Greetings:

On behalf of the State of Alabama, I would like to welcome you to the annual Science and Technology Open House hosted by Tuskegee University and held on September 7 – 8, 2018 at the Renaissance Hotel and Spa Conference Center in Montgomery.

The annual Science and Technology Open House is a community outreach program designed to share researchers’ accomplishments from almost all disciplines of science and engineering, from the doctoral granting institutions in Alabama. Open House participants include middle school students, school administrators and parents, university students, faculty and administrators, as well as, community leaders and industrial representatives.

Eight Ph.D. granting institutions in Alabama will participate in this year’s Open House: Alabama A&M University, Alabama State University, Auburn University, Tuskegee University, the University of Alabama, the University of Alabama at Birmingham (UAB), the University of Alabama at Huntsville (UAH), and the University of South Alabama.

Upon completion of the Open House, many of you will return to your homes and I wish you a safe and pleasant journey.

Again, welcome to the 2018 Science and Technology Open House and best wishes for an inspiring event.

Sincerely,

Kay Ivey
Governor

KIlpb/dr
August 29, 2018

Greetings from the President:

I am delighted to welcome all of you from our sister institutions across the State—Alabama A & M University, Alabama State University, Auburn University, the University of Alabama, the University of Alabama at Birmingham, the University of Alabama at Huntsville, and the University of South Alabama—to this Annual Science and Technology Open House event. It is always an honor to invite our collaborative partners to this annual activity that will promote and enhance all of our missions and assist us in gaining the competitive advantage in federal funding opportunities.

We also express appreciation to our federal funding agency, the National Science Foundation, through the Alabama Established Program to Stimulate Competitive Research (EPSCoR). All of us are proud of what we have been able to accomplish through engagement initiatives in research and outreach, and we want to expand these beyond the State’s expectation. We can only accomplish this goal through continued partnerships, collaborations, consortia and other shared opportunities that will enhance the overall infrastructure needed to sustain this endeavor.

Thank each of you for your continuing support of this program and its mission. We look forward to increased efforts on behalf of our institutions and the State.

Again, we welcome you to this year’s gathering and we sincerely hope that you will gain insightful information during deliberations and presentations. Please let our staff know if there is anything we can do to make your stay a pleasant and successful one.

Sincerely,

Lily D. McNair, Ph.D.
President
Keynote Speakers

Alicia M. Morgan
Alicia M. Morgan is an award-winning executive leader and graduate of Tuskegee University with a Bachelor of Science Degree in Aerospace Science Engineering and New Mexico State University with a Master’s Degree in Industrial Engineering. Committed to lifelong learning, she has successfully maintained leadership excellence in the private and nonprofit sector through K-12 education outreach, strategic planning, capital asset management and program development. Alicia has partnered with leaders/executives in for-profit and nonprofit organizations to identify STEM/STEAM opportunities and strategies for talent retention for their organization to help strengthen their business outcomes. Her professional engineering experience includes working at Fortune 500 companies such as Lockheed Martin, The Boeing Company, and Raytheon.

She has served on the NAF Academy Advisory board of Engineering and Health Sciences at Bryan Adams High School. She was the principal researcher for the Office of Strategic Initiatives at the Dallas County Community College District (DCCCD) for the STEM Insight website portal for STEM Education resources for middle through high school students. As a Program Leader for the nonprofit after-school program Heart House, she helped implement deeper learning activities in STEM and STEAM education.

A J Rêve International Global Arts Education Fellow, Public Voices Fellow, TEDx Speaker and conference presenter, her interactive sessions help attendees learn that there is life after failure by taking corrective action for career success. In 2016, she was the Women of Color in STEM Conference K-12 Promotion of Education honoree. Currently, Vice President of Education and Programs at the Frontiers of Flight Museum in Dallas she is responsible for managing the development and execution of school and public programs through STEM, aviation and spaceflight history.

Gabe Xu
Dr. Xu is an associate professor of MAE at UAH. He obtained his Ph.D. in aerospace engineering from the Georgia Institute of Technology where he did research in Hall effect thrusters for in-space propulsion. At UAH, he and his students conduct research in low-temperature plasma science and engineering for propulsion, energy, materials, and biological applications. Some recent projects include miniature Hall thrusters and ion engines for small satellites that incorporate 3D printing, an atmospheric-pressure plasma jet effect on Venus flytraps and vascular grafts, electric field damping of thermoacoustic combustion instabilities for rocket engines, and development of optical and physical diagnostics for small scale plasmas. Dr. Xu is a strong proponent of undergraduate research as an avenue for learning and inspiration and works with many undergraduate students in his lab at UAH. He founded and is the head of the College of Engineering Undergraduate Research Program at UAH.

