ENABLING SUSTAINABILITY THROUGH AEROSPACE TECHNOLOGY

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When you integrate data from every domain, 
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The American Institute of Aeronautics and Astronautics (AIAA) is the world’s largest aerospace technical society. With nearly 30,000 individual members from 91 countries, and 100 corporate members, AIAA brings together industry, academia, and government to advance engineering and science in aviation, space, and defense. For more information, visit aiaa.org, or follow AIAA on Twitter, Facebook, or LinkedIn.

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#aiaaSciTech
The 2022 AIAA SciTech Forum Executive Steering Committee welcomes you to San Diego and online! We have worked hard this past year curating exciting and thought-provoking content around the forum theme, Enabling Sustainability Through Aerospace Technology. We hope these industry leaders, topics, and discussions inspire you! Make it a great week!
Electrical and Aerospace Engineering

Elena Garcia

ELECTRIC AIRCRAFT TECHNOLOGY

Jason Frieman

ELECTRIC PROPULSION

Rafael Palacios

Martin Company

WILLIAM A. WELSH

DYNAMICS SPECIALISTS

Olivia Pinon Fischer, Georgia Institute of Technology

Olivia Pinon Fischer

D慕NITIACs SPECIALISTS

William A. Welsh, Sikorsky, A Lockheed Martin Company

Natalie Straup, The Boeing Company

ELECTRICAL ENGINEERING

ELECTRIC AIRCRAFT TECHNOLOGY

Elena Garcia, Georgia Institute of Technology

ELECTRIC PROPULSION

Jason Frieman, NASA Glenn Research Center

Michael Martin, Lynntech Inc.

ENERGETIC COMPONENTS AND SYSTEMS

James Baglini Jr., Northrop Grumman Corporation

Stephanie Sawhill, Systima Technologies

FLIGHT TESTING

Cody Hyndick, Lockheed Martin

Andy Freeborn, USAF Test Pilot School

Joe Nichols, Raytheon Technologies

FLUID DYNAMICS

James Chen, University at Buffalo - State University of New York

Aaron Towne, University of Michigan

GAS TURBINE ENGINES

Veeraraghava Raju Hasti, Purdue University

Joel Rodriguez, Technical Directions Inc.

GREEN ENGINEERING

Nathan Hicks, The Boeing Company

Tarek Abdel-Salam, East Carolina University

GROUND TESTING

Carl Jauch, Calspan ASE

Elizabeth Rieken, NASA Langley Research Center

GUIDANCE, NAVIGATION, AND CONTROL

Mrunal Kumar, Ohio State University

Michael B. McFarland, Raytheon Company

Kamesh Subbarao, University of Texas at Arlington

HIGH-SPEED AIR-BREATHEING PROPULSION

Thomas R. Smith, The Boeing Company

Friedolin T. Strauss, German Aerospace Center (DLR)

HISTORY

Kevin Burns, Retired

HYBRID ROCKETS

Matthew Hitt, U.S. Army Space and Missile Defense Command

Trevor Elliott, University of Tennessee at Chattanooga

INFORMATION AND COMMAND AND CONTROL SYSTEMS

Jimmie McEwen, Johns Hopkins University Applied Physics Laboratory

Mike Sotak, Kratos Defense

Ali Raz, George Mason University

INLETS, NOZZLES, AND PROPULSION SYSTEMS INTEGRATION

Durrell Rittenberg, Siemens Digital Industries

Vimal Acharya, Georgia Institute of Technology

INTELLIGENT SYSTEMS

Anjan Chakrabarty, NASA Ames Research Center

Liang Sun, New Mexico State University

LIQUID PROPULSION

Matt Quinlan, University of Colorado Colorado Springs

Naveen Vetcha, ERC Inc./Jacobs Space Exploration Corp.

MATERIALS

Jessica Piness, Redwire Space

Marianna Maiaru, University of Massachusetts Lowell

MESHING, VISUALIZATION, AND COMPUTATIONAL ENVIRONMENTS

James Masters, AEDC

MODELING AND SIMULATION TECHNOLOGIES

Shafagh Jafer, Embry-Riddle Aeronautical University

Thomas Powelson, Lockheed Martin

MULTIDISCIPLINARY DESIGN OPTIMIZATION

Michael Henson, Lockheed Martin Aeronautics

Felipe Viana, University of Central Florida

NON-DETERMINISTIC APPROACHES

Zhen Hu, University of Michigan-Dearborn

Diane Villanueva, The MITRE Corporation

PLASMADYNAMICS AND LASERS

Daoru Han, Missouri University of Science and Technology

Carmen Guerra-Garcia, Massachusetts Institute of Technology

PRESSURE GAIN COMBUSTION

Myles Bohon, Technical University of Berlin

Donald Ferguson, National Energy Technology Laboratory (NETL)

PROPPELLANTS AND COMBUSTION

Tomasz Drozda, NASA Langley Research Center

Jeffrey J. Murphy, The Aerospace Corporation

SENSOR SYSTEMS AND INFORMATION FUSION

Scott Swanson, Lockheed Martin Aeronautics

Ric Moreley, Lockheed Martin Aeronautics

SMALL SATELLITES

Scott Palo, University of Colorado Boulder

Kerri Cahoy, Massachusetts Institute of Technology

SOCIETY AND AEROSPACE TECHNOLOGY

Amir Gohardani, Springs of Dreams Corporation

SOFTWARE

Michael Rubin, Red Canyon Software

SOLID ROCKETS

Reid Young, Northrop Grumman

Wesley Ryan, NASA Kennedy Space Center

SPACE EXPLORATION

Surendra P. Sharma, NASA Ames Research Center

Ram Ramachandran, Jacobs

SPACE OPERATIONS AND SUPPORT

Christopher R. Simpson, University of Alabama/Department of Navy

Jillian Redfern, Southwest Research Institute

SPACExCRAFT STRUCTURES

Eleftherios Gdoutos, California Institute of Technology

Kawai Kwok, University of Central Florida

SPACEFLIGHT MECHANICS

Juan Arrieta, Nabla Zero Labs

Kamesh Subbarao, University of Texas at Arlington

STRUCTURAL DYNAMICS

Michael Ross, Sandia National Laboratories

Anubhav Datta, University of Maryland

STRUCTURES

Vijay K. Goyal, Lockheed Martin

SURVIVABILITy

David Lazara, The Boeing Company

TRANSFORMATIONAL FLIGHT

Tony Di Carlo, The Boeing Company

Carrell McAllister, Joint Aircraft Survivability Program Office

SYSTEMS ENGINEERING

John C. Hsu, California State University, Long Beach

Samantha Infeild, NASA Langley Research Center

TERRESTRIAL ENERGY

Tarek Abdel-Salam, East Carolina University

Bhupendra Khandelwal

THERMOPHYSICS

Kevin Weed, Ball Aerospace

Robert Tramel, Kord Technologies

TRANSFORMATIONAL FLIGHT

Anthony Linn, A. B. Linn PE

Satadru Roy, Georgia Institute of Technology

UNMANNED SYSTEMS

Omar Kassim Ariff, University of Salford

WIND ENERGY

Kelsey Shaler, National Renewable Energy Laboratory

Brent Houchens, Sandia National Laboratories
Delivering revolutionary UAS systems for automated situational awareness, tracking, targeting and multi-domain operations.

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# FORUM OVERVIEW

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<thead>
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<th>MONDAY 3</th>
<th>TUESDAY 4</th>
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<tr>
<td>0730 hrs</td>
<td>Speaker Briefing</td>
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<td>Forum 360</td>
<td>Rising Leaders Speed Mentoring</td>
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<td>Meet the Employers</td>
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<td>Trivia Night</td>
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<td>Associate Fellows Induction Ceremony and Reception</td>
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<td>1900 hrs</td>
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# Forum Overview

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<td>Luncheon in Exposition Hall</td>
<td>Rising Leaders Lunch Panel</td>
<td>SciTech Forum Awards Luncheon</td>
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<td>Women at SciTech Social Hour and Keynote</td>
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**Want to watch virtual events while on site?**

Head to the 33rd floor to watch virtual sessions, network, and relax with fellow attendees.
ONLINE PLATFORM TOUR

virtualscitech.aiaa.org

1. Schedule
View and favorite upcoming sessions, or join live sessions straight from the Schedule page. Be sure to adjust your time zone or filter for specific features. Multiple sessions within one time slot? Click the “+” at the bottom left of the card and those sessions will expand. After a session occurs, the on-demand recordings will be available on the same session card.

