

## Session Chairs

### Mike Benzakein

*Professor and Director, Executive Partnerships in Aerospace, Aviation and Flight*

Mike is a Wright Brothers Institute Professor, Director of the Propulsion and Power Center at Ohio State, a position he assumed in 2010 after completing a five-year tenure as Chair of the University's Aerospace Engineering Department, and Director, Executive Partnerships in Aerospace, Aviation and Flight at Ohio State, his latest position he assumed in 2013. Mike came to Ohio State in early 2005 after retiring from General Electric, where he led research efforts in computational aerodynamics, aeroacoustics, aeromechanics, and combustion. He is a member of the National Academy of Engineering, a fellow at the American Institute of Aeronautics and Astronautics, and a fellow of the Royal Aeronautical Society. He received the Gold Medal of Honor from the Royal Aeronautical Society in 2001 and is recipient of the GE Chairman Leadership Award for Technology and the AIAA Reed Aeronautics Award. He has served on many national academy, industry, and government advising panels and received an honorary doctorate from the University of Poitiers, France, in 2006.



Mike Benzakein

### Kate Bartter

*Interim Director, Office of Energy and Environment (OEE)  
Special Assistant to the Vice President of Research*

As Interim Director, Kate leads the OEE's mission to lead, promote and integrate sustainability across the enterprise of Ohio State, including academics, students, research, campus operations and outreach. She also chairs the President's and Provost's Council on Sustainability. Prior to joining Ohio State, Kate served as the Chief Policy Advisor and Director of Cabinet Affairs for Ohio Governor Bob Taft. In that capacity, she managed the Governor's policy staff, directed cabinet relations, coordinated inter-agency issues including strategic planning, and oversaw the operation of Governor Taft's Washington, D.C. office.



Kate Bartter

### Michael Heil

*President and Chief Executive Officer, Ohio Aerospace Institute*

Michael was appointed president and CEO of the Ohio Aerospace Institute in 2007. Previously, he had a distinguished career in the U.S. Air Force, retiring at the rank of Colonel in 2005. Michael received a doctorate in aerospace engineering from the Air Force Institute of Technology in 1986. His Air Force service includes engineering duties on the F-15 and program management on the C-17 and Advanced Cruise Missile. Michael was commander of the Phillips Laboratory and Arnold Engineering Development Center, commandant of the Air Force Institute of Technology, and special assistant to the commander of the Air Force Research Laboratory. As director of the Air Force Research Laboratory's Propulsion Directorate, he oversaw facilities valued at more than \$2.1 billion and led the efforts of more than 1,000 scientists, engineers, and staff.



Michael Heil

### Scott Shearer

*Professor and Chair, Food, Agricultural and Biological Engineering*

Dr. Scott A. Shearer received formal training in agricultural engineering from The Ohio State University and was awarded B.S., M.S. and Ph.D. degrees in '81, '83 and '86. His current research activities include autonomous, multi-vehicle field production systems. Initially, much of his work involved spectral and spatial image processing for the extraction of spatial and spectral features for classifying agricultural settings; and sensing of plants, chlorophyll content and commodity quality. He has lead or cooperated in research supported by more than \$8M in grants; authored or coauthored more than 170+ refereed journal articles, conference proceedings, and technical publications; and has made numerous invited presentations at extension meetings, workshops, farmer forums, and outreach events.



Scott Shearer

## Dinner Keynote Speaker

### James Free

*Director, National Aeronautics and Space Administration's John H. Glenn Research Center*

In his position, James is responsible for planning, organizing and directing the activities required in accomplishing the missions assigned to the Cleveland, Ohio, center. There, John Glenn is engaged in research, technology and systems development programs in space propulsion, space power, space communications, aeronautical propulsion, microgravity sciences and materials. Prior to accepting the Director position, James served as Glenn's deputy director since November 2010. He is the recipient of a NASA Outstanding Leadership Medal, NASA Exceptional Service Medal, NASA Significant Achievement Medal and numerous other awards. James, a native of Northeast Ohio, earned his bachelor's degree in aeronautics from Miami University in Oxford, Ohio and his master's degree in space systems engineering from Delft University in the Netherlands.



