



InnovationXLabSM
Advanced Manufacturing Summit
Oak Ridge National Laboratory
Oak Ridge, Tennessee

AGENDA

May 7-8, 2019

Final as of May 3, 2019

PRE-EVENT – May 6, 2019

CHECK-IN: 11:00 AM-12:00 PM

12:00 PM-5:30 PM ✧ Optional Lab Tours

Close-toed shoes required for all tours.

Lab-Wide Tour, 12:00PM-5:30PM

Participants will tour the applied research facilities on ORNL's Hardin Valley Campus including the Manufacturing Demonstration Facility, National Transportation Research Center, Grid Research, Integration, and Deployment Center and the Carbon Fiber Technology Facility located at the Horizon Center. In addition, visitors will see ORNL's Big Science tools including the Spallation Neutron Source and Oak Ridge Leadership Computing Facility, home to Summit, the fastest supercomputer in the world. [Please arrive at 11:00 am for badging, bus will depart at 11:30 am.](#)

Applied Research Facilities Tour, 1:30PM-5:30PM

Participants will tour the applied research facilities on ORNL's Hardin Valley Campus including the Manufacturing Demonstration Facility, National Transportation Research Center, Grid Research, Integration, and Deployment Center and the Carbon Fiber Technology Facility located at the Horizon Center. [Please arrive at 12:30 pm for badging, bus will depart at 1:00 pm.](#)

Big Science Tools Tour, 2:00PM-4:30PM

Participants will tour ORNL's Big Science tools including the Spallation Neutron Source and Oak Ridge Leadership Computing Facility, home to the fastest supercomputer in the world. [Please arrive at 1:30 pm for badging, tour will begin at 2:00 pm.](#)

6:00 PM-8:00 PM ✧ Optional Reception at American Museum of Science and Energy

Sponsored by AMD and Cray

The reception will take place at the American Museum for Science and Energy located in Oak Ridge. AMSE tells the story of national and global security, history, science, research, engineering, technology development, and environmental restoration successes that have occurred in Oak Ridge since the very first days of the Manhattan Project.

DAY 1 – May 7, 2019

CHECK-IN: 7:15 AM-8:00 AM

7:15 AM - 8:00 AM ✧ Technology Showcase Networking Breakfast

Continental breakfast provided

Sponsored by Youngstown State University

8:00 AM - 8:20 AM ✧ Welcome Remarks

- Welcome from Thomas Zacharia, Director, Oak Ridge National Laboratory

8:20 AM - 8:40 AM ✧ Keynote: Advanced Manufacturing for a New American Energy Era

- Rick Perry, U.S. Secretary of Energy
Introduced by Conner Prochaska, Chief Commercialization Officer, U.S. Department of Energy

8:40 AM – 9:00 AM ✧ Fireside Chat: DOE Leadership in Manufacturing and Computing

- Rick Perry, U.S. Secretary of Energy
- Thomas Zacharia, Director, Oak Ridge National Laboratory

9:00 AM - 9:05 AM ✧ [video] Advanced Manufacturing as Platform Technology

9:05 AM - 10:05 AM ✧ Driving a Domestic Advanced Manufacturing Renaissance

Advanced manufacturing is revolutionizing the way products are designed, built, post-processed and qualified. Research and development efforts supported by DOE facilitate the rapid adoption of advanced manufacturing technologies to enhance U.S. workforce development. Advanced manufacturing's impact on the economy is felt across entire supply chains and industrial base sectors including transportation, aerospace, electronics, energy generation and distribution. This panel will explore the development of next- generation systems, and how advanced manufacturing research impacts energy usage and enhances US competitiveness.

Setting the Stage: Daniel Simmons, Assistant Secretary, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy

Moderator: Moe Khaleel, Associate Laboratory Director, Oak Ridge National Laboratory

Panelists:

- Said Jahanmir, President, American Society of Mechanical Engineers
- Sharon Nolen, Manager, Global Natural Resource Management, Eastman Chemical Company
- Dennis Townsend, Chairman, XALT Energy, LLC; Chairman, Townsend Capital, LLC
- Doug Woods, President, The Association for Manufacturing Technology



10:05 AM - 10:30 AM ✧ Technology Showcase Networking Break

Sponsored by Tennessee Valley Authority

10:30 AM - 10:45 AM ✧ Remarks: Supply Chain and Cybersecurity Challenges for Advanced Manufacturing

- Mark W. Menezes, Under Secretary of Energy, U.S. Department of Energy
Introduced by Michelle Buchanan, Deputy for Science and Technology, Oak Ridge National Laboratory

10:45 AM - 10:50 AM ✧ [video] Advanced Manufacturing for Nuclear Energy

10:50 AM - 11:50 AM ✧ Advanced Manufacturing for Nuclear Energy Applications

The U.S. DOE and national laboratories have led a revolution of innovation in advanced manufacturing, including additive techniques, modern welding approaches, and integrated computational tools. The adoption of these tools may impact nuclear energy by reducing construction cost, construction time, enabling new designs, and most importantly improving safety. In this session, Dr. Mark Peters, Director for the Idaho National Laboratory will lead a discussion with three industry leaders to explore how these advanced technologies may be deployed to transform our nuclear power production.