2. Exhibitors
Sharpen your skills and see the latest and greatest products and offerings from cutting-edge companies and organizations. Be sure to check out all our supporting sponsors and partners!

3. Attendee List
Looking for an old colleague or friend? Those who have opted in to having their profile shared will be displayed here. You’ll also have the ability to send a direct message if they have that feature turned on. Click on the top right circle to update your profile or permissions on your profile page.

4. Topics/Contributors/Speakers
Explore all the AIAA SciTech program has to offer through topic listing and descriptions, contributors, and speaker lists.
COVID-19 HEALTH & SAFETY PROTOCOLS

aiaa.org/SciTechHealthSafety

The health and safety of all participants is AIAA's top priority as we come back together in person. For everyone’s protection, in conjunction with the facility, we have put the following protocols in place.

AIAA has partnered with InHouse Physicians (IHP) to provide a comprehensive COVID health security solution for on-site participants. IHP will be managing the proof of vaccination or COVID test uploads, the daily health screenings, as well as help administer our check-in verification points and provide on-site medical support and clinicians. Please be on the lookout for correspondence from IHP via text and email.

**Required**
- Proof of full vaccination or negative COVID test taken and uploaded 72 hours prior to your arrival
- Completion of Daily Health Screening — look for the email or text each morning or scan QR code below
- Get vetted for forum participation each day at one of the check-in stations
- Masks worn while indoors except when actively eating or drinking
- Speakers at the podium may be unmasked while speaking*

**General Health and Safety Precautions**
- Social distancing will be observed as much as possible within the facility
- Please be respectful of each individual's personal space and comfort level — there are green, yellow, red, and orange ribbons to indicate your level of comfort should you choose to wear them
- Food and beverage will be provided using attendants or in individual packaging where possible
- Masks are available at the registration table and hand sanitizer stations are placed around the facility

Contact an AIAA staff member or email carmelab@aiaa.org with any questions or issues.

*May be subject to change based on recent state guidelines.
This multidimensional program features speed mentoring, panel session, Q&A with top industry leaders, and multiple opportunities for networking. These exciting and energetic activities will provide access to top aerospace leaders and their perspectives, with subject matter relevant to your career stage.

**SUNDAY, 2 JANUARY**

**Meet the Employers**
1600–1800 HRS  
SEAPORT G & H
This event offers students and young professional attendees the opportunity to meet AIAA corporate members regarding employment opportunities.
All students and young professionals are invited to attend. There is no cost to participate and forum registration is not required.

**Student Welcome Mixer**
1830–1930 HRS  
BACKYARD AT THE POOL DECK
AIAA SciTech Forum has the largest gathering of students of any of the AIAA forums. Join us at the Student Welcome Mixer to mingle with your peers and hear from AIAA leadership about the opportunities available to you as an AIAA student member. Games, entertainment, and light fare will be provided! A cash bar will be available to students age 21 and over with a valid ID. *(Proof of student registration required.)*

**SciTech 101**
1930–2000 HRS  
HILLCREST, A-D
Discover how you can make the most of your week at AIAA SciTech Forum while meeting fellow attendees. This orientation is ideal for first-time attendees, but all are welcome!

**TUESDAY, 4 JANUARY**

**Speed Mentoring**
1430–1630 HRS  
SEAPORT G&H
Leaders in the aerospace industry will take time to meet with the Rising Leaders participants and share their experiences. This event is a great way to get insight and make new contacts.

**WEDNESDAY JANUARY 5**

**Build Your Professional Toolkit: Elevator Pitch Workshop**
1000–1100 HRS  
SEAPORT G&H
Women of Aeronautics & Astronautics (WoAA) is hosting a workshop to provide students and early-career professionals with help regarding one of the most important tools in their professional development toolbox: the elevator pitch. The workshop will involve an expert speaker who will discuss the importance of an elevator pitch as well as tips for an effective elevator pitch. Subsequently, attendees will take turns giving each other their elevator pitches while receiving peer feedback.

**Lunch Panel: Start-Ups: Surviving Amongst Aerospace Giants**
1230–1400 HRS  
SEAPORT G&H
A lively panel discussion on breaking the stigma around employment in start-ups for young people and how start-up culture can drive change in industry. Limited boxed lunches available for the first 120 attendees.
POST-FORUM ACTIVITIES

CONTINUING EDUCATION OFFERINGS
Stay at the top of your game with AIAA’s continuing education offerings. You will leave with invaluable knowledge and solutions that you can put to immediate use.

COURSES

SATURDAY, 8 JANUARY

**Computational Aeroelasticity Course**

0800–1700 HRS  GOLDEN HILL A *HYATT

This one-day short course covers concepts and terminology associated with aeroelasticity, including structural dynamics, unsteady aerodynamics, aeroservoelasticity, and recent developments such as computational reduced-order models.

**Hypersonics: Test and Evaluation Course**

0800–1700 HRS  HILLCREST A-B *HYATT

This course introduces students to high speed and hypersonic test.

SAT. & SUN 8–9 JANUARY

**Aircraft and Rotorcraft System Identification Engineering Methods with Hands-on Training Using CIFER® Course**

0800–1730 HRS  HILLCREST C-D *HYATT

This comprehensive course will review the fundamental methods of manned and UAV aircraft and rotorcraft system identification for determining flight dynamics and control models from test data with hands-on training using CIFER®.

**Spacecraft Design, Development, and Operations Course**

0800–1700 HRS  GOLDEN HILL B *HYATT

This two-day course presents an extensive and coherent treatment of the fundamental principles involved with the interdisciplinary design of spacecraft.

WORKSHOPS

FRIDAY, 7 JANUARY

**Combined 4th AIAA CFD High Lift Prediction Workshop and 3rd AIAA Geometry and Mesh Generation Workshop (HLPW-4/GMGW-3)**

0700–1800 HRS  POINT LOMA & SOLANA *MARRIOTT
                  SANTA ROSA *MARRIOTT

For a second time, the high-lift prediction and geometry and mesh generation groups are combining efforts in an all-inclusive joint workshop that seeks to understand and improve our ability to model, mesh, and simulate high-lift flows in an accurate and consistent manner.

SAT. & SUN 8–9 JANUARY

**High Fidelity CFD Workshop**

0800–1700 HRS  MISSION BEACH A-C *HYATT

This workshop, focused on exploring high-fidelity CFD methodologies, is made up of five different test suites.
MONDAY, 3 JANUARY

Plenary Session: Sustainability from the User’s Perspective

0800–0900 HRS  SEAPORT A-E

Brig. Gen. Johnson’s career spans both the military and commercial aviation sectors. As a former Air Force command pilot and UPS Chief Pilot, he’ll reflect on his experiences as an operator of the end-products resulting from advances in aerospace, focusing on product and supply chain sustainability and the economic impact. As a career Air Force officer and the Immediate Past President of Tuskegee Airmen, Inc., he’ll share his thoughts on resilience and determination that lead to human sustainability.

MODERATOR: Rickey Shyne, Director, Research and Engineering, NASA Glenn Research Center


Embracing Sustainability

0930–1100 HRS  SEAPORT F

Sustainability has many challenges to acceptance, and many are based in fundamental human, social, and economic attributes. This panel will explore the historical, psychological, sociological, and economic incentives and disincentives to embracing sustainability.

MODERATOR: Pradeep K. Khosla, Chancellor, University of California San Diego

PANELISTS:
Laurette Lahey, Senior Director of Flight and Vehicle Technology, Boeing Research and Technology
Jennifer Murphy, Founder and CEO, Quantum Improvements Consulting

Sustainability Throughout the Value Stream

1430–1600 HRS  SEAPORT F

Each element of the value stream contributes to the overall sustainability of aerospace products. This panel will explore the conversations from the perspective of some elements of the value stream.

MODERATOR: Christopher Geiger, Director, Enterprise Risk and Sustainability, Lockheed Martin

PANELISTS:
Slade Gardner, President and Founder, Big Metal Additive
Marilyn Gaska, LM Fellow, Operations and Sustainment, Research and Technology, Lockheed Martin
Cam Murphy, President, FEAM
Brendan Reed, Director, Airport Planning & Environmental Affairs, San Diego Airport Authority

TUESDAY, 4 JANUARY

Plenary Session: Fireside Chat: Exceptional Mission, Exceptional Talent

0800–0900 HRS  SEAPORT A-E

Exceptional missions require exceptional talent. Reflecting on their experiences, these three leaders will consider what the aerospace workforce needs to solve the big challenges of the future.