James Free

## About The Ohio State University

**The Ohio State University is a public research university with the central campus located in Columbus, Ohio.**

Originally founded in 1870 as a land-grant university, Ohio State is currently the third largest college campus in the United States. It has been designated the flagship institution of Ohio's public universities by the newly centralized University System of Ohio. Research facilities include the Aerospace Research Center; the Center for Design and Manufacturing Excellence; home of the US Lightweight Modern Metals Institute; the Byrd Polar Research Center; Center for Automotive Research (OSU CAR); Chadwick Arboretum; Biological Research Tower; Electrosience Laboratory; Large Binocular Telescope (LBT, originally named the Columbus Project); Mershon Center for International Security Studies; Stone Laboratory on Gibraltar Island, Ohio; and Ohio Agricultural Research and Development Center. Ohio State has nearly 500,000 living alumni located around the world, and its graduates include Nobel Prize, Pulitzer Prize, and Medal of Honor recipients, ambassadors, Fortune 500 CEOs, and members of the Forbes 400 list of the world's wealthiest individuals.



**THE OHIO STATE UNIVERSITY**

## About the Institute of Aviation

**Founded in 1926, the Institute of Aviation is one of the oldest research establishments**

**in Europe.** Over the course of its 88 years history, the Institute has become a permanent feature on the economic landscape of Poland and Europe. Its main assets are its highly qualified staff and modern laboratories accredited by internationally recognized institutions. The Institute of Aviation is a member of a number of international organizations and associations concerned with aviation, such as EREA (Association of European Research Establishments in Aeronautics). The institute is also active in organizing international conferences and symposia as well as coordinating global research projects. It consists of four research centers: New Technologies Center, Materials and Structures Research Center, Center of Space Technologies, and Engineering Design Center.



## Organizing Committee

- |  |                                       |
|--|---------------------------------------|
| M.J. Benzakein, The Ohio State University                                  | K. Bartter, The Ohio State University |
| J. Shields, The Ohio State University                                      | A. Olejniczak, Institute of Aviation  |
| G. Osypowicz, Foundation of Innovations Exchange in Science and Technology | M. Winter, Pratt & Whitney            |
| W. Wiśniowski, Institute of Aviation                                       | E. Baehre, GE Aviation                |

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# The 14<sup>th</sup> Polish-American Conference

ON SCIENCE AND TECHNOLOGY

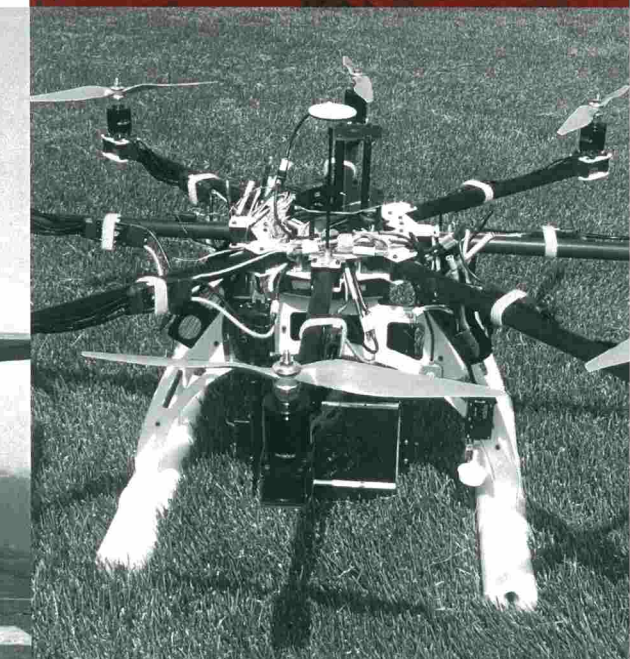
May 14 - May 16, 2014

Blackwell Inn

Columbus, OH

Hosted by The Ohio State University and the Institute of Aviation

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# Welcome

The 14th Polish-American Conference is a collaboration forum for the advancement of science and technology. It brings together high-level scientists and engineers from the United States and Poland who are committed to the idea of building cooperation and strengthening Polish-American ties. Our collective goal is to exchange ideas and bring forth a partnership in the areas of innovation and high technologies. Together we will explore four major themes:

- **Aerospace Technologies**
- **Defense and Military Technologies**
- **Energy Research and Development**
- **Precision Agriculture—A Look into the Future**