Setting the Stage: Ed McGinnis, Principal Deputy Assistant Secretary, Office of Nuclear Energy, U.S. Department of Energy

Moderator: Mark Peters, Director, Idaho National Laboratory

Panelists:

- Rob Akans, Senior Director, Center for Advanced Nuclear Manufacturing, Concurrent Technologies Corp.
- Jonathan Cirtain, Vice President, Advanced Technologies, BWX Technologies, Inc.
- John Hopkins, Chairman and CEO, NuScale Power, LLC
- Jeff Lyash, President and CEO, Tennessee Valley Authority

11:50 AM - 12:40 PM ✧ Digital Factory

Low cost sensors, broad band connectivity, and cloud-based operations have changed many aspects of our lives from travel to banking to the way we communicate. This session will provide insight into how the digital thread, with its plethora of technical advancements, is revolutionizing manufacturing opportunities. Participants in this session are thought leaders who will explore the technical challenges and changes that can be expected in the near future, and how they will affect operations as well as future business models in the manufacturing sector.

Moderator: Patricia Falcone, Deputy Director for Science and Technology, Lawrence Livermore National Laboratory



Panelists:

- John Dyck, CEO, Clean Energy Smart Manufacturing Innovation Institute
- Steven Hooper, Vice President and General Manager of Fusion 360, Autodesk
- Lisa Su, President and CEO, Advanced Micro Devices, Inc. (AMD)
- Peter Ungaro, President and CEO, CRAY Inc.

12:40 PM - 2:00 PM ✧ Working Lunch: Outdoor Pavilion Technology Showcase

2:00 PM - 2:05 PM ✧ [video] Advanced Manufacturing for Fossil Energy

2:05 PM - 3:00 PM ✧ Advanced Manufacturing for Fossil Energy Applications

Recent innovations in Advanced Manufacturing have stimulated a paradigm shift that has affected both efficiency and productivity in manufacturing and accelerated the generation of new product opportunities. This panel will explore how emerging capabilities such as additive manufacturing, smart manufacturing and process intensification can be utilized to enhance the efficiency, reliability, and range of performance of fossil energy technologies.

Setting the Stage: Lou Hrkman, Deputy Assistant Secretary for Clean Coal and Carbon Management, Office of Fossil Energy, U.S. Department of Energy

Moderator: Brian Anderson, Director, National Energy Technology Laboratory

Panelists:

- Michael Appleby, Company Founder and General Manager, Mikro Systems Incorporated
- William Grieco, CEO, Rapid Manufacturing Institute
- Sha-Chelle Manning, Vice President for Technology and Innovation, Cimarex Energy
- Eric Theisen, Research and Development Manager, Metglas Inc.

3:00 PM - 3:50 PM ✧ Hybrid (+/-) Manufacturing

Additive manufacturing technologies have advanced over the last decade to a point that research teams and industrial equipment manufacturers are investigating next-generation hybrid systems that combine multiple process technologies. For example, some additive equipment is now being coupled with subtractive, or machining, capabilities. These hybrid systems streamline manufacturing processes and create opportunities to improve efficiency while providing cost savings and workforce development. In addition, both additive systems and machining equipment have new advancements in in-situ nondestructive evaluation analysis and digital technologies that improve the quality, lower costs and increase the business opportunities for manufacturing companies. This panel will discuss the advancements in additive systems, machining capabilities and hybrid equipment to design the ideal machines of the future.

Moderator: Ralph James, Associate Laboratory Director for Science and Technology, Savannah River National Laboratory



Panelists:

- Marcin Bauza, Vice President of New Technology and Innovation, ZEISS Industrial Quality Solutions
- Stacey DelVecchio, Principal, StaceyD Consulting, LLC; *Retired* Additive Manufacturing Product Manager, Caterpillar
- Mark Norfolk, President and CEO, Fabrisonic
- Brian Papke, Executive Advisor to the Board, Mazak Corporation

3:50 PM - 4:20 PM ✧ Technology Showcase Networking Break

Sponsored by HTS Incorporated

4:20 PM - 4:35 PM ✧ Remarks: Driving an Integrated Strategy for U.S. Industry and National Labs

- Thomas Kurfess, Chief Manufacturing Officer, Oak Ridge National Laboratory

4:35 PM – 4:40 PM ✧ [video] Remarks from U.S. Senator Susan Collins, Maine

4:40 PM - 5:30 PM ✧ Carbon Fiber, Composites, and Bio-Derived Materials

DOE's national laboratories leverage expertise in synthesis and characterization to develop new materials and manufacturing processes that lower costs, increase material performance, and turn byproducts into valuable coproducts for industry. Research efforts include development of carbon fiber made from textile material and creating renewable materials for 3D printing from poplar, bamboo and other plants. This panel will discuss current materials research and development with applications for a range of industries.