MODERATOR: Laura J. McGill, Deputy Laboratories Director, and Chief Technology Officer, Nuclear Deterrence, Sandia National Laboratories; AIAA President-Elect

PANELISTS:
Victoria Coleman, Chief Scientist, U.S. Air Force
Vanessa Wyche, Director, NASA Johnson Space Center
Fostering a Sustainable Workforce

What does it mean to sustain the aerospace industry workforce? This panel will consider the education, career paths, skills, and training needed now to meet the industry demands and challenges of the future.

MODERATOR: Michael Gazarik, Vice President, Engineering, Ball Aerospace

PANELISTS:
James Gregory, Dean, College of Engineering, Embry-Riddle Aeronautical University
Lynne Hopper, Vice President and General Manager, Engineering Strategy & Operations, The Boeing Company

2040: The Aerospace Workforce

Diversity is essential in building the aerospace workforce of the future. Not only do we need to be demographically diverse and inclusive, but we need skills adjacencies, diverse educational backgrounds, and new expertise. The panel will examine the makeup of the future workforce that will enable it to meet upcoming requirements.

MODERATOR: Chris Hernandez, Sector Vice President, Research, Technology and Engineering, Northrop Grumman Aerospace Systems (Ret.)

PANELISTS:
Albert (Al) Pisano, Professor and Dean, Jacobs School of Engineering, University of California, San Diego
Marilyn Smith, Professor and Director of Vertical Lift Research Center of Excellence, Georgia Institute of Technology
Ryan Tseng, Chief Executive Officer and Co-Founder, Shield AI

WEDNESDAY, 5 JANUARY
Plenary Session: From Jars to Stars

0800–0900 HRS
SEAPORT A-E

Today’s complex environmental challenges require innovative solutions that span the value chain. From supply chain circularity to space-based observations of a changing planet, technology is a key part of achieving our global ambitions on climate and sustainability. Ball Corporation and Ball Aerospace aim to address these global challenges by adopting a holistic approach, bridging worlds from aluminum recycling to satellite-based Earth observations and environmental intelligence. Learn how technology can connect different sectors and accelerate sustainable development.

MODERATOR: H. Kevin Rivers, Associate Center Director, Technical, NASA Langley Research Center

SPEAKER: Sara Axelrod, Director of Sustainability, Beverage Packaging North and Central America, Ball Corporation

Sustainability Through Innovation Diversification

0930–1100 HRS
SEAPORT F

Leveraging solutions from adjacent industries can lead to productivity and economic sustainability. Hear from experts on how they’ve pursued collaboration among industries to solve problems.

MODERATOR: Samantha Magill, Business Development Manager, Aeronautics Research Mission Directorate, NASA Langley Research Center

PANELISTS:
Steven N. Rader, Manager, NASA Center of Excellence for Collaborative Innovation
Óscar Rodríguez, President, Bajio Aerospace Cluster
Kirk Shireman, Vice President, Lunar Exploration Campaign, Lockheed Martin
Vikram Shyam, Futurist, NASA Glenn Research Center
Idea Challenge: Harvesting Emerging, Adjacent Technologies to Benefit Aerospace Technologies

1430–1630 HRS  SEAPORT F

Now in its third year, the AIAA Idea Challenge provides young professionals with the opportunity to develop a pitch for an idea or product that fits under the umbrella of “Harvesting adjacent industry technologies to support aerospace sustainability.” Teams comprising a mix of industry, government, and academic members will present their pitches during this session. Audience members can ask questions, evaluate the pitches, and choose the winning team.

MODERATOR: Michele Miller, Director, Missions and Systems Engineering, Ball Aerospace

TEAM LORAX: Ian Neunzig, Simplexity; Chloe Long, University of Colorado Boulder; Jaevyn Faulk, Ball Aerospace

TEAM REFRAME, RENOVATE, RENEW: Miriam Rosenshein, Ball Aerospace; Vickie Truong, Northrop Grumman; Christopher Kitson, nou Systems

TEAM DEBRIS BUSTERS: Kathy Vega, Ball Aerospace; Daniel Zeleznikar, NASA Glenn Research Center; Byron Frenkiel, University of Colorado Boulder

TEAM COPYCAT: Eric Leeker, Ball Aerospace; Jessica Cashman, NASA Glenn Research Center

TEAM CHIMNEY SWEEPS: Troy Cole, Ball Aerospace; Jennifer Bergeson, NASA Glenn Research Center; Spencer Dansereau, University of Colorado Boulder

THURSDAY, 6 JANUARY

Plenary Session: What Goes Up: Ensuring Sustainable Operations in the New Space Age

0800–0900 HRS  SEAPORT A-E

The skies above are becoming more crowded and more congested, heightening the need for coordinated efforts to tackle the complex challenges that threaten sustainable space operations. Join The Aerospace Corporation President and CEO Steve Isakowitz as he explores key issues across orbital debris, space traffic management, space situational awareness and more, as well as the potential ways forward to helping unlock a new era of human achievement in space.

MODERATOR: Karen Willcox, Director, Oden Institute for Computational Engineering and Sciences, University of Texas at Austin

SPEAKER: The Honorable Steven J. Isakowitz, President and CEO, The Aerospace Corporation

Operational Sustainability in Increasingly Congested and Heterogeneous Airspace

0930–1100 HRS  SEAPORT F

How do we improve the operation of the National Airspace System while integrating multiple modes of transportation (e.g., subsonic, supersonic, hypersonic, air taxis, UAVs, etc.)? Subject matter experts will discuss the tools and policies needed for effective and sustainable NextGen air traffic management.

MODERATOR: Cheryl Quinn, Deputy Director, Airspace Operations and Safety Program, Aeronautics Research Mission Directorate, NASA

PANELISTS:
Steve Bradford, Chief Scientist, NextGen, FAA
R. John Hansman, T. Wilson Professor of Aeronautics & Astronautics, Massachusetts Institute of Technology; Director, MIT International Center for Air Transportation
Wendy Okolo, Associate Project Manager, NASA’s System-Wide Safety Project
Tom Prevot, Air Taxi Product Lead, Joby Aviation
PLENARY & FORUM 360 SESSIONS

Operational Sustainability in Increasingly Congested and Heterogeneous Earth Orbits

1430–1600 HRS
SEAPORT F

The increase of launches, commercial activity, and satellite constellations brings increasing challenges for managing space traffic. This panel will discuss what the space sector can learn from air traffic management, what is the role of autonomous systems, and what policies and procedures are needed for managing debris challenges and promoting space safety.

Session sponsored by AIAA Aerospace

MODERATOR: Dana (Keoki) Jackson, Senior Vice President, General Manager, MITRE National Security

PANELISTS:
Craig Gravelle, Senior Director, Strategic Development, Space Systems and Technologies, General Atomics Electromagnetic Systems
Moriba Jah, Associate Professor of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin
Holger Krag, Head of Space Safety Programme Office, European Space Agency
Sandra Magnus, Principal, AstroPlanetview LLC
Marlon Sorge, Principal Engineer, Space Innovation Directorate, The Aerospace Corporation

Advancing an Environmentally Sustainable Aerospace Future

0930–1100 HRS
SEAPORT F

As society continues to focus on the global challenges of climate change, the aerospace industry is increasing its commitment to environmental sustainability. This panel will discuss how far the industry has come, how far it has to go, and what technologies and policies are needed to achieve an environmentally sustainable future.

MODERATOR: Robie I. Samanta Roy, Chief Operating Officer, Electra.aero

PANELISTS:
Matthew Eggers, Investor and Company Builder, Breakthrough Energy Ventures
Ezinne Uzo-Okoro, Assistant Director for Space Policy, Office of Science and Technology Policy
Brian Yutko, Chief Engineer, Sustainability and Future Mobility, The Boeing Company

AIAA Autonomous Systems Task Force Outbrief

1600–1700 HRS
SEAPORT F

The AIAA Autonomous Systems Task Force (ASTF), chartered to explore how AIAA could contribute to the advancement of autonomy across the spectrum of aerospace activity, will provide an outbrief on outcomes from its November 2021 Aerospace Autonomy Summit. The summit’s objective was to convene aerospace autonomy leaders and experts from government, industry, and academia to identify relevant aerospace autonomy stakeholders as well as salient policy, technical, and workforce issues.

