

# SCIENCE & TECHNOLOGY OPEN HOUSE AND NSF EPSCOR CPU2AL ANNUAL MEETING

APRIL 3 - 5, 2019

RENAISSANCE MOBILE RIVERVIEW PLAZA HOTEL  
GULF COAST EXPLOREUM SCIENCE CENTER

MOBILE, ALABAMA



#STOH19

This event is sponsored by the NSF EPSCoR RII-Track-1 Cooperative Agreement OIA-1655280



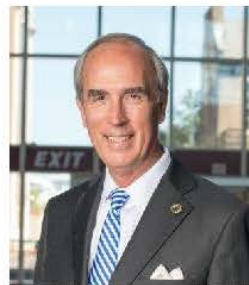




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**OFFICE OF THE MAYOR**



***WELCOME TO MOBILE!***

**2019 Science and Technology Open House  
April 3-4, 2019**

As Mayor of the City of Mobile, and on behalf of the City Council and all our friendly citizens, I extend a warm welcome to attendees of the **Science and Technology Open House (STOH)**.

I am sure you will find dining in Mobile a real pleasure as we have many fine restaurants, serving a wide variety of foods, including our great Gulf Coast seafood.

While you're in Mobile, we encourage you to take time to revel in some of the many amenities our City has to offer – including a riverboat dinner cruise, an eco-tour of the Mobile Delta waterway, Mobile Carnival Museum, Gulf Coast Exploreum Science Center & IMAX Dome Theater, as well as our other excellent museums. Whatever you do, enjoy yourself and enjoy Mobile!

Those of you who've visited Mobile before know all about our great quality of life and the famous "Southern hospitality" of our people. To any of our first-time guests, we know that once you get a taste of what Mobile has to offer, you will want to return time and time again.

Again, welcome to our City where we are *Born to Celebrate!*

Sincerely,

William S. Stimpson



# 2019 Science and Technology Open House and NSF EPSCoR CPU2AL Annual Meeting



## Dr. Lynne Chronister

On behalf of the University of South Alabama and as a member of the Alabama EPSCoR Board of Directors, I am honored to welcome you to the 2019 Science and Technology Open House. This event has become an Alabama EPSCoR tradition and I am excited that this year it is being held here in Mobile, Alabama. The Open House features posters from both graduate and undergraduate students from Colleges and Universities across the state of Alabama. This opportunity affords students the ability to network and to learn from other students and faculty during this fast-paced program.

The acronym “STEM” refers to Science, Technology, Engineering and Mathematics education and STEM has become a gold standard for preparing students for college and for careers in our increasingly technologically dependent workplace. STEM encourages education that is driven by problem solving, hands-on activities and exploratory learning. This Open House encourages and facilitates the spirit of discovery and gives us all a window into the future of science and technology. Thank you to the University of Alabama in Huntsville and the National Science Foundation for organizing and supporting this important event.

Best Regards,

**Lynne Chronister**

Vice President for Research and Economic Development  
University of South Alabama



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# Dr. Molly Wasko

Dr. Molly Wasko is professor and associate dean for that Collat School of Business at UAB, where she teaches design thinking, innovation, entrepreneurship, strategy, business analytics and project management. Dr. Wasko is also the director for I-Corps programs at UAB, which includes UAB's NSF I-Corps Site, I-Corps South Regional Node and NIH's I-Corps@NCATS. Dr. Wasko is currently serving as a member of the Executive Committee for the University of Alabama at Birmingham Center for Clinical and Translational Science, where she provides a critical bridge between the Academic Units in the areas of Life Sciences and the Academic Units in the Social Sciences. Her role with the CCTS is to provide guidance to the Executive Committee on Strategic Planning, Project Management, Goal Setting and Evaluation, and to oversee CCTS activities related to innovation, primarily in the areas of knowledge transfer and new knowledge creation, and the commercialization of intellectual property. She also plays a critical role in mentoring predoc, postdoc and junior faculty in the areas of research innovation, the potential for commercialization of academic research, and research project management. In this capacity she has served as an advisor in the CCTS pilots and panels programs, worked directly with young investigators in the I-Corps program, and participated in a variety of workshops and educational events through the CCTS Training Academy. After receiving her M.B.A. from Averett University she obtained her doctorate in MIS from the University of Maryland, College Park. Prior to obtaining her doctorate, she spent eight years working in production and operations management at Pepsi-Co and Ronile, Inc. Dr. Wasko is an academic entrepreneur with her own research-based startup, as well as an expert and highly sought after consultant in the areas of design thinking, knowledge creating organizations, strategic planning, entrepreneurship and managing innovation. Her research interests include the intersection of digital and social networks, knowledge management, open innovation and the strategic application of technologies. Her research has been published in MISQ, JAIS, Decision Sciences, Journal of International Management, JCMC, Journal of Strategic IS and JITTA, and has been presented at ICIS, ECIS, AOM, Sunbelt and AMCIS. She has served as an AE for MISQ and has participated on the editorial boards of Decision Sciences and Organization Science.