Dr. Xu is an active member of the American Institute of Aeronautics and Astronautics where he serves on the electric propulsion technical committee and the plasmadynamics and lasers technical committee. He is also a member of the American Vacuum Society and the American Physics Society.
# Friday, September 7, 2018

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<th>Time</th>
<th>Program</th>
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| 8:30 AM       | **Registration/Breakfast**  
**Poster Exhibit Set-up**  
**Judging Orientation**  |
|               | Alabama Ballroom CDE Concourse  
Exhibit Hall A  
Montgomery 1  
Dr. Alfred Tcherbi-Narteh, Assistant Professor, Materials Science & Engineering  
Tuskegee University |
| 10:00 AM – Noon | **Alabama EPSCoR Session**  
**Welcome Remarks**  
**Overview of Alabama EPSCoR Programs**  
**Presentations by EPSCoR PIs/Co-PIs** |
|               | Alabama Ballroom CDE  
Dr. Lily McNair, President, Tuskegee University  
Dr. Shaik Jeelani, Vice President for Research and Dean of Graduate Studies, Tuskegee University  
Dr. Chris Lawson, Executive Director, Alabama EPSCoR (25 min)  
Dr. Yogesh Vohra – NSF EPSCoR Co-Director, Professor University Scholar and Associate Dean, University of Alabama at Birmingham (20 min)  
Dr. Dale Thomas - NASA EPSCoR Director, Professor and Eminent Scholar, University of Alabama in Huntsville (20 min)  
Dr. John Steadman - DOE EPSCoR Director, Dean College of Engineering, University of South Alabama (20 min) |
| 12:00 - 1:00 PM | **Student Poster Exhibit Briefing Session**  
Exhibit Hall A |
| 1:00 - 2:00 PM | **Lunch**  
Dr. Uma Venkateswaran, NSF EPSCoR Program Director, NSF OIA |
| 2:00 – 5:00 PM | **Student Poster Presentations/Judging**  
Exhibit Hall A |
| 5:30 – 7:30 PM | **Reception**  
Exhibit Hall A |
**Saturday, September 8, 2018**

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<tr>
<th>Time</th>
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<tr>
<td>8:00 – 9:00 AM</td>
<td><strong>Registration</strong> Alabama Ballroom CDE Concourse</td>
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<td><strong>Breakfast</strong> Alabama Ballroom B</td>
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<tr>
<td>9:00 – 10:00 AM</td>
<td><strong>Opening Remarks</strong> Alabama Ballroom CDE</td>
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<td>Dr. Shaik Jeelani, Vice President for Research and Dean of Graduate Studies, Tuskegee University</td>
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<td>Dr. Chris Lawson, Executive Director, Alabama EPSCoR</td>
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<td>Dr. Loretta Moore, NSF EPSCoR Section Head, NSF OIA</td>
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<td>Dr. Michael Curry, Associate Professor of Chemistry, Tuskegee University</td>
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<td>10:00 - 10:45 AM</td>
<td><strong>Breakout Session I</strong>: Alicia Morgan, Vice President of Education Programs, Frontiers of Flight Museum (Middle School Teachers/Students) Alabama Ballroom CDE</td>
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<td><strong>Breakout Session II</strong>: Dr. Gabe Xu, Associate Professor of Mechanical and Aerospace Engineering, University of Alabama in Huntsville (Faculty/College Students) Alabama Ballroom A</td>
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<td>10:45 – 11:00 AM</td>
<td><strong>Break</strong> Alabama Ballroom CDE Concourse</td>
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<td>11:00 AM – 1:00 PM</td>
<td><strong>Breakout Session I</strong>: Plasmas and Lights by Dr. Ed Thomas, Jr., NSF EPSCoR Co-Director, Endowed Professor and Associate Dean, Auburn University (45 min) Alabama Ballroom CDE</td>
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<td>Hands-on Interactive Demonstrations (Middle School Teachers/Students) Exhibit Hall A</td>
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<td><strong>Breakout Session II</strong>: Panel Discussion for Graduate Students – Alicia Morgan Moderating (Faculty/College Students) Alabama Ballroom A</td>
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<td>1:00 – 2:00 PM</td>
<td><strong>Luncheon Banquet</strong> Alabama Ballroom B</td>
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<td>Poster Presentation Awards</td>
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<td>Closing Remarks</td>
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The Science & Technology Open House Organizing Committee would like to thank you for attending this year’s conference. We would like to give special thanks to our major sponsor the National Science Foundation for its continued support of Alabama Established Program to Stimulate Competitive Research (EPSCoR) to its selfless service towards student achievement.

The Science & Technology Open House Organizing Committee

Carol Banks  
Tuskegee University

Shakeya Fielder  
Tuskegee University

Shaik Jeelani  
Tuskegee University

Felicia Jenkins  
Tuskegee University

Chris Lawson  
University of Alabama at Birmingham

Charlotte Nix  
University of Alabama

Vijaya Rangari  
Tuskegee University

Carlos Reinhold  
University of Alabama in Huntsville

Alfred Tcherbi-Narteh  
Tuskegee University

Edward Thomas, Jr.  
Auburn University

Dana Waller  
University of Alabama in Huntsville

Gary Zank  
University of Alabama in Huntsville
Tuskegee University is accredited with the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, master’s, doctorate, and professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Tuskegee University.