SPEAKER: Glenn Kuller, AIAA Aerospace Autonomy Summit Lead

FOR MOST UP-TO-DATE SCHEDULE CHECK ONLINE
As we work to protect our planet, we also search for the next great idea. Boeing is proud to support those who are dedicated to finding new horizons.
# SPECIAL PROGRAMMING

## MONDAY, 3 JANUARY

**International Student Conference**

**Undergraduate Category**

0900–1300 HRS  
VISTA A *HYATT

**Masters Category**

0900–1130 HRS  
VISTA B *HYATT

**Team Category**

0900–1300 HRS  
VISTA C *HYATT

The first-place winners of the AIAA Regional Student Conferences will gather to present their research to a team of judges made up of professional members in the industry. The students will have three concurrent sessions in the categories of Undergraduate, Masters, and Team.

## TUESDAY, 4 JANUARY

**Aerospace for All:**

**A Conversation on Intersectionality**

0930–1100 HRS  
SEAPORT G & H *HYATT

Women of Aeronautics & Astronautics (WoAA) is hosting a panel to discuss what intersectionality is, what people with intersectionality experience in aerospace, and how allies in the aerospace community can support people with intersectionality.

**Advanced Aerial Mobility (AAM) Programming Information Session**

1100–1200 HRS  
VISTA B & C *HYATT

Representatives from the AIAA Content Advisory Committee and staff will provide an update on AIAA efforts to promote and refine the Institute’s current AAM approach.

## THURSDAY, 6 JANUARY

**AIAA Space Traffic Management (STM) Program Update**

1300–1400 HRS  
SANTA ROSA *MARRIOTT

Sandra Magnus, retired astronaut and former AIAA Executive Director, will provide an update on AIAA’s engagement with policymakers and the media on STM matters.

**Aerospace Cybersecurity Online Capture-the-Flag Launch**

1000–1200 HRS  
VISTA A-C *HYATT

The Aerospace Cybersecurity Online Capture-the-Flag—a competitive hacking or cybersecurity skills competition—will launch during the forum. Activity will continue online in parallel with forum programming.
RECOGNITION & LECTURES

Join us at the 2022 AIAA SciTech Forum as we recognize the very best in our industry – those individuals and teams who have taken aerospace technology and discovery to the next level. These remarkable individuals have leveraged their expertise for the benefit of society. Their achievements have inspired us to dream and to explore new frontiers.

MONDAY, 3 JANUARY
Durand Lecture for Public Service and Lunch
1230–1400 HRS  SEAPORT A-E

Human Spaceflight — The Ultimate Team Sport
William H. Gerstenmaier, Vice President, Build and Flight Reliability, SpaceX

The Durand Lecture, named in honor of William F. Durand, showcases notable achievements by a scientific or technical leader whose contributions have led directly to the understanding and application of the science and technology of aeronautics and astronautics for the betterment of humankind. A lunch will be offered to the first 100 guests on a first-come, first-served basis. The lecture will be presented after lunch and is open to all attendees at that time.

Sponsored by: LOCKHEED MARTIN

WEDNESDAY, 5 JANUARY
Dryden Lecture in Research
1800–1900 HRS  SEAPORT A-E

Digital Tools for Design and Analysis of Composite Aerostructures
Anthony M. Waas, Richard A. Auhll Department Chair and Felix Pawlowski Collegiate Professor, Aerospace Engineering, University of Michigan, Ann Arbor

The Dryden Lecture in Research was named in honor of Dr. Hugh L. Dryden in 1967, succeeding the Research Award established in 1960. The lecture emphasizes the great importance of basic and applied research to the advancement in aeronautics and astronautics and is a salute to research scientists and engineers. It is open to attendees and the public.

THURSDAY, 6 JANUARY
SciTech Forum Awards Luncheon
1200–1400 HRS  SEAPORT A-E

We honor our up-and-coming students, our technical innovators, and our seasoned practitioners to elevate their work and encourage our community. Proof of purchase for the luncheon is required and included in the registration fee where indicated. Admission for guests may be purchased onsite at the registration desk, as space is available. Please join us as we recognize the following winners:

EDUCATION AWARD
2021 J. Leland Atwood Award
Saeed Farokhi, University of Kansas

For outstanding and consistent contributions to the aerospace profession especially in the areas of propulsion and high-speed aerodynamics, and a profound and long-lasting commitment to the education, mentorship, and professional development of both graduate and undergraduate aerospace engineering students.
RECOGNITION & LECTURES

LITERARY AWARDS

2022 AIAA Gardner-Lasser Aerospace History Literature Award
John M. Logsdon, Space Policy Institute, George Washington University
For his book: Ronald Reagan and the Space Frontier

2022 AIAA Summerfield Book Award
Donald L. Edberg, California State Polytechnic Institute, Pomona
Willie Costa, VUONG Global
For their book: Design of Rockets and Space Launch Vehicles

SERVICE AWARD

2022 AIAA Diversity and Inclusion Award
Eric Holmes, NASA Headquarters
For sustained significant contributions to raise awareness on the value of diversity and inclusion in the aerospace workforce at large, an AIAA core value.

TECHNICAL EXCELLENCE AWARDS

2022 AIAA Aerodynamic Measurement Technology Award
Noel T. Clemens, University of Texas at Austin
For the development and application of innovative laser-based imaging techniques to bring new insight into the physics of complex turbulent flows.

2022 AIAA Aerospace Design Engineering Award
Michael Buonanno, Lockheed Martin Aeronautics
For design innovation and engineering leadership in the development of X-59, the Quiet Supersonic Technology X-plane.

2022 AIAA Aerospace Guidance, Navigation, and Control Award
Siva S. Banda, Air Force Research Laboratory, AFRL/RQ (retired)
For outstanding and sustained contributions to advancing flight control theory and its applications.

2022 AIAA Air Breathing Propulsion Award
Srinath V. Ekkad, North Carolina State University
For significant technical contributions to the development of pioneering detailed heat transfer measurements inside gas turbines and continued leadership in the aerospace community to develop new industry-university partnerships.

2022 AIAA de Florez Award for Flight Simulation
Sunjoo K. Advani, International Development of Technology B.V.
For his exceptional impact on simulation science, particularly in the worldwide implementation of objective measures of the quality of flight simulation motion systems.

2022 AIAA Energy Systems Award
George Crabtree, University of Illinois Chicago/Argonne National Laboratory
For his seminal contributions to defining the next-generation energy system and innovative technological and workforce development pathways to achieve it.

2022 AIAA ICME Prize
Award winners will be announced at this luncheon.

2022 AIAA Intelligent Systems Award
Ella M. Atkins, University of Michigan
For outstanding, creative, interdisciplinary solutions in the theory and deployment of intelligent autonomous aerospace vehicles over the past two decades.

2022 AIAA Mechanics and Control of Flight Award
Mark L. Piski, Virginia Polytechnic Institute and State University
For the development of new nonlinear estimation algorithms and their application to problems in satellite attitude and orbit determination and in GPS signal processing.

2022 AIAA Microgravity and Space Processes Award
Carlos Fernandez-Pello, University of California, Berkeley
For decades of microgravity research in smoldering, flame spread and spacecraft fire safety and for leadership in the microgravity research community.

2022 AIAA Propellants and Combustion Award
Tim C. Lieuwen, Georgia Institute of Technology
For outstanding leadership in research and development of high-performance, fuel-flexible power and propulsion combustion technologies.

2022 AIAA Survivability Award
Alex G. Kurtz, Survivability Assessment Flight, Aerospace Survivability and Safety Office, 704th Test Group, USAF (Retired)
For distinguished service and contributions to the aircraft/aerospace survivability/vulnerability community and discipline.

2022 AIAA Wyld Propulsion Award
Daniel J. Dorney, NASA Marshall Space Flight Center
For his leadership, sustained contributions, and outstanding dedication to the design, development, testing, and operation of propulsion systems critical to our nation’s future in space.
AIAA STUDENT PAPER COMPETITIONS
Award winners will be announced at this luncheon.