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## Dr. David Maurer

David Maurer is currently Professor of Physics at Auburn University. He earned his BS in Nuclear Engineering at the University of Wisconsin - Madison, and his MS and PhD in Applied Physics from Columbia University. He was a Research Scientist and later Adjunct Faculty member in the Department of Applied Physics and Applied Mathematics at Columbia University for many years prior to coming to Auburn University in 2011. His main research interests are in the physics of magnetically confined high temperature plasmas, plasma diagnostics, and low temperature plasma physics.



## Dr. Scott Baalrud

Scott Baalrud is an Associate Professor in the Department of Physics and Astronomy at the University of Iowa. His research is concerned with understanding fundamental properties of plasmas, with particular emphasis on kinetic theory. Applications of his research have included plasma-boundary interactions in low-temperature plasmas, magnetic reconnection, strongly coupled plasmas, and warm dense matter. He received his Ph.D. from the University of Wisconsin-Madison in 2010, and was recently awarded the 2018 Hershkowitz Early Career Award from the journal Plasma Sources Science and Technology.



# Meeting Agenda

<b>Wednesday, April 3, 2019</b>	
<b>Gulf Coast Exploreum Science Center</b>	
<b>Activities for K-12 Teachers and Students Begin</b>	
First Group of K-12 Students and Teachers Arrive	9:00 AM
Students are Separated into Three Groups and Rotate Through the Following Activities: <ul style="list-style-type: none"> <li>• Body Works</li> <li>• IMAX Theater: <i>Mysteries of the Unseen World</i></li> <li>• Hands-On STEM Demonstrations by the Following Institutions               <ul style="list-style-type: none"> <li>○ Auburn University</li> <li>○ Bishop State Community College</li> <li>○ Dauphin Island Sea Lab</li> <li>○ The University of Alabama</li> <li>○ The University of Alabama at Birmingham</li> <li>○ The University of Alabama in Huntsville</li> </ul> </li> <li>• Lunch</li> </ul>	9:30 AM
K-12 Students and Teachers Leave	1:15 PM
<b>Activities for K-12 Teachers and Students End</b>	
<b>Activities for College Participants Begin</b>	
NSF EPSCoR CPU2AL Management Meeting	12:30 PM
Registration Opens	2:15 PM
STOH Poster Judges Orientation	3:45 PM
Welcome Reception and Registration	5:00 – 7:00 PM



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<b>Thursday, April 4, 2019</b>	
<b>Renaissance Mobile Riverview Plaza Hotel, Ballroom Bon Secour Bay 3</b>	
Registration and Breakfast	8:00 AM
<b>Ed Thomas (AU CPU2AL co-PD) and Lynne Chronister (USA VPR)</b> Welcome	9:00 AM
<b>Uma Venkateswaran (NSF)</b> Overview of the NSF EPSCoR Program	9:10 AM
<b>Christopher Lawson (UAB)</b> Overview of Alabama EPSCoR	9:25 AM
Coffee Break	10:00 AM
<b>Sebastian Kirmse (USA)</b> Z-Threaded Carbon Fiber Composite Technology	10:30 AM
<b>Ryan Gott (UAH)</b> Plasma-based System for Water Purification	10:45 AM
<b>Lori Scott (AU)</b> Measurements of the Thermal Properties of a Flowing Dusty Plasma Under Microgravity	11:00 AM
<b>Bernabe Tucker (UAB)</b> Innovations in Small Caliber Vascular Graft Devices	11:15 AM
<b>Lunch and Student Organized Career Session</b> - <b>Molly Wasko (UAB)</b> The Road to Commercialization and Entrepreneurship - <b>David Maurer (AU)</b> Expectations for Postdocs and Young Faculty	11:30 AM to 1:30 PM
<b>Thursday, April 4, 2019</b>	
<b>Renaissance Mobile Riverview Plaza Hotel, Mobile Bay Ballroom and Jubilee Suite</b>	
Poster Session 1	1:30 PM
Poster Session 2 and Coffee Break	3:10 PM
Networking Among Participants and Selection of Poster Awardees	5:10 PM
<b>Thursday, April 4, 2019</b>	
<b>Renaissance Mobile Riverview Plaza Hotel, Ballroom Bon Secour Bay 3</b>	
Conference Dinner - <b>Scott D. Baalrud, University of Iowa</b> Langmuir, Bohm and the Plasma Sheath - <b>Poster Awards</b>	6:10 PM