## Agenda

### Wednesday, May 14

6:30 p.m. - 8:30 p.m. **Welcome Reception at The Blackwell Inn** (Ballroom A)  
Drinks and appetizers will be served



### Thursday, May 15

7:30 a.m. - 8:00 a.m. **Registration and Buffet Breakfast at The Blackwell Inn** (Ballroom A)  
Presentations occurring in Ballroom B and C

8:00 a.m. - 11:00 a.m. **Opening Remarks**  
David Williams, Dean in the College of Engineering, The Ohio State University

#### Welcome Address

Grażyna Henclewska, Deputy Minister, Ministry of Economy, Warsaw

#### Aerospace Technologies Session

Chair, Mike Benzakein, The Ohio State University  
Gary Moscarino, Manager, GE Aviation  
*"GE Aviation's European and Polish footprint expansion with Avio"*

Jerzy Banaszek, Dean, Warsaw University of Technology  
*"Industry oriented research and education at Warsaw University of Technology"*

Mike Ambrose, Vice President, Sikorsky Aircraft  
*"Sikorsky PZL Engineering Transforming for the Future"*

Stephen Van Trees, Team Lead, Federal Aviation Administration  
*"Integration of Unmanned Aircraft Systems (UAS) in the US National Airspace System (NAS)"*

Catalin Fotache, Group Manager, United Technology Corporation  
*"United Technologies Research Center Presence in the EU"*

Michał Nowak, Professor, Poznań University of Technology  
*"Biomimetic Optimization of Aircraft Structure"*

Cezary Szczepański and Wiesław Wróblewski, Professors, Wrocław University of Technology  
*"Wrocław University of Technology research and didactic potential in aerospace"*

11:00 a.m. - 11:15 a.m. **Break with refreshments and snacks**

#### Aerospace Technologies Session Continued:

11:15 a.m. - 1:00 p.m. Michael Dunn, Professor, The Ohio State University  
*"Discussion of the OSU Gas Turbine Laboratory"*

Witold Wiśniowski, President and CEO, Institute of Aviation  
*"Conception of PhD Studies at the Institute of Aviation in Warsaw"*

11:15 a.m. - 1:00 p.m. (continued) Danut Cretu, Director, United Technology Corporation  
*"United Technologies Aerospace Systems presence in Poland"*

Michał Woelke, Manager, GE Poland  
*"Development of turbofan engines main shaft bearing testing capabilities to leverage airworthiness"*

Marek Morzyński, Professor, Poznań University of Technology  
*"Computational Mechanics—from Supercomputing to Reduced Order Models in Science and Teaching"*

Piotr Wolanski, Professor, Institute of Aviation  
*"Development of the auxiliary rocket propulsion system for satellites and spacecrafts"*

1:00 p.m. - 2:00 p.m. **Lunch** (Ballroom A)

#### Keynote Speaker

Alex Simpson, Leads Advanced Products Team, GE Aviation  
*"Global Collaboration"*

2:00 p.m. - 3:30 p.m. **Energy Research and Development Session**

Chair, Kate Bartter, The Ohio State University  
Jeff Daniels, Professor, The Ohio State University  
*"Advances and partnerships in shale energy research"*

Robert Blobaum, Professor, West Virginia University  
*"The State of Shale Energy Collaboration with Poland"*

Bill Wolfe and Tarunjit Butalia, Professors, The Ohio State University  
*"Coal Combustion Byproducts"*

3:30 p.m. - 3:45 p.m. **Break with refreshments and snacks**

3:45 p.m. - 5:30 p.m. **Energy Research and Development Session Continued**

Jeff Sarver, Technical Consultant, Babcock & Wilcox  
*"Advanced Ultrasupercritical Developments"*

William Wang, Research Associate, The Ohio State University  
*"Advances in Chemical Looping"*

David W. Gandy, Technical Executive, Electric Power Research Institute  
*"Developments in Nuclear Power"*

Richard Denning, Professor, The Ohio State University  
*"Nuclear Power both Modular and Full Scale"*

6:00 p.m. **Bus Pick up at The Blackwell Inn** (outside of lobby)

6:30 p.m. - 9:30 p.m. **Dinner at Franklin Park Conservatory**  
Drinks and appetizers will be served from 6:30 - 7:30 p.m.  
Seated dinner at 7:30 p.m.



