High Temperature Ceramics for Extreme Environments Workshop

Technical Presentations       Workshop Discussions
Networking

SPECIAL EVENT:
Tour OSU CEMAS Center for Electron Microscopy and Analysis

June 18th & 19th, 2019
Columbus, Ohio
Developing materials that can withstand high temperature and extreme environments is a requirement to advance hypersonic travel and other aerospace applications. The materials developed will also find commercial applications where high temperature and abrasion result in refractory degradation. The design, characterization, testing and scaleup (including net shape) of high temperature composites with ceramic reinforcements and/or matrices will provide new opportunities to advance aerospace and extreme environment applications.

The workshop’s purpose is to bring together a diverse group of researchers from industry, government and universities to share developments in the field, identify accomplishments and to discuss challenges and opportunities.

Co-Directors

**Prof. Perena Gouma, Orton Chair**
The Ohio State University
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**Mark Lawson, General Manager**
The Edward Orton Jr. Ceramic Foundation
E-mail: lawson@ortonceramic.com

Hotel Information (Workshop Rate)

**Marriott and Residence Inn Columbus University Area**
3100 Olentangy River Road, Columbus, OH 43202
P 614.549.3619 | F 614.268-7660 | M 330-692-8498
www.marriotthotels.com
Scientific Program

Tuesday, June 18, 2019  PM Session (Extended)

11:00-11:30  Arrival and Registration
11:30-11:55  Start/Lunch
11:55-12:00  Opening Remarks – Prof. Perena Gouma

12:00-12:45  KEYNOTE:
Lynnette D. Madsen, National Science Foundation
“Fundamental Research in Materials for Extreme Conditions”

12:45-1:30  Randall Hay, Wright-Patterson Air Force Base
“Basic Research Topics for High Temperature Structural Ceramics”

1:30-2:15  Francis I. Hurwitz, NASA Glenn Research Center
“Aerogels: Ultralightweight Materials Tailored for Extreme Environments”

2:15-2:30  Break

2:30-3:15  Alexander S. Mukasyan, University of Notre Dame
“Ceramics by Self-Sustained Reactions”

3:15-4:30  Open Discussion – Research & Collaboration Opportunities

4:30-4:45  Break

4:45  Shuttle Bus Departs to CEMAS

Tuesday, June 18, 2019  Evening

5:00  CEMAS Private Tour
6:45  Dinner REFECTORY RESTAURANT
Wednesday, June 19th, 2019  AM Session

8:00- 8:15  Continental Breakfast

8:15-9:00  Yuri Gogotsi, Drexel University
“High-Temperature Behavior of Carbide MXenes”

9:00-9:45  Olivia A. Graeve, University of California, San Diego
“Morphologically controlled composites: emerging materials for extreme environments”

9:45-10:30  Gregory B. Thompson, The University of Alabama
“Microstructures and Deformation Behavior in Transitional Metal Carbides”

10:30-11:15  Yunfeng Shi, Rensselaer Polytechnic Institute (RPI)
“In-silico material synthesis for advanced materials modeling”

11:00-11:45  Open Discussion – Research & collaboration opportunities

11:45-12:00  Start/Lunch

Wednesday, June 19th, 2019  PM Session

12:00-12:45  Jessica A. Krogstad, University of Illinois, Urbana-Champaign (UIUC)
“Embracing microstructural and phase evolution in ceramics under extreme service conditions”

12:45-1:30  David L. Poerschke, University of Minnesota
“Design of Multiphase and Multilayer Thermal and Environmental Barrier Coatings: Towards New Materials for Enhanced Multifunctional Performance”

1:30-1:45  Break

1:45-2:30  Kathleen Sevener, University of Michigan
“Studies of Damage Evolution in CMCs”

2:30-3:15  Samantha Daly, University of California, Santa Barbara
“In-SEM Acoustic Emission Studies of Damage Mechanisms in CMCs”

3:15-4:25  Open Discussion – Research & Collaboration Opportunities

4:25-4:30  Concluding Remarks – Prof. Perena Gouma

Workshop End