givens, Matthew Watkins, Allyn McCormick, Michael Waggoner, M Cubed Technologies, Inc., USA

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

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

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

Kenjiro Uno*, Hideki Kakisawa, Yutaka Kagawa, The University of Tokyo, Japan

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

Ajay Kumar*, Florida International University, USA; Amit Datye, University of Tennessee, USA; Kuang Hsi Wu, Florida International University, USA; Hua-Tay Lin, Oak Ridge National Laboratory, USA; Janet Hurst, NASA, USA

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

Yoshihiro Nishimura, Takayuki Suzuki, National Institute of Advanced Industrial Science and Technology, Japan; Katsumi Fukuda, Naoya Saito*, Tokyo National College of Technology, Japan

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

Jonathan Salem, NASA GRC, USA; John D Helfinstine*, Corning Inc Retiree, USA; George Quinn, NIST, USA; Stephen Gonczy, Gateway Materials Technology, Inc, USA

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

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

University, Canada

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

Sivakumar Ramasamy*, Gregory 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

Mehmet A Akbas*, Daniel Mastrobattisto, Bill Vance, Pushpender Chhillar, Peter Jurgaitis, M Cubed Technologies Inc., USA

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

Guanhong Sun*, Xiaodong He, Jiuxing Jiang, Yue 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

Ingo Goetschel*, Andreas Roosen, University of Erlangen-Nuremberg, Germany

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

Sadia Sagar*, Nadeem Iqbal, Asghari Maqsood, Mohammad Mujahid, Mohammad Shahid, National University of Sciences & Technology (NUST), Pakistan

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

Nadeem Iqbal*, Sadia Sagar, M.Bilal Khan, Mohammad Mujahid, National University of Sciences & Technology (NUST), Pakistan

**Wednesday, January 25, 2012
In-Situ Evaluations Using X-rays/Neutrons and NDE**

8:00 AM-12:00 PM

Room: Coquina Salon D

Session Chair(s): Goffredo de Portu, Jiangang Sun

8:00 AM

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

Ryan P Haggerty, Pankaj Sarin, Zlatomir D Apostolov, Waltraud M. Kriven*, University of Illinois at Urbana-Champaign, USA

8:20 AM

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

Pankaj Sarin*, Daniel R Lowry, Joachim Angelkort, Zlatomir D Apostolov, Ryan P Haggerty, Waltraud 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 Y₆WO₁₂ and its thermal expansion behavior up to 1500°C

Zlatomir Apostolov*, Pankaj Sarin, Ryan P Haggerty, Waltraud M Kriven, UIUC, USA

9:00 AM

(ICACC-S1-036-2012) Investigation of thermal properties of ZrP₂O₇ and Zr₂P₂O₉

Joachim Angelkort*, Pankaj Sarin, Zlatomir D Apostolov, Patrick F Keane, Waltraud M Kriven, University of Illinois, USA

9:20 AM

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

Hiroto Unno*, KROSAKI HARIMA CORPORATION, Japan; Shoichi Toh, Kyushu University, Japan; Jun Sugawara, Kensaku Hattori, KROSAKI HARIMA CORPORATION, Japan; Seiichiro Uehara, Syo 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

Zachary Aaron Jones*, Pankaj Sarin, Ryan P Haggerty, Waltraud 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

Mohamed M Shamma*, Volker Presser, Drexel University, USA; Bjorn Clausen, Don Brown, Los Alamos National Laboratory, USA; Michel 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

Rene Diaz, Melan Jansz, Mitra Mossaddad, Seetha Raghavan*, University of Central Florida, USA; Jonathan Almer, John Okasinski, Argonne National Laboratory, USA; Hugo Palaez-Perez, Peter Imbrie, Purdue University, USA

11:00 AM

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

Jiangang 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

Richard Edward Johnston*, Martin R Bache, Swansea University, United Kingdom; Dimos Liaptsis, TWI Wales, United Kingdom; Ian 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

Environmental Effects of Ceramics and Composites

1:30 PM-3:20 PM

Room: Coquina Salon D

Session Chair(s): Jacques Lamon

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

Jacques L Lamon*, Martin Picard, Emmanuel Maillet, Pascal Reynaud, Nathalie Godin, Mohamed R'Mili, Gilbert 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
Marina Ruggles-Wrenn*, Tyler 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
Marina Ruggles-Wrenn*, Garrett 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
Hyrum Anderson*, Joseph R Fellows, Charles A Lewinsohn, Merrill A Wilson, Ceramatec, Inc., USA

2:50 PM

Break

Reliability

3:20 PM-5:00 PM

Room: Coquina Salon D

Session Chair(s): Dietmar Koch

3:20 PM

(ICACC-S1-048-2012) Prediction of mechanical behavior of continuous fiber reinforced ceramics (Invited)
Dietmar Koch*, Severin Hofmann, Kamen Tushtev, 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

