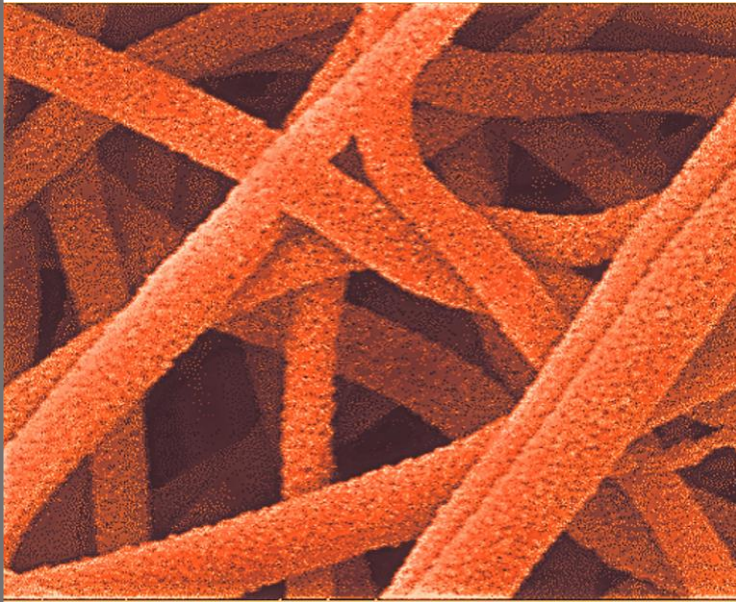


Academia, Industry & Government

# High Temperature Ceramics for Extreme Environments Workshop



Technical Presentations

Workshop Discussions

Networking

## SPECIAL EVENT:

Tour OSU CEMAS Center for Electron  
Microscopy and Analysis

*June 18<sup>th</sup> & 19<sup>th</sup>, 2019*  
*Columbus, Ohio*



**THE OHIO STATE UNIVERSITY**

**COLLEGE OF ENGINEERING**

**DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING**



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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The Edward Orton Jr. Ceramic Foundation

Mark Lawson, General Manager  
The Edward Orton Jr. Ceramic Foundation  
E-mail: [lawson@ortonceramic.com](mailto: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](http://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 19<sup>th</sup>, 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 19<sup>th</sup>, 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**