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<b>Friday, April 5, 2019</b>	
<b>Renaissance Mobile Riverview Plaza Hotel, Ballroom Bon Secour Bay 3</b>	
Breakfast and END of STOH	8:00 AM
<b>Gary Zank (UAH)</b> Welcome to NSF EPSCoR CPU2AL Annual Meeting	9:00 AM
<b>Gary Zank (UAH)</b> Overview of CPU2AL	9:05 AM
<b>Vladimir Kolobov (CFDRC and UAH)</b> Overview of Research Thrust 1	9:35 AM
<b>Edward Thomas, Jr. (AU)</b> Overview of Research Thrust 2	10:00 AM
Coffee Break	10:25 AM
<b>Yogesh Vohra (UAB)</b> Overview of Research Thrust 3	10:45 AM
<b>Carlos Reinhold (UAH)</b> Other CPU2AL Project Elements	11:10 AM
<b>Dana Waller (UAH)</b> Continuation of Other CPU2AL Project Elements	11:25 AM
<b>Ivan Arnold (AU)</b> Continuation of CPU2AL Project Elements	11:40 AM
<b>Vijay Rangari (TU)</b> Effect of Plasma Treatment on Powders	11:55 AM
<b>Working Lunch and Parallel EAB Meeting</b> <b>Alex Volkov (OU)</b> Cold Atmospheric-Pressure Plasma in Plant Biology <b>Robert Arslanbekov (CFDRC)</b> Implicit Fluid Solver for Non-Equilibrium Reactive Plasmas	12:10 PM
<b>Srinivasa Rao Mentreddy (AAMU)</b> Low-Temperature Plasma Applications in Agriculture Research at Alabama A&M University	1:10 PM
<b>Rich Branam (UA)</b> Non-intrusively Measuring Plasma Properties	1:25 PM
<b>Edmund Spencer (USA)</b> Space Weather and GPS Scintillation During Geomagnetic Activity	1:40 PM
<b>Lingling Zhao (UAH)</b> The Physics of a Partially Ionized Plasma in Space Plasma	1:55 PM
<b>Gary Zank (UAH)</b> Closing Remarks	2:10 PM
<b>External Advisory Board (EAB) Meeting</b>	2:25 PM
<b>EAB Debriefing</b>	2:55 PM
<b>End of all activities</b>	4:10 PM



## **Science & Technology Open House Judges and Affiliations**

**Rao Mentreddy** - Alabama A&M University  
**Marvin Waller** - Alabama Department of Transportation  
**Surabhi Jaiswal** - Auburn University  
**Uwe Konopka** - Auburn University  
**Ed Perry** - Bishop State Community College  
**Elizabeth Schlosser** - Bishop State Community College  
**Alexander Volkov** - Oakwood University  
**Mruthunjaya Uddi** - The University of Alabama  
**Vineeth Vijayan** - The University of Alabama at Birmingham  
**Vinoy Thomas** - The University of Alabama at Birmingham  
**Gabe Xu** - The University of Alabama in Huntsville  
**Laxman Adhikari** - The University of Alabama in Huntsville  
**Mehmet Yalim** - The University of Alabama in Huntsville  
**Samira Tasnim** - The University of Alabama in Huntsville  
**Alexandra Stenson** - University of South Alabama  
**Ashley Lindsey** - University of South Alabama  
**Edmund Spencer** - University of South Alabama  
**Larry Yet** - University of South Alabama  
**Mohammad Hossein** - University of South Alabama  
**Mohammad Soltani** - University of South Alabama  
**Reggie Taylor** - University of South Alabama  
**Shenghua Wu** - University of South Alabama  
**William Reichert** - University of South Alabama



## **Organizing Committee**

### **Auburn University**

- Ivan Arnold
- Edward Thomas Jr.

### **The University of Alabama**

- Charlotte Nix

### **The University of Alabama at Birmingham**

- Chris Lawson

### **The University of Alabama in Huntsville**

- Carlos Reinhold
- Dana Waller
- Gary Zank

### **University of South Alabama**

- Edmund Spencer

## **Science Demonstration Partners**

- Auburn University
- Bishop State Community College
- Dauphin Island Sea Lab
- The University of Alabama
- The University of Alabama at Birmingham
- The University of Alabama in Huntsville

The Organizing Committee would like to thank all attendees for participating in this year's open house.