#### Keynote Speaker

James Free, Director, NASA Glenn Research Center

### Friday, May 16

8:00 a.m. - 8:30 a.m. **Registration and Buffet Breakfast at The Blackwell Inn** (Ballroom A)  
Presentations occurring in Ballroom B and C

8:30 a.m. - 10:00 a.m. **Defense and Military Technologies Session**

Chair, Michael Heil, Ohio Aerospace Institute  
Andrzej Białas, Professor, Institute of Innovative Technologies EMAG, Katowice  
*"Computer aided IT security development"*

Adam Bartosiewicz, Vice President, WB Electronics SA  
*"C4I Solutions for Military and Homeland Security—Synergy Aspects"*

8:30 a.m. - 10:00 a.m. (continued) Col. Eugeniusz Cieślak, Director and Professor, National Defense University, Warsaw  
*"Poland's Armed Forces Technical Modernization, Long Term Perspective"*

Wojciech Komorniczak, Director, WB Electronics SA  
*"Unmanned Aircraft Systems Family—Defense Industry of Poland Joint Effort"*

10:00 a.m. - 10:15 a.m. **Break with refreshments and snacks**

10:15 a.m. - 12:00 p.m. **Defense and Military Technologies Session Continued**

Aleksander Nawrat, Professor, OBRUM Polish Defense Holding  
*"Military Simulation Center for CEE region—cooperation possibilities"*

Col. Ret. Ryszard Piwowarczyk, Military Academy of Technology  
*"Role of Poland in the field of air transport security—CAI—CAPC—AVSEC"*

Adam Wisniewski, Professor, Military Institute of Armament Technology  
*"Optimization of the material systems with shear thickening fluids"*

Paweł Pietrasinski, Minister—Counselor, Embassy of Poland, Washington DC  
*"The Polish Ministry of Economy Silicon Valley Initiative—building transatlantic technology bridges"*

12:00 p.m. - 1:00 p.m. **Lunch** (Ballroom A)

#### Keynote Speaker

Michael Winter, Chief Engineer for Technology, Pratt & Whitney  
*"Innovations in the Infrastructure of Society"*

1:00 p.m. - 3:00 p.m. **Precision Agriculture Session**

Chair, Scott Shearer, The Ohio State University  
Scott Shearer, Professor and Chair, The Ohio State University  
*"Precision Agriculture and Opportunities for Data Analytics"*

Danuta Sosnowska, Professor, Institute of Plant Protection—National Research Institute, Poznań  
*"Precision Agriculture in Polish Integrated Plant Protection"*

Andrew Klopfenstein, Graduate Associate, The Ohio State University  
*"Evaluation of Planter Adjustments and their Effect on Corn Emergence and Uniformity"*

Arkadiusz Niedziółka, Professor, University of Agriculture, Krakow  
*"State and prospects of precision agriculture development in Poland"*

Dustin Wolters, Graduate Fellow, The Ohio State University  
*"In-Field Logistics Analysis of Single vs. Multiple Machines on a Harvesting Operation"*

3:00 p.m. - 3:15 p.m. **Break with refreshments and snacks**

3:15 p.m. - 5:00 p.m. **Precision Agriculture Session Continued**

Jan Szczepaniak, Professor, and Paweł Dudziński, MSc. Eng, Industrial Institute of Agricultural Engineering  
*"Quality research of dosage and subsurface application of big-sized granules fertilizer during strip-till for sowing of maize"*

Brittany Schroeder, Graduate Associate, The Ohio State University  
*"Life Cycle Assessment for Evaluation of CO<sub>2</sub> and Energy Use in Agriculture Field Machinery"*

Mariusz Dacko, Professor, University of Agriculture, Krakow  
*"Precision Agriculture as an Element of Sustainable Development of Farms"*

Piotr Rusek, Professor, Fertilizer Research Institute  
*"Studies of Technology of Urea Superphosphate Fertilizer in the Continuous Dosing of Raw Materials"*

Rafał Pudelko, Professor, Institute of Soil Science and Plant Cultivation  
*"UAV remote sensing with mobile ground control—new approach to field monitoring"*

5:00 p.m. **Closing remarks**

Mike Benzakein, Professor, The Ohio State University