Aerodynamic Measurement Technology, Plasmadynamics and Lasers, Propellants and Combustion Student Paper Competition
Aerospace Power Systems Student Paper Competition
American Society for Composites Student Paper Award
Atmospheric Flight Mechanics Best Student Paper Competition
David P. Weaver Student Best Paper Award Student Paper Competition
Guidance, Navigation and Control Student Paper Competition
Harry H. and Lois G. Hilton Student Paper Award in Structures
Intelligent Systems Student Paper Competition
Jefferson Goblet Student Paper Award
Lockheed Martin Student Paper Award in Structures
Meshing, Visualization, and Computational Environments Student Paper Competition
Sensor Systems and Information Fusion Student Paper Competition
Small Satellites Student Paper Competition
SwRI Student Paper Award in Non-Deterministic Approaches
Thermophysics Student Paper Competition

BEST PROFESSIONAL PAPER AWARDS
2020 AIAA Pressure Gain Combustion Best Paper Award

2021 AIAA Atmospheric Flight Mechanics Best Paper Award
“Stall Model Identification of a Cessna Citation II from Flight Test Data Using Orthogonal Model Structure Selection” (AIAA 2021-1725) by Joost B. van Ingen, Coen C. de Visser, and Daan M. Pool, Delft University of Technology

2021 AIAA Design Engineering Best Paper Award
“Small UAS Design Toolkit: Characterization and Development using Optimization and Advanced Manufacturing Modeling” (AIAA-2021-0625) by Brandon E. Sells and Philip Baldwin, Purdue University

2021 AIAA Electric Propulsion Best Paper Award
“Performance Measurements of a 5 kW-Class Rotating Magnetic Field Thruster” (AIAA 2021-3384) by Christopher L. Sercel, Tate Gill, Joshua M. Woods, and Benjamin Jorns, University of Michigan, Ann Arbor

2021 AIAA Guidance, Navigation and Control Best Paper Award
“Convex Optimization Guidance for Precision Landing on Titan” (AIAA-2021-1345) by Rayan Mazouz and Marco B. Quadrelli, NASA Jet Propulsion Laboratory; Erwin Mooij, Delft University of Technology

2021 AIAA Intelligent Systems Best Paper Award
“Multi-Class Anomaly Detection in Flight Data Using Semi-Supervised Explainable Deep Learning Model” (AIAA-2021-0774) by Milad Memarzadeh, Bryan Matthews, and Thomas Templin, NASA Ames Research Center

2021 AIAA Liquid Propulsion Best Paper Award
“Chemical Composition of Mixed Oxides of Nitrogen using Raman Spectroscopy” (AIAA-2021-3589) by Alicia Benhidjeb-Carayon, NASA Jet Propulsion Laboratory, California Institute of Technology; Victoria M. Boulos, Catriona M. L. White, Jason R. Gabl, Robert G. Orth, and Timothée L. Pourpoint, Purdue University

2021 AIAA Modeling and Simulation Best Paper Award
“Deriving an Estimated Time of Arrival Accuracy Requirement for Departure Scheduling Operations” (AIAA-2021-0672) by Lesley A. Weitz, Brock J. Lascara, and Stephanie Priess, The MITRE Corporation

2021 AIAA Multidisciplinary Design Optimization Best Paper Award
“Active Manifold and Model Reduction for Multidisciplinary Analysis and Optimization” (AIAA 2021-1694) by Gabriele Boncoraglio and Charbel Farhat, Stanford University

2021 AIAA Pressure Gain Combustion Best Paper Award
“Individual Wave Detection and Tracking within a Rotating Detonation Engine through Computer Vision Object Detection applied to High-Speed Images” (AIAA-2021-1382) by Kristyn B. Johnson and Donald H. Ferguson, National Energy Technology Laboratory; Andrew C. Nix and Zachary Tallman, West Virginia University
2021 AIAA Sensor Systems and Information Fusion Best Paper Award
“A Bayesian Mixture Model Approach to Anomaly Detection with Application to Wind Tunnel Experiments” (AIAA 2021-1268) by Sierra Nicole Merkes, Scotland Leman, Eric Smith, Aaron Defreitas, W. Nathan Alexander, and William Devenport, Virginia Polytechnic Institute and State University

2021 AIAA Small Satellite Best Paper Award
“Formation Flying Orbit and Control Concept for the VISORS Mission” (AIAA-2021-0423) by Adam Koenig and Simone D’Amico, Stanford University; and E. Glenn Lightsey, Georgia Institute of Technology

2021 AIAA Small Satellite Best Paper Award
“Adaptive Double-Layer Continuous Super-Twisting Control of a Satellite Formation” (AIAA-2021-0560) by Mason Nixon, Leidos; Yuri B. Shtessel, University of Alabama, Huntsville

2021 AIAA Small Satellite Best Paper Award

2021 AIAA Spacecraft Structures Best Paper Award
“Reduced-Order Modeling for Flexible Spacecraft Deployment and Dynamics” (AIAA-2021-1385) by Michael Marshall and Sergio Pellegrino, California Institute of Technology

2021 AIAA Solid Rockets Best Paper Award
“Implicit Large-Eddy Simulation of Solid Rocket Motors using the Immersed Boundary Method” (AIAA-2021-3696) by Matteo Bernardini, M. Cimini, and F. Stella, Sapienza University of Rome; E. Cavallini, Italian Space Agency; A. Di Mascio, University of l’Aquila; F. Salvadore, CINECA; E. Martelli, Università degli Studi della Campania “L. Vanvitelli”

2021 AIAA Structural Dynamics Best Paper Award
“Fundamental Understanding and Prediction of Loads and Stability of a Full-scale Hingeless Tiltrotor” (AIAA-2021-0090) by Seyhan Gul and Anubhav Datta, University of Maryland, College Park

2021 ASME/Boeing Structures and Materials Award
“Progressive Failure Analysis of 3D Woven Composites via Multiscale Recursive Micromechanics” (AIAA 2021-0702) by Trenton M. Rick, Evan J. Pineda, Brett A. Bednarcyk, and Steven M. Arnold, NASA Glenn Research Center

2021 Collier Research HyperSizer/AIAA Structures Best Paper Award
“Structural Joints and Repairs: Bearing Fatigue Response in Bolted Hybrid Composite Joints” (AIAA-2021-1402) by John Brewer and Anthony Palazotto, Air Force Institute of Technology; Casey Holycross and Michael Gran, Air Force Research Laboratory

2021 Shahyar Pirzadeh Memorial Award for the Outstanding Paper in Meshing, Visualization and Computational Environments
“Sparse Spatial Sampling: A mesh sampling algorithm for efficient processing of big simulation data” (AIAA-2021-1484) by Daniel Fernex and Andre Weiner, Technische Universität Braunschweig; Bernd Noack, Harbin Institute of Technology; Richard Semaan, Technische Universität Braunschweig

BEST STUDENT PAPER AWARDS
2021 AIAA Small Satellite Best Student Paper Award
“Quantifying Characterizations of CubeSat Swarms Based on Chaotic Circuit Analysis” (AIAA-2021-1255) by Alec C. Nichols and John Baker, The University of Alabama, Tuscaloosa; Jeffrey W. Hudack, Air Force Research Laboratory
AIAA online short courses help you stay sharp while strengthening your knowledge base. We’re committed to assisting in your professional development and maximizing your success year-round. AIAA is offering over 20 courses this spring featuring a variety of technical areas including UAV aircraft design, space launch vehicle design, and artificial intelligence.

**Design of Experiments: Improved Experimental Methods in Aerospace Testing**  
Starts 18 February

**UAV Aircraft Design by Dan Raymer**  
Starts 23 February

**Fundamentals of Python Programming with Libraries for Aerospace Engineers**  
Starts 28 February

**Trusted Artificial Intelligence**  
Starts 8 March

**Understanding Space: An Introduction to Astronautics and Space Systems Engineering**  
Starts 8 March

**Systems Thinking for Modern Aerospace Complexity**  
Starts 14 March

**Fundamentals of Thermal Vacuum Testing Science**  
Starts 22 March

**Technical Writing Essentials for Engineers**  
Starts 29 March

**Fundamentals of Data and Information Fusion for Aerospace Systems**  
Starts 5 April

**Design of Space Launch Vehicles**  
Starts 11 April

**Application of Thermal Vacuum Testing**  
Starts 12 April

**Applied Model-Based Systems Engineering (MBSE)**  
Starts 26 April

Browse the course catalog to learn more about these courses and discover additional courses starting in May and June.

[learning.aiaa.org](http://learning.aiaa.org)
MONDAY, 3 JANUARY
AIAA Trivia Night
1630–1800 HRS  HARBOR G
What percent of the universe is dark matter? What are the main parts of a comet? Take trivia to a new altitude with AIAA! Join us for a night of fun. Boost your chances of winning by bringing your friends and forming a team.

TUESDAY, 4 JANUARY
Taco Tuesday Networking Lunch
1230–1400 HRS  BACKYARD AT THE POOL DECK
Proof of purchase is required.