Emmanuel Maillet*, Nathalie Godin, Mohamed R'Mili, Pascal Reynaud, Jacques Lamon, Gilbert Fantozzi, INSA-Lyon MATEIS, France

4:00 PM

(ICACC-S1-050-2012) Lessons Learned from Failure Analyses of Electronic Components
Rajan Tandon*, Sandia National Lab, USA

4:20 PM

(ICACC-S1-051-2012) Alumina-Silicon Carbide Laminated Composites with Tailored Strength
Francesca De Genua*, Vincenzo 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
Kozo Nita*, Yoji Okita, Chiyuki Nakamata, IHI Corporation, Japan

Thursday, January 26, 2012

Processing- Microstructures-Properties Correlations I

8:00 AM-12:00 PM

Room: Coquina Salon D

Session Chair(s): Yanchun Zhou, Yu Zhou

8:00 AM

(ICACC-S1-053-2012) Microstructure and Mechanical Property Characterization of SiB0.5C1.5N0.8Al0.3 Ceramics Produced by Mechanical Alloying and Subsequent Hot-pressing (Invited)
Dechang Jia*, Dan Ye, Zhihua Yang, Zhenlin Sun, Yu 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

Pengfei Zhang*, Dechang Jia, Zhihua Yang, Xiaoming Duan, Yu Zhou, Harbin Institution of Technology, China

8:50 AM

(ICACC-S1-055-2012) Effect of AlN content on the microstructure and mechanical properties of BN-based composites

Zhuo Tian, Dechang Jia*, Zhihua Yang, Xiaoming Duan, Yu Zhou, Harbin Institute of Technology, China

9:10 AM

(ICACC-S1-056-2012) Utilizing Pressure-Induced Transformations for Toughening of Ceramics

Subramanian Ramalingam*, Ivar E Reimanis, Corinne 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

Stuart Deutsch*, Jafar F Al-Sharab, Bernard H Kear, Stephen 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

Frank Sommer*, Richard Landfried, Frank Kern, Rainer Gadow, University of Stuttgart, Germany

10:20 AM

(ICACC-S1-059-2012) Tailoring microstructures in mullite for toughness enhancement

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

Tayyab Subhani*, Imperial College London, United Kingdom; Mirza Mackovic, Erdmann Spiecker, Aldo R Boccaccini, University of Erlangen-Nuremberg, Germany; Milo S Shaffer, William E Lee, Imperial College London, United Kingdom

11:00 AM

(ICACC-S1-061-2012) Influence of Carbon Doping on the Mechanical Properties of Alumina

Noor Azlin Yahya*, Richard 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

Satoshi Tanaka*, Shota Goi, Ryoichi Furushima, Keizo Uematsu, Nagaoka University of Technology, Japan

11:40 AM

(ICACC-S1-063-2012) The Preparation and microstructure of ZrC based ceramics

Rong Zhidan*, Liu Yufu, Southeast University, China

Processing-Microstructure- Properties Correlations II

1:30 PM-6:00 PM

Room: Coquina Salon D

Session Chair(s): Michael Halbig, Lalit Sharma

1:30 PM

(ICACC-S1-064-2012) Investigation of the Mechanical Properties of an Oxide/Oxide Fibre Reinforced Ceramic Matrix Composite

Richard Edward Johnston*, Martin R Bache, Swansea University, United Kingdom; Daniel Thompson, Umeco Composite Structural Materials, United Kingdom; Philip J Withers, Steven Van Boxel, Manchester University, United Kingdom; Ian 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

Jacques L Lamon*, CNRS, France

2:10 PM

(ICACC-S1-066-2012) Oxide Fiber Composites with cellular YAG/ZrO₂-matrices

Thomas Wamser*, Jürgen Lehmann, Sven Scheler, Walter 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

Fabian Breede*, Martin Friess, Dietmar Koch, Heinz Voggenteiter, Institute of Structures and Design, German Aerospace Center (DLR), Germany; Virginia Frenzel, Klaus 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

Sandrine Hoenig*, Enrico Klatt, Martin Friess, Dietmar Koch, Cedric Martin, Ibrahim Naji, German Aerospace Center, Germany

3:10 PM

Break

3:20 PM

(ICACC-S1-069-2012) Innovative clay-cellulosic biosourced composite: formulation and processing

Gisele Laure Lecomte-Nana*, ENSCI - GEMH, France; Olivier Barré, Cathérine Nony, Société Bibliontek, AVRUL Dpt Incubateur, France; Gilles Lecomte, ENSCI - GEMH, France

3:40 PM

(ICACC-S1-070-2012) Shape-memory effect in glassy carbon

Yutaka Shinoda*, Takashi Akatsu, Fumihiro Wakai, Tokyo Institute of Technology, Japan

4:00 PM

(ICACC-S1-071-2012) Novel Silicon Carbide Composites without Interface Layer

Tatsuya Hinoki*, Kazuya Shimoda, Yi-Hyun 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