Moderator: John A. Hopkins, CEO, IACMI-The Composites Institute

Panelists:

- Dan Casey, Chairman and Acting President, Guardian Manufacturing Company
- Leo Christodoulou, Senior Director to the Office of the Chief Technologist and Chief Technologist for Additive Manufacturing, Boeing
- Habib Dagher, Executive Director of Advanced Structures and Composites Center, University of Maine
- Natalie Rudolph, Director of Material and Process Development, AREVO, Inc.

5:30 PM - 7:30 PM ✧ Technology Showcase Networking Reception

Sponsored by AMD and Cray

- Featured Speaker: Bill Lee, Governor, State of Tennessee
Introduced by Thomas Zacharia, Director, Oak Ridge National Laboratory



DAY 2 – May 8, 2019

CHECK-IN: 8:00 AM TO 8:30 AM

8:00 AM - 8:30 AM ✧ Technology Showcase Networking Breakfast

Continental breakfast provided

8:30 AM-8:35 AM ✧ Welcoming Remarks

- Michelle Buchanan, Deputy for Science and Technology, Oak Ridge National Laboratory

8:35 AM - 8:50 AM ✧ Opening Remarks: Lab Facilities and the Workforce of the Future

- Paul Dabbar, Under Secretary for Science, U.S. Department of Energy
Introduced by Johnny Moore, Manager of Oak Ridge Site Office, U.S. Department of Energy

8:50 AM - 9:40 AM ✧ Developing Talent to Win the Future Skills Race

The United States must take steps to ensure that its citizens have access to the skills needed by industries adopting advanced manufacturing techniques. This panel will highlight several prominent workforce development initiatives across the country.

Moderator: Deborah Wince-Smith, U.S. Council on Competitiveness

Panelists:

- Randy Boyd, President, University of Tennessee
- Gardner Carrick, Vice President of Strategic Initiatives, The Manufacturing Institute at the National Association of Manufacturers
- Tommy Gardner, Chief Technology Officer, HP Federal Inc.

9:40 AM - 10:20 AM ✧ Energizing the Entrepreneurial Economy in Advanced Manufacturing

Startup companies can play a key role in bringing new advanced manufacturing technologies to the marketplace. DOE sponsors three Lab-Embedded Entrepreneurship Programs (LEEP) at Berkeley, Argonne, and Oak Ridge, offering two-year entrepreneurial fellowships that include stipends, research and development funding, and business model development and mentoring. This panel will highlight the journey of one entrepreneur from each of the DOE LEEP programs.

Moderator: Adam Bazih, Executive in Residence, Kairos Ventures

Panelists:

- Erica Boeing, Founder and CEO, Accelerate Wind
- Chris Kaffer, Co-Founder and CEO, Mallinda, Inc.



- Matt Smith, Co-Founder and CEO, TCPoly

10:20 AM - 10:50 AM ✧ Technology Showcase Networking Break

Sponsored by AMD

10:50 AM - 11:15 AM ✧ Feature Presentation:

Gamification of Engineering: The Automatic Manufacturing Opportunity

Mike “Mouse” McCoy, CEO, Co-Founder and Creative Director, Hackrod

11:15 AM - 12:25 PM ✧ Accelerating Technology Transformation and Commercialization

The unique capabilities, expertise and innovations found at the DOE National Laboratories make them ideal partners for companies seeking to adopt the latest advanced manufacturing technologies. In this session, Conner Prochaska, the DOE Chief Commercialization Officer, will provide an overview of recent industry / laboratory collaborations and lead a fireside chat with three National Laboratory directors and representative industry partners exploring how industry and the national laboratories can most effectively engage.

Speaker: Conner Prochaska, Chief Commercialization Officer and Director, Office of Technology Transitions, U.S. Department of Energy

Announcement: ORNL/Industry CRADA signing ceremony

Fireside Chat: Partnering with the National Labs

- Mike Fetcenko, President, MAF Battery Consulting, LLC
- Paul Kearns, Director, Argonne National Laboratory
- Tom Matthews, Senior Vice President for Technology and Research and Development, Lincoln Electric
- Eric Panning, Engineering Manager, Intel Corporation
- Ravi Prasher, Associate Lab Director, Lawrence Berkeley National Laboratory
- Thomas Zacharia, Director, Oak Ridge National Laboratory

12:25 PM - 12:30 PM ✧ Closing Remarks

- Thomas Zacharia, Director, Oak Ridge National Laboratory

