

# *Winter Workshop*

## 2022

February 17 & 18 via Zoom  
10am to 3pm ET

**Agenda & Speaker Bios**

# Day One

Thursday • February 17, 2021

All times are listed in Eastern Standard Time

- |                |   |
|----------------|---|
| 10:00–10:15 am | <b>Welcome</b>  |
| 10:15–10:45 am | <b>Icebreaker</b>   |
| 10:45–11:45 am | <b>Careers in Science: A Multi-path Navigation Framework</b><br>Kaline Furlan, Hamburg University of Technology   |
| 11:45–12:15 pm | <b>New Thermoelectric Materials and Future Prospects of Thermoelectrics in the Space Industry</b><br>Elizabeth Barrios, NASA Marshall Space Flight Center |
| 12:15–12:55 pm | <b>BREAK</b>  |
| 12:55–1:00 pm  | <b>Group photo</b>  |
| 1:00–1:30 pm   | <b>Transition Metal Doped ZnSe Chalcogenide Glass Composite Fibers</b><br>Rashi Sharma, University of Central Florida                                     |
| 1:30–2:00 pm   | <b>From Academic Theories to Real World Solutions: The Journey to Industry Leadership</b><br>Bryn Snow, HarbisonWalker International                      |
| 2:00–3:00 pm   | <b>Coffee &amp; Cocktails: Networking hour hosted by PCSA</b>   |

# Day Two

Friday • February 18, 2021

All times are listed in Eastern Standard Time

- |                |   |
|----------------|---|
| 10:00–10:15 am | <b>Welcome</b>  |
| 10:15–10:45 am | <b>Icebreaker</b>   |
| 10:45–11:15 am | <b>Potential for Rare Earth Metals from Secondary and Byproduct Sources</b><br>Gabrielle Gaustad, Alfred University   |
| 11:15–11:45 am | <b>Glass Science as a Route to Innovative Infrared, Visible and Bioactive Applications with a Focus on Undergraduate Research and K-12 Outreach</b><br>Casey Schwarz, Ursinus College   |
| 11:45–12:00 pm | <b>ACerS PCSA Overview</b><br>Olivia Brandt, PCSA President   |
| 12:00–12:15 pm | <b>ECerS YCN Overview</b><br>Antonia Ressler, University of Zagreb  |
| 12:15–1:00 pm  | <b>BREAK</b>  |
| 1:00–3:00 pm   | <b>Writing Workshop: Elevator Pitches, Interviewing, &amp; Crafting Resumes/CVs</b><br>Andréa Caloiaro, Angela Brown, & Emily Bald<br>University Writing Program, University of Florida |

# Speaker Bios

## Elizabeth Barrios

### "New Thermoelectric Materials and Future Prospects of Thermoelectrics in the Space Industry"



Dr. Elizabeth Barrios holds a bachelor's degree in Chemical Engineering from Wayne State University, a master's degree in Materials Science & Engineering from Case Western Reserve University, and a PhD in Materials Science & Engineering from the University of Central Florida. Elizabeth is a Structural Materials Engineer at NASA's Marshall Space Flight Center focusing on the failure analysis of avionics and EEE parts. She also conducts research on the development of new thermoelectric materials and processing schemes to address the needs of thermoelectric scavenging systems for future manned missions to the Moon and Mars surfaces.

Prior to joining Marshall Space Flight Center, Elizabeth was a contractor at NASA's Langley Research Center (2021) where she worked on the automation of the surface preparation of carbon fiber composites and a NASA Pathways Intern at NASA's Kennedy Space Center (2016-2021) where she worked on failure analysis and fabrication of carbon fiber composite structures. In this latter role, she won a NASA Space Flight Readiness Team award (2018) for her support in the development of the Advanced Plant Habitat.

Elizabeth is the recipient of the International Astronautical Federation's Young Space Leader Award (2021), Luigi G. Napolitano Award (2020), and Emerging Space Leader Award (2018). As a PhD student, Elizabeth was a NASA Space Technology Research Fellow (2016).

## Kaline Furlan

### "Careers in Science: A Multi-path Navigation Framework"



Currently assistant professor at the Hamburg University of Technology (TUHH) in Germany and leader of the Integrated Material Systems Group, performing research that combines colloidal science, powder technology, thin films deposition, and additive manufacturing to develop integrated material systems. Such systems exhibit functional properties resulting from the combination and hierarchical structuring of different materials. They can sense the environment, react and adapt to different inputs and also maintain their function even in harsh conditions.

Furlan's research lies at the intersection between materials science and manufacturing engineering. Her group focuses on the challenges regarding the production of innovative integrated material systems, where the combination of top-down and bottom-up fabrication approaches enables the fabrication of hierarchical functional materials at reasonable processing times. Further functionalization of either building blocks or already assembled structures is provided by atomic layer deposition. Based on her hands-on background in industry and manufacturing technology institutes, Furlan seeks to develop material systems that find applications linked to societal needs and interests.

Materials and engineering have interested her since a young age and she holds a bachelor in materials engineering from the Federal University of Santa Catarina (UFSC). With a stopover at the Fraunhofer Institute for Manufacturing Technology and Applied Materials Research in Bremen, she moved back to Germany after completing her masters and doctorate in materials science and engineering at UFSC. Since then she has been working at TUHH in the Collaborative Research Center 986 "Tailor-made, Multi-scale, Materials Systems". Outside of the university, her attention is focused on an eight-year-old golden retriever, with whom she often goes hiking in local parks and woods. At home, she has set up a small yoga studio where she regularly practices her asanas and meditates.