Welcome Happy Hour
1730 HRS  EXPOSITION HALL
Take this opportunity to engage new contacts and refresh old ones. A ticket for the reception is required and included in the registration fee where indicated. Additional tickets for guests may be purchased upon registration or on site, as space is available.

WEDNESDAY, 5 JANUARY
Yoga on the Pool Deck
0615–0700 HRS  POOL DECK
Join Heather Grisco with The Little Yoga Studio on the 4th floor pool deck at the Manchester Grand Hyatt for 45 minutes of guided yoga. Connect your mind, body, and spirit and get ready for another great day at the forum.

Luncheon in the Exposition Hall
1230–1400 HRS  EXPOSITION HALL
A ticket is required and included in the registration fee where indicated.

THURSDAY, 6 JANUARY
Women at SciTech Social Hour and Panel Discussion
1700–1900 HRS  SEAPORT A-E
This event will provide all attendees an opportunity to discuss experiences and celebrate women who are leaders in their fields. This year’s theme is Navigating a Sustainable Career: sharing experiences to empower, embrace and encourage.

Stay Fit at SciTech!
Stay fit with your fellow attendees! Join AIAA staff on Tuesday, 4 January, and Thursday, 6 January, at 0600 hrs at the Manchester Grand Hyatt Lobby for a run/walk. All levels are welcome for a 1-3 mile route.

COFFEE BREAKS
Coffee breaks allow even more time for making new contacts, continuing discussions from sessions, visiting the Exposition Hall, or checking emails and voicemails to keep in touch with the office while you are at the forum. Coffee breaks will be located in the following locations and times:

MONDAY, 3 JANUARY
0900 & 1600 hrs  Seaport and Harbor Foyers, 2nd Level

TUESDAY, 4 JANUARY
0900 hrs  Seaport and Harbor Foyers, 2nd Level
1530 hrs  Exposition Hall

WEDNESDAY, 5 JANUARY
0900 & 1530 hrs  Exposition Hall

THURSDAY, 6 JANUARY
0900 hrs  Exposition Hall
1600 hrs  Seaport and Harbor Foyers, 2nd Level

FRIDAY, 7 JANUARY
0900 hrs  Seaport and Harbor Foyers, 2nd Level
# EXPOSITION HALL

## EXPOSITION HALL HOURS

**TUESDAY, 4 JANUARY**
- Exposition Hall Open: 1300–1600 hrs
- Networking Break in Exposition Hall: 1530–1600 hrs
- Welcome Happy Hour in Exposition Hall*: 1730–1900 hrs

**WEDNESDAY, 5 JANUARY**
- Exposition Hall Open: 0845–1600 hrs
- Networking Break in Exposition Hall: 0900–0930 hrs
- Luncheon in Exposition Hall: 1230–1400 hrs
- Networking Break in Exposition Hall: 1530–1600 hrs

**THURSDAY, 6 JANUARY**
- Exposition Hall Open: 0845–1400 hrs
- Networking Break in Exposition Hall: 0900–0930 hrs

*A ticket is required and included in the registration fee where indicated.

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**EXHIBITOR LOUNGE**

**FOOD SEATING AREA**

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- B1: DST Aerospace Systems
- B2: HPCMP CREATE
- B3: National Academies of Sciences, Engineering, and Medicine
- B4: Tri Models, Incorporated
- B5: BETA CAE Systems USA, Inc.
- B6: Convergent Science
- B7: Dantec Dynamics, Inc.
- B8: Gulfstream

- C1: Deharme GmbH
- C2: NA Instruments, Inc.
- C3: General Atomics Aeronautical Systems, Inc.
- C5: GE Research
- C6: ESTECO
- C7: Office of Naval Research
- C8: Lockheed Martin Corporation

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- F8: Aerospace Research Central (ARC)
The HUB is open Tuesday–Thursday during Exposition Hall hours!

This multi-use area built into the heart of AIAA expositions features attendee-favorites like Q&As, innovating programming, charging stations, a lounge area, and more.

Check out the complete schedule of activities: aiaa.org/scitechthehub

Need to identify a place to meet up with friends? Make the HUB that place!

AIAA PUBLICATIONS PAVILION IN THE HUB

Stop by the AIAA Publications Pavilion, located in the Exposition Hall, to browse publications and merchandise, learn about your membership benefits, and meet AIAA staff.

30% OFF ALL BOOKS

AIAA Publications is offering a special show discount on all titles featured at the AIAA SciTech Forum. Attendees can take advantage of a 30% discount off the list price of all books for sale at the AIAA Bookstore located in the AIAA Pavilion. This show special will only be available during the forum!

Take advantage of these super savings and visit the AIAA Bookstore!
## EXHIBITORS BY BOOTH NUMBER

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★ AIAA Corporate Member Company
AIAA has earned an international reputation as the preeminent publisher of cutting-edge aerospace journals and books, and as the leading source of aerospace industry archives, dating back to the early 1900s. Over the past eight decades, AIAA and its predecessor organizations have published over 300 books and almost 200,000 technical articles. AIAA’s current publications include eight technical journals, a magazine, three book series, national and international standards documents, a growing number of eBooks and other electronic products, and a full-service, interactive website. For the most authoritative technical publications, look to AIAA.

AeroVironment

AeroVironment, Inc. (NASDAQ: AVAV) is a global leader in intelligent, multi-domain robotic systems. Building on 50 years of technological innovation, AeroVironment designs, develops, produces, and supports an advanced portfolio of unmanned aircraft systems, tactical missile systems, network connectivity, high altitude pseudo-satellites, and unmanned ground robotics. Visit our website to view our new virtual showroom and learn more!

AIAA San Diego Section

As a leading global aerospace company, The Boeing Company develops, manufactures and services commercial airplanes, defense products and space systems for customers in more than 150 countries. As a top U.S. exporter, the company leverages the talents of a global supplier base to advance economic opportunity, sustainability and community impact. Boeing’s diverse team is committed to innovating for the future and living the company’s core values of safety, quality and integrity.

Aurora Flight Sciences, A Boeing Company

Aurora Flight Sciences, a Boeing Company, specializes in creating advanced aircraft through the development of versatile and intuitive autonomous systems, in addition to advanced composite manufacturing. Operating at the intersection of technology and robotic aviation, Aurora leverages the power of autonomy to make piloted and unpiloted flight safer and more efficient. For more information, visit www.aurora.aero.

Axient LLC

Axient advances defense and civil missions from aerospace to cyberspace with multi-domain test and analysis, mission engineering and operations, and advanced technologies. We partner with our customers to identify and analyze their most important challenges and design solutions that turn challenges into breakthroughs to accelerate assured performance.

BETA CAE Systems USA, Inc.

BETA CAE Systems USA, Inc, est. 1997, is an engineering company based in Farmington Hills, Michigan. For over 20 years it has been known for its distribution of the ANSA and META Software Suite and continued commitment to offering industry leading software support and services. In addition to this, the company also provides consulting services in high-end Finite Element modeling and analysis, and places specialists for contract positions on client sites.

Boeing Company

Cadence
### EXHIBITORS

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<td>California Institute of Technology</td>
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<td><a href="http://www.caltech.edu">www.caltech.edu</a></td>
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<td>Aerospace and Defense engineering leaders choose Caltech CTME for customized professional development and learning programs that build organizational capabilities, skilled teams, and solutions-oriented mindsets. Learners tackle project-based challenges guided by Caltech faculty and our networks of pioneering systems engineering experts. Programs specialties: Advanced Systems Engineering/MBSE, Data Analytics, Cybersecurity, Leadership, Production &amp; Operations, Project &amp; Program Management, and Strategic Technology Marketing. Client programs are uniquely tailored for company context, products, complexity/difficulty, team dynamics, client case studies and processes, location, format, guest speakers, group facilitation, skill-breadth/depth, and desired learning-outcomes. Programs are available for commercial, government, and individual learners across aerospace, chemical, electronics/high-tech, energy, life sciences, and manufacturing.</td>
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| Convergent Science                           | 611   |
| 6400 Enterprise Lane                         |       |
| Madison, WI 53719                           |       |
| www.convergecfd.com                          |       |
| Convergent Science is an innovative, rapidly expanding computational fluid dynamics (CFD) company. Our flagship product, CONVERGE, is a revolutionary CFD software with truly autonomous meshing capabilities that eliminate the grid generation bottleneck from the simulation process. Convergent Science is headquartered in Madison, Wisconsin, and has offices in the United States, Europe, and India and distributors worldwide. |