Michael C Halbig*, NASA Glenn Research Center, USA; Bryan P Coddington, University of Wisconsin-Madison, USA; Rajiv Asthana, University of Wisconsin-Stout, USA; Mrityunjay Singh, Ohio Aerospace Institute, USA

4:40 PM

(ICACC-S1-073-2012) Biaxial Flexure tests of Carbon Fiber - SiC Matrix Hybrid Ceramics

Narihito Nakagawa*, Japan Ultra-High Temperature Materials Research Center, Japan; Shinichiro Aonuma, Covalent Materials Co., Japan; Shuqi Guo, National Institute for Materials Science, Japan; Ken Goto, Japan Aerospace Exploration Agency, Japan; Yutaka Kagawa, University of Tokyo, Japan

5:00 PM

(ICACC-S1-074-2012) Strategies to Optimize the Strength and Toughness of Ceramic Laminates

Raul Bermejo*, Montanuniversitaet Leoben, Austria; Lucie Sestakova, Oldrich Sevecek, Materials Center Leoben Forschung GmbH, Austria; Zdenek Chlup, Academy of Sciences of the Czech Republic, Czech Republic; Robert Danzer, Montanuniversitaet Leoben, Austria

5:20 PM

(ICACC-S1-075-2012) High Pressure Seawater Impingement Resistance of High Purity Aluminum Oxides

Timothy Scott Dyer*, Energy Recovery Inc, USA; Ralph Quiazon, Energy recovery Inc, USA; Mike Rodgers, Rio Tinto Alcan, France

5:40 PM

(ICACC-S1-076-2012) Production and study of stability of $\text{Ca}_2\text{AlNbO}_6$ ceramics in crude petroleum for their application in petroleum extraction industry

Yogendra Prasad Yadava*, Marilaine M Lima, José Carlos S Oliveira, Ricardo A Sanguinetti Ferreira, Universidade Federal de Pernambuco, Brazil

Friday, January 27, 2012

Tribological Applications

8:30 AM-10:40 AM

Room: Coquina Salon D

Session Chair(s): Oyelayo Ajayi

8:30 AM

(ICACC-S1-077-2012) Tribological Behaviour of Ceramics Laminates Containing Residual Stresses (Invited)

Goffredo de Portu*, ISTECCNR, Italy

9:00 AM

(ICACC-S1-078-2012) Real time performance of carbide based cermets versus hardened/alloy steels for cutting tool applications

Ali Ozer, Yahya K Tur, Gebze Institute of Technology, Turkey; Waltraud M Kriven*, University of Illinois at Urbana-Champaign, USA

9:20 AM

(ICACC-S1-079-2012) Use of ceramic sliding systems in a prototype gasoline pump with operating pressures of up to 80 MPa

Christophe Pfister*, Heiko Kubach, Ulrich Spicher, Karlsruhe Institute of Technology, Germany

9:40 AM

(ICACC-S1-080-2012) Grain Size Dependence of Nanoindentation and Nanoscratch Behavior in Polycrystalline Alumina Fabricated by Spark Plasma Sintering

Lin Huang*, Wenlong Yao, Yuhong Xiong, Amiya K Mukherjee, Julie 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

Stephen Buchholz, Zoheir N Farhat, Georges J Kipouros, Kevin Paul Plucknett*, Dalhousie University, Canada

10:20 AM

(ICACC-S1-082-2012) Development of Nickel Coated Carbon Fiber Reinforced Stellite Alloy Based Composites

Alireza Khoddamzadeh*, Rong Liu, Carleton University, Canada; Ming Liang, University of Ottawa, Canada

11:40 AM

(ICACC-S1-086-2012) Quantification of Grinding-Induced Phase Changes in Y-TZP

Matthew Strasberg*, Allyson A Barrett, Kenneth J Anusavice, John J Mecholsky, Juan C Nino, University of Florida, USA

12:00 PM

(ICACC-S1-087-2012) Study on the stiffness of comeld composites joints

Hongjian Zhang*, Weidong Wen, Haitao Cui, Nanjing University of Aeronautics and Astronautics, China

Characterization

10:40 AM-12:20 PM

Room: Coquina Salon D

Session Chair(s): Monica Ferraris

10:40 AM

(ICACC-S1-083-2012) Torsion tests on joined SiC

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

11:00 AM

(ICACC-S1-084-2012) Investigation of Compression Strengths of SiC(0001) and ZrC(001) Micropillars

Sara Kiani*, Jenn-Ming Yang, Suneel Kodambaka, UCLA, USA

11:20 AM

(ICACC-S1-085-2012) Micromechanical properties of aligned and continuous multi-walled carbon nanotube/aluminoborosilicate glass composites

Geoffrey Otieno*, Antal Koos, Frank Dillon, Noor Yahya, Nicole Grobert, Richard I Todd, University of Oxford, United Kingdom