Advanced Ceramic Coatings and Interfaces II

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A Collection of Papers Presented at the 31st International Conference on Advanced Ceramics and Composites January 21–26, 2007 Daytona Beach, Florida

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Preface

The Symposium on Advanced Ceramic Coatings for Structural, Environmental, and Functional Applications was held at the 31st International Conference on Advanced Ceramics and Composites, January 21-26, 2007, Daytona Beach, Florida. A total of 85 papers including 14 invited papers were presented at the symposium focusing the latest advances in research and development and applications of coating technologies.

This proceedings contains 24 contributed papers from the symposium, covering topics of thermal barrier coatings, coatings to resist wear, erosion, and tribological loadings, coatings for space applications, and multifunctional, nanostructured coatings, and interfaces phenomena. These papers provide the state-of-art of ceramic coating technologies for various critical industrial technology applications.

We are greatly indebt to the members of the symposium organizing committee, including Drs. Yutaka Kagawa, Anette Karlsson, Seiji Kuroda, Karren More, Jennifer Sample, Dileep Singh, Yong-Ho Sohn, Irene Spitsberg, Robert Vaßen, and Dongming Zhu, for their tremendous time and effort in developing and organizing this vibrant and cutting-edge symposium. We also would like to express our sincere thanks to all of the symposium participants, session chairs, manuscript authors, and reviewers, for their contributions to such a successful and excellent quality meeting. Finally, we are also very grateful to The American Ceramic Society staff for their help during the organization and publication of this symposium and proceedings.

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Introduction

2007 represented another year of growth for the International Conference on Advanced Ceramics and Composites, held in Daytona Beach, Florida on January 21-26, 2007 and organized by the Engineering Ceramics Division (ECD) in conjunction with the Electronics Division (ED) of The American Ceramic Society (ACerS). This continued growth clearly demonstrates the meetings leadership role as a forum for dissemination and collaboration regarding ceramic materials. 2007 was also the first year that the meeting venue changed from Cocoa Beach, where it was originally held in 1977, to Daytona Beach so that more attendees and exhibitors could be accommodated. Although the thought of changing the venue created considerable angst for many regular attendees, the change was a great success with 1252 attendees from 42 countries. The leadership role in the venue change was played by Edgar Lara-Curzio and the ECD's Executive Committee, and the membership is indebted for their effort in establishing an excellent venue.

The 31st International Conference on Advanced Ceramics and Composites meeting hosted 740 presentations on topics ranging from ceramic nanomaterials to structural reliability of ceramic components, demonstrating the linkage between materials science developments at the atomic level and macro level structural applications. The conference was organized into the following symposia and focused sessions:

- Processing, Properties and Performance of Engineering Ceramics and Composites
- Advanced Ceramic Coatings for Structural, Environmental and Functional Applications
- Solid Oxide Fuel Cells (SOFC): Materials, Science and Technology
- Ceramic Armor
- Bioceramics and Biocomposites
- Thermoelectric Materials for Power Conversion Applications
- Nanostructured Materials and Nanotechnology: Development and Applications
- Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials and Systems (APMT)

- Porous Ceramics: Novel Developments and Applications
- Advanced Dielectric, Piezoelectric and Ferroelectric Materials
- Transparent Electronic Ceramics
- Electroceramic Materials for Sensors
- Geopolymers

The papers that were submitted and accepted from the meeting after a peer review process were organized into 8 issues of the 2007 Ceramic Engineering & Science Proceedings (CESP); Volume 28, Issues 2-9, 2007 as outlined below:

- Mechanical Properties and Performance of Engineering Ceramics and Composites III, CESP Volume 28, Issue 2
- Advanced Ceramic Coatings and Interfaces II, CESP, Volume 28, Issue 3
- Advances in Solid Oxide Fuel Cells III, CESP, Volume 28, Issue 4
- Advances in Ceramic Armor III, CESP, Volume 28, Issue 5
- Nanostructured Materials and Nanotechnology, CESP, Volume 28, Issue 6
- Advanced Processing and Manufacturing Technologies for Structural and Multifunctional Materials, CESP, Volume 28, Issue 7
- Advances in Electronic Ceramics, CESP, Volume 28, Issue 8
- Developments in Porous, Biological and Geopolymer Ceramics, CESP, Volume 28, Issue 9

The organization of the Daytona Beach meeting and the publication of these proceedings were possible thanks to the professional staff of The American Ceramic Society and the tireless dedication of many Engineering Ceramics Division and Electronics Division members. We would especially like to express our sincere thanks to the symposia organizers, session chairs, presenters and conference attendees, for their efforts and enthusiastic participation in the vibrant and cutting-edge conference.

ACerS and the ECD invite you to attend the 32nd International Conference on Advanced Ceramics and Composites (http://www.ceramics.org/meetings/daytona2008) January 27 - February 1, 2008 in Daytona Beach, Florida.

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