| Calspan Corporation                          | 503   |
| 4455 Genesee St                              |       |
| Buffalo, NY 14225                            |       |
| www.calspan.com                               |       |
| For more than 70 years, Calspan has been providing internationally recognized research and testing services for the aviation industry. Calspan’s Force Measurement Systems located in San Diego, CA, develops state of the art internal and external type balances and model position/motion control systems. Wind tunnel model design, fabrication and instrumentation is executed at Calspan’s Newport News, VA, facility. Model testing is performed in Calspan’s Transonic Wind Tunnel located in Buffalo, NY. |

| Dantec Dynamics, Inc.                        | 609   |
| 750 Blue Point Rd                            |       |
| Holtsville, NY 11742                         |       |
| www.dantecdynamics.com                       |       |
| Dantec Dynamics develops and manufactures measurement systems that determine physical properties in fluids (velocity, temperature, concentration, species) and in solid structures (strain, vibration, laminate defects). We deliver turnkey as well as customized solutions with user-friendly software. Furthermore, our clients benefit from superior technical application support worldwide. You gain accurate measurement results easily and quickly which help you accelerate the pace of discovery, innovation, quality control or NDT. Our distinct competence and experience in integrating measurement methods and technologies into the right solution for you, is unique. Partnering with Dantec Dynamics helps you gain crucial knowledge from any test or measurement campaign. |

| Collier Aerospace – HyperX                    | 514   |
| 760 Pilot House Dr.                          |       |
| Newport News, VA 23606                       |       |
| www.collieraerospace.com                     |       |
| What began at NASA 30 years ago has continuously developed into today’s HyperX suite of structural software solutions. HyperX performs design, stress analysis, & detail sizing optimization for aircraft and space launch vehicles fabricated with composite or traditional metallic materials. On average, the software reduces the weight of structures by 15-20%, an exceptional achievement for aerostructures. HyperX explores very rapidly a very open design space providing insightful design study trends. On the analysis and certification side, HyperX replaces the need for spreadsheets and “hand calculations” with automatically generated stress reports for FAA certification. HyperX customers are able to produce results faster and more accurately, giving them an edge over competitors. |

<p>| Deharde GmbH                                  | 421   |
| Am Hafen 14a                                  |       |
| Varel, 26316, Germany                         |       |
| <a href="http://www.deharde.de">www.deharde.de</a>                                |       |
| Technology provider and aerospace specialist. We have been established as a technology provider for around 50 years, with the main focus of developing international aerospace partnerships. Our areas of expertise – machining as well as plant and wind-tunnel model engineering – constitute efficient synergies. We offer customers from various industries, particularly those that expect the highest precision and reliability, full service in our areas of operation: from concept through to implementation. |</p>
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<td><strong>Dewesoft LLC</strong></td>
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| 10730 Logan Street  
Whitehouse, OH 43571  
www.dewesoft.com |
| DEWESoft, the next evolution in data acquisition instrumentation, offers a full suite of hardware for in-vehicle and lab data acquisition applications. Scalable from one to thousands of channels our instruments are available as small USB and EtherCat devices, stand-alone battery-powered systems, rack-mounted configurations, and ruggedized field-ready solutions. Powered by the latest DEWESoft X software, we acquire and control many multi-domain test sets that include analog in/out, digital in/out, video, CAN, FlexRay, XCP, GPS, and much more. DEWESoft hardware and software are used around the world in a variety of fields ranging from auto manufacturers and construction equipment, to aeronautical development and telemetry. |

| **DoD HPCMP CREATE** | 517 |
| 10501 Furnace Road, Suite 101  
Lorton, VA 22079  
www.hpcmpcreate.org |
| The HPCMP CREATE TM program is designed to improve the DoD acquisition process by developing and deploying five sets of advanced computational engineering design tools for acquisition programs: (1) Military aircraft design (CREATE-AV), (2) Military ship design (CREATE-SH), (3) RF antenna design and integration with platforms (CREATE-RF), (4) Meshing and geometry tool (CREATE-MG), and (5) Ground vehicle design (CREATE-GV). CREATE also includes an educational software suite called Genesis, for undergraduate and graduate student application of computational fluid dynamics learned in the classroom. HPCMP CREATE TM products are intended for US Government, DOD, and partnering industries use only. All products are ITAR controlled. |

| **Dunmore Aerospace** | 620 |
| 145 Wharton Road  
Bristol, PA 19007  
www.dunmore.com |
| Since 1985 we have built a reputation for excellence in engineered films, foils and fabrics for aircraft, spacecraft and airship applications.  
Our products are qualified globally on specifications covering commercial, defense, military, and space program applications.  
Our expertise is qualified globally on specifications covering commercial, defense, military, and space program applications.  
Whether you need assistance selecting the right materials from our extensive product portfolio or require help to design a new custom material, at Dunmore Aerospace we stand ready to go Above and Beyond. |

| **ESTECO** | 511 |
| 39555 Orchard Hill Place, Suite 457  
Novi, MI 48375  
www.esteco.com |
| ESTECO is a pioneer in numerical optimization solutions, specializing in the research and development of engineering software for all stages of the simulation-driven design process. ESTECO's top-class products, modeFRONTIER and VOLTA, are used worldwide, helping companies increase efficiency in design simulation and accelerate product innovation. |

| **FlexCompute Inc** | 112 |
| 130 Trapelo Road  
Belmont, MA 02478  
www.flexcompute.com |
| Flow360, by FlexCompute, is the fastest, least expensive and most accurate CFD platform ever created. No other option even comes close to our speeds. We are happy to prove it on your model. With emerging hardware as our template, we re-wrote from scratch, a full stack proprietary code that unlocked solving speeds that are orders of magnitude faster than anything else on the market. Run steady simulations in minutes and unsteady simulations in hours. This enables teams to run ultra-high fidelity CFD at all stages of design. All with the goal of shortening your design cycles, reducing simulation costs, and improving product outcomes. As our customer from Kitty Hawk States: “These speed improvements effectively open the range of aircraft design that can practically be tackled with CFD.” |
**EXHIBITORS**

**Force Measurement Systems Inc.**
4701 E Hunter Ave.
Anaheim, CA 92807
www.forcems.com

Force Measurement Systems (FMS) is a comprehensive resource for the design, fabrication, installation and maintenance of high precision, force measurement systems and components. FMS has a highly experienced team whose goal is specializing in the design and manufacture of the highest quality single and multi-component thrust stands, including their main components: flexures, stable platens, and load cells. FMS’ high accuracies are achieved by a unique design that does not create interaction errors between axes. The systems are supplied with Automated In-Frame Calibration Systems that eliminate the need for costly and complex engine centerline calibrations.

**GE Aviation / Edison Works**
1 Neumann Lane
Cincinnati, OH 45215
jobs.gecareers.com/global/en

At GE you’ll find yourself in a dynamic environment where ongoing, substantial investment in research and development keeps us looking ahead. GE Aviation is a world-leading provider of jet and turboprop engines, components and integrated systems for commercial, military, business and general aviation aircraft and has a global service network to support these offerings. Building on an unsurpassed legacy of success, GE Edison Works continues to execute on bold technical initiatives to ensure even more demonstrable support to the warfighter and those in need of humanitarian relief. Join us as we design and engineer multiple military programs that support next generation air dominance.

**GE Research**
1 Research Circle
Niskayuna, NY 12309
www.ge.com/research

Inspired by Thomas Edison and led by GE’s early chief consulting engineer, Charles Steinmetz, GE Research was created to maintain market edge and to foster new discoveries and commercial applications. That mission rings true today as we harness unparalleled scientific breadth and depth to drive innovation at the intersection of technical fields, move product to entitlement, solve problems and deliver outcomes to our customers.

**General Atomics Aeronautical Systems, Inc.**
14200 Kirkham Way
Poway, CA 92064
www.ga-asi.com

General Atomics-Aeronautical Systems, Inc. (GA-ASI), an affiliate of General Atomics, is a leading designer and manufacturer of proven, reliable remotely piloted aircraft (RPA) systems, radars, and electro-optic and related mission systems, including the Predator® RPA series and the Lynx® Multi-mode Radar. GA-ASI is actively developing the next generation of RPA systems leveraging state-of-the-art technologies including multi-functional structures using additive manufacturing, airborne manned-unmanned teaming (MUM-T) capabilities, revolutionary controller capabilities that reduce manpower requirements, and low cost, modular RPA solutions. Additionally, GA-ASI produces ground control stations and sensor control/image analysis software, offers pilot training and support services, and develops meta-material antennas.