## Gabrielle Gaustad

### "Potential for Rare Earth Metals from Secondary and Byproduct Sources"



Dr. Gabrielle Gaustad is the Dean of the Inamori School of Engineering at Alfred University. For ten years prior, she was an Associate Professor in the Golisano Institute for Sustainability at the Rochester Institute of Technology. She holds a PhD in Material Science and Engineering from MIT.

The Gaustad group conducts research quantifying the economic and environmental trade-offs for materials at their end-of-life with a focus on recycling, resource recovery, and promoting a circular economy.

Methodologies include a variety of systems modeling techniques such as dynamic material flow analysis, optimization, simulation, systems dynamics, economic modeling, process based cost modeling, and life-cycle assessment, as well as traditional material characterization such as TGA, PSD, SEM, XRD, XRF, EDS, and ICP-MS.

Specific projects include implications of material scarcity and criticality for clean energy technologies, aluminum and steel recycling technologies and compositional analysis, and environmentally benign and economically efficient recycling of lithium ion batteries, particularly those containing nanomaterials. Gaustad has been an organizer for several conferences on materials for clean energy (MCARE 2018) and recycling (REWAS 2019) and served as guest editor for an issue of Resources, Conservation, and Recycling on the circular economy.



## Casey Schwarz

"Glass Science as a Route to Innovative Infrared, Visible and Bioactive Applications with a Focus on Undergraduate Research and K-12 Outreach"



Dr. Casey M. Schwarz completed her PhD in physics at UCF in 2012 under the supervision of Prof. Leonid Chernyak studying the radiation effects of semiconductor transport properties using electron beam induced current and Cathodoluminescence characterization techniques. Schwarz went on to teach at Valencia College in 2012 as an Adjunct Professor of Physics. Schwarz then joined the Kuebler research group in spring of 2013 as a post-doctoral researcher where she investigated the processing and properties of novel materials for future optical device applications. Schwarz joined the faculty at Ursinus College in the fall of 2016.

Her research interests include 3D direct laser writing of multi-component chalcogenide materials, development and design of optical devices, and optical characterization. The development of optics that function at wavelengths in the infrared (IR) can be used for applications in diagnostic medicine, environmental sensing, space exploration, and search-and-rescue tools. She is also very active in her outreach activities which include mentoring high school and undergraduate students and participating in promotion of women in science events and organizations.

**Rashi Sharma**  
**"Transition Metal Doped ZnSe Chalcogenide  
Glass Composite Fibers"**



Dr. Rashi Sharma is currently a Post-Doctoral Research Associate in the Glass Processing and Characterization Lab at College of Optics and Photonics at the University of Central Florida. She carries out synthesis and characterization of novel IR glass and glass-ceramics for optical applications, and studies the impact of the structure/property relationship on the optical behavior in the resulting bulk and fiber materials.



## Bryn Snow

### "From Academic Theories to Real World Solutions: The Journey to Industry Leadership"



Bryn Snow is the Director of Glass Application Technology for HarbisonWalker International (HWI), the largest supplier of refractory products in the United States. Bryn joined HWI after completing her Bachelors in Physics at the State University of New York at Plattsburgh and Bachelors in Ceramic Engineering at Alfred University. After starting her career in glass marketing, Bryn progressed to become HWI's first female Application Technology Director, overseeing the glass and non-ferrous metals market segments.

Bryn has been the recipient of several awards for her innovation and leadership in the industry, been published in several trade journals and is an inventor on a 2021 US Patent. She is also a current board member for the Ceramic and Glass Industry Foundation.

She and her team continually develop new refractories solutions for HarbisonWalker International's glass and industrial metals manufacturing customers, leading to industry breakthroughs and moving the field forward.

**University Writing Program Faculty  
from The University of Florida**  
"Writing Workshop: Elevator Pitches, Interviewing, &  
Crafting Resumes/CVs"

**Andréa Caloiaro**



Dr. Andréa Caloiaro teaches technical writing and composition at the University of Florida's University Writing Program. His main areas of focus include writing in the health professions and professional communication for engineers. Since 2015, he's assisted undergraduate and graduate students at UF with preparing job application materials.

**Best Writing Advice**

Writing can offer us a sense of accomplishment and fulfillment. It can also induce anxiety. Build for yourself, and others, a community of writers. Write together. Share your work at every stage. Make writing a social act; it'll fuel your creativity, your craft, and confidence.

## Emily Bald



Dr. Emily Bald is an Assistant Instructional Professor in the University of Florida's Writing Program, where she teaches writing for the medical sciences, sustainability and the built environment, gender studies, and the humanities. She is a co-founder and editor of *Waves: an Undergraduate Journal*. She received her Ph.D. in English from the University of Washington in Seattle, where she taught composition, literature, and discipline-specific writing courses.

### **Best Writing Advice**

As my dissertation director used to tell me—again and again—“Set deadlines, not standards.” Perfectionism can be crippling during the early drafting stages. Just get a draft done, then have a good night’s sleep and read it with a fresh pair of eyeballs the next day: not only will you realize that it’s much better than you thought, but you’ll have more energy and confidence when you start to revise.

## Angela Brown



Dr. Angela Brown is an Assistant Instructional Professor at the University of Florida's University Writing Program. She teaches disciplinary-focused composition courses in medicine, engineering, and business. She has developed courses on the rhetoric of contemporary protest and policy writing, with a focus on experiential and service learning initiatives.

### **Best Writing Advice**

Collaborate and listen....to feedback.