64th Conference on Glass Problems. Ceramic Engineering and Science Proceedings, Volume 25, Issue 1

Description:
On October 28-29, 2003, the 64th Conference on Glass Problems took place on the campus of the University of Illinois at Urbana-Champaign. This conference encompassed four topic sessions: Refractories chaired by Daryl E. Clendenen and Thomas Dankert; Energy and Combustion, chaired by Marilyn DeLong and Philip Ross; Process Control, chaired by Ruud Berkens and Robert Lowhorn; and Emerging Areas, chaired by Larry McCloskey and Robert Thomas.

The papers presented at the conference were reviewed by the respective session chairs, and underwent minor editing by the conference director, before further editing and production by The American Ceramic Society.

Contents:
Preface.

CERAMICS AND COMPONENTS IN ENERGY CONVERSION SYSTEMS.


Burner Rig Test of Silicon Nitride Gas Turbine Nozzle (M. Ishizaki, T. Suetsuna, M. Asayama, M. Ando, N. Kondo and T. Ohji).


MMCs by Activated Melt Infiltration High Melting Alloys and Oxide Ceramics (J. Kuebler, K. Lemster, Ph. Gasser, U. E. Klotz and T. Graule).


Solid Freeform Fabrication of a Piezoelectric Ceramic Torsional Actuator Motor (B. A. Bender, C. Kim and C. Cm. Wu).

Centrifugal Sintering (Y. Kinemuchi, K. Watari and S. Uchimura).


Investigation of a Novel Air Brazing Composition for High Temperature, Oxidation–Resistant Ceramic Joining (K. S. Weil, J. S. Hardy and J. Darsell).

Physical Characterization of Transparent PLZT Ceramics Prepared by Electrophoretic Deposition (T. Nicolay and E. Bartscherer).

Fabrication of Microstructured Ceramics by Electrophoretic Deposition of Optimized Suspensions (H. von Both, M. Dauscher and J. Haußelt).


Gas–Pressure Sintering of Silicon Nitride with Lutetia Additive (N. Kondo, M. Ishizaki and T. Ohji).


Correlation of Finite Element with Experimental Results of the Small–Scale Vibration Response of a Damaged Ceramic Beam (S. R. Short and S. Huo).

Macro–Micro Stress Analysis of Porous Ceramics by Homogenization Method (Y. Ikeda, Y. Nagano, H. Kawamoto and N. Takano).


Strengthening of Ceramics by Shot Peening (W. Pfeiffer and T. Frey).

SOLID OXIDE FUEL CELLS.

DOE FE Distributed Generation Program (M. C. Williams).


Improved SOFC Cathodes and Cathode Contact Layers (F. Tietz, H. –P. Buchkremer, V. A. C. Haanappel, A.


Elastic Properties, Equibiaxial Strength and Fracture Toughness of 8mol%YSZ Electrolyte Material for Solid Oxide Fuel Cells (SOFCs) (M. Radovic, E. Lara-Curzio, R. Trejo, B. Armstrong and C. Walls).

Sintering of BaCe0.85Y0.15O3-d With/Without SrTiO3 Dopant (F. Dynys, A. Sayir and P. J. Heimann).

High Temperature Seals for Solid Oxide Fuel Cells (SOFC) (R. N. Singh).

Evaluation of Sodium Aluminosilicate Glass Composite Seal with Magnesia Filler (K. A. Nielsen, M. Solvang, F. W. Poulsen and P. H. Larsen).

Durable Seal Materials for Planar Solid Oxide Fuel Cells (C. A. Lewinsohn, S. Elangovan and S. M. Quist).


Enhancement of YSZ Electrolyte Thin Film Growth Rate for Fuel Cell Applications (Z. Xu and J. Sankar).


Sintering and Stability of the BaCe0.9-xZrxY0.1O3-d System (Z. Zhong, A. Sayir and F. Dynys).

Microstructure and Ordering Mode of a Protonic Conducting Complex Sr3(Ca1+xNB2-x)O9-d Perovskite (M.-H. Berger and A. Sayir).


Ionic Conductivity in the Bi2O3–Al2O3–MxOy (M=Ca, Y) System (Y.-T. Liu and T.-S. Sheu).


Chromium Poisoning of Cathodes by Ferritic Stainless Steel (T. D. Kaun, T. A. Cruse and M. Krumpelt).


CERAMICS IN ENVIRONMENT APPLICATIONS.


Overview of Ceramic Materials for Diesel Particulate Filter Applications (W. A. Cutler).

A Mechanistic Model for Particle Deposition in Diesel Particulate Filters Using the Lattice Boltzmann Technique (M. Stewart, D. Rector, G. Muntean and G. Maupin).

Development of Catalyzed Diesel Particulate Filter for the Control of Diesel Engine Emissions (Y. Huang, Z. Dang and A. Bar–llan).

The Use of Transparent PLZT Ceramics in a Biochemical Thin Film Interferometric Sensor (T. Nicolay).


Stabilization of Counter Electrode for NASICON Based Potentiometric CO2 Sensor (Y. Miyachi, G. Sakai, K. Shimanoe and N. Yamazoe).


Processing of Biomorphous SiC Ceramics from Paper Preforms by Chemical Vapor Infiltration and Reaction (CVI–R) Technique (D. A. Streitwieser, N. Popovska, H. Gerhard and G. Emig).

Formation of Porous Structures by Directional Solidification of the Eutectic (F. W. Dynys and A. Sayir).

High Surface Area Carbon Substrates for Environmental Applications (K. P. Gadkaree, T. Tao and W. A. Cutler).

Development of High Surface Area Monoliths for Sulfur Removal (L. He, L. K. Owens, W. A. Cutler and C. M. Sorenson).

Processing of Porous Biomorphous TiC Ceramics by Chemical Vapor Infiltration and Reaction (CVI–R) Technique (N. Popovska, D. A. Streitwieser, C. Xu and H. Gerhard).


Light Weight Ceramic Sandwich Structure from Preceramic Polymers (T. Hoefner, J. Zeschky, M. Scheffler and P. Greil).


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Ballistic Impact of Silicon Carbide with Tungsten Carbide Spheres (M. J. Normandia and B. Leavy).

Indentation Testing of Armor Ceramics (E. Medvedovski and P. Sakar).


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