**Gulfstream**
30 Innovation Drive
Savannah, GA 31407
www.gulfstream.com

**Huber USA Inc**
102
1101 Nowell Rd., Suite 110
Raleigh, NC 27607
www.huber-usa.com

Huber is the technological leader for high precision thermoregulation in research and industry. Their products ensure precise temperature control in laboratories, pilot plants and production processes. The product range offers solutions for all thermoregulation tasks from -125 to +425°C.

Huber’s Unistat technology guarantees precise, reproducible temperature control results, the shortest possible heating & cooling times, and large temperature ranges without the need for fluid change. It impresses as a result of economic operation with reduced operating costs and efficient energy management.

**IC2 (Interdisciplinary Consulting Corp)**
309
5745 SW 75th St., #364
Gainesville, FL 32608
www.thinkic2.com

Co-founded by Dr. Mark Sheplak, an internationally recognized expert in the area of instrumentation-grade, MEMS-based sensors for fluidic and acoustic measurements, and backed by a team of engineers and scientists, IC2 brings multi-domain expertise in aerospace testing, precision sensor development, and proven MEMS fabrication technology. Through intimate exposure to experimental aerodynamics and aeroacoustics and decades of interdisciplinary research and development, we have gained a deep understanding of the measurement challenges aerospace engineers and researchers face, and how to precisely overcome them.
For decades Intelligent Light has been at the forefront of CFD, visualization, high performance computing and data science. We developed FieldView, the global market leading analysis and visualization tool for large scale CFD. We commercialized VisIt, the U.S. Department of Energy’s open source visualization software. We assembled a team of leading domain experts to conduct research that advanced the needs of our clients: from NASA and JAXA to Boeing, GE, Sikorsky, Ford, Rolls Royce and a host of top Formula One teams among many others. And now we are delivering transformative tools for advanced risk reduction (SpectreUQ and Snapshot), and compression of workflows to harvest valuable data (Kombyne). Come and see us at SciTech 22.

Kulite, a World Leader in Pressure Transducer Technology, manufactures miniature high frequency pressure transducers, TSO & PMA flight qualified pressure transducers, wind tunnel engine pressure probes and turbine blade implants, used in development and manufacture of helicopters, business jets, commuters, commercial and military aircraft. They are designed to operate with electromechanical indicators, ECU, FADEC and EICAS systems and other aircraft circuits.

LaVision provides integrated measurement systems for experimental fluid dynamics including combusting and multiphase flows, material characterization, and in cylinder/combustion chamber measurement for the automotive and aerospace markets. LaVision is the market leader in image based measurement systems playing a pioneering role in the development of techniques such as Particle Image Velocimetry, Laser Induced Fluorescence, Digital Image Correlation, Background Oriented Schlieren and Infra Red Absorption Spectroscopy. By partnering with leading Universities and Research Institutions, LaVision stays at the forefront of measurement science and ensures that the products and services provided remain relevant to the Academic, Government and Industrial sectors it serves.

Lockheed Martin is a global security and aerospace company principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. Please visit us at Booth 403 where we will be showcasing our products, introducing our employees, and recruiting talented individuals who are ready to research and develop innovative aerospace solutions. We deliver next-generation technology to protect the generations to come.

The National Academies of Sciences, Engineering, and Medicine are private, nonprofit institutions that provide expert advice on some of the most pressing challenges facing the nation and the world. Our work helps shape sound policies, inform public opinion, and advance the pursuit of science, engineering, and medicine.

The National Institute of Aerospace (NIA) is a nonprofit research, graduate education, and outreach institute located in Hampton, VA. It was created in 2002 by NASA’s Langley Research Center (LaRC). NIA collaborates with NASA, other government agencies and laboratories, universities, and industry to conduct leading-edge research and technology development in space exploration, aeronautics, and science. In addition, NIA offers a broad, multi-university graduate education program and award-winning outreach.

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in autonomous systems, cyber, C4ISR, space, strike, and logistics and modernization to customers worldwide. Please visit news.northropgrumman.com and follow us on Twitter, @NGCNews, for more information.
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| Ignition Park, Catalyst II  
1165 Franklin Street, Suite 200  
South Bend, IN 46601  
https://turbo.nd.edu |
| The Notre Dame Turbomachinery Laboratory (NDTL) is a gas turbine research and development facility supporting major original equipment manufacturers in the aerospace propulsion and power industries. |

| **Office of Naval Research** | 409 |
| 875 North Randolph Street  
Arlington, VA 22203  
www.onr.navy.mil |
| The Department of the Navy’s Office of Naval Research provides the science and technology necessary to maintain the Navy and Marine Corps’ technological advantage. ONR is a leader in science and technology with engagement in 50 states, 55 countries, 634 institutions of higher learning and nonprofit institutions, and more than 960 industry partners. ONR, through its commands, including ONR Global and NRL employs more than 3,800 people, comprising uniformed, civilian and contract personnel. |

| **PACE Aerospace Engineering and Information Technology GmbH** | 220 |
| Am Bahnhof Westend 13  
Berlin 14059 Germany  
https://pace.txtgroup.com |
| PACE provides trailblazing software solutions for the aerospace industry’s most significant challenges—from aircraft interior configuration and preliminary design to flight operations and XR training. PACE’s Pacelab line of applications has exceeded the expectations of our customers since 1995, thanks in part to our strong commitment to innovation and product quality. With PACE’s commercial off-the-shelf products, we offer our clients comprehensive solutions—a true one-stop shop for all your engineering needs. |

| **Research in Flight** | 320 |
| 1919 North Ashe Court  
Auburn, AL 36830  
https://researchinflight.com |
| Research in Flight is focused on developing innovative solutions for air vehicle aerodynamics. The nucleus of this development is a surface vorticity solver known as FlightStream®. FlightStream® provides solutions for aerodynamic related performance parameters of interest to air vehicle, marine, and energy system designers. FlightStream® simultaneously offers sufficient validated fidelity to accurately drive design processes and sufficient computational efficiency to be useful in conceptual and preliminary design trade studies. FlightStream® offers an intuitive user experience, interactivity with contemporary engineering tools, and air vehicle centric analysis options. FlightStream® has been placed at premier research institutions, universities, and companies around the world. |

| **Siemens** | 115 |
| Interleuvenlaan 68  
Leuven, 3001, Belgium  
www.siemens.com/simcenter |
| As a global industry leader, Siemens delivers solutions that will allow businesses in the transportation sector, including aviation, to take the next steps in digitalization. The Simcenter portfolio is a comprehensive platform that combines simulation with testing tools and services for performance engineering. Simcenter allows aerospace engineers to model, understand and optimize the physical behavior of all elements of future aircraft, including structural development, fluid and heat transfer, systems development, thermal management, cabin comfort, electromagnetics and integration, verification, certification testing and more. |

| **Sierra Technical Services Inc.** | 521 |
| 101 Commercial Way, Unit D  
Tehachapi, CA 93561  
www.sierratechnicalservices.com |
<p>| STS is a Woman-Owned Small Business founded in 2006 by Debra and Roger Hayes. STS provides engineering design and consulting, and composite manufacturing and assembly for aerospace and other related industries. Located at the Tehachapi Municipal Airport (KTSP) in Tehachapi, California, STS is in close proximity to the Aerospace-rich Antelope Valley, specifically: Edwards AFB, NASA Armstrong, NAWCWD China Lake, Point Mugu, and the Mojave Air and Space Port. STS’ strategic facility location provides an excellent balance of talented and experienced engineers, composite fabricators, and aircraft technicians. The STS engineering staff has the following expertise: aerodynamics, thermodynamics, stability and control, propulsion, composites and metallic structures and stress, GFEM, OML Lofting, aircraft configuration development, mechanical design, 3D modeling and detailed design. A group of talented composite manufacturers and assembly technicians compliments the engineering team. |</p>
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<td><strong>Tri Models Incorporated</strong></td>
<td><strong>VirtusAero, LLC</strong></td>
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<tr>
<td>1485 George Bush Drive W. TAMU 3254 College Station, TX 77843 <a href="https://turbolab.tamu.edu">https://turbolab.tamu.edu</a></td>
<td>5191 Oceanus Drive Huntington Beach, CA 92649 <a href="http://www.trimodels.com">www.trimodels.com</a></td>
<td>11108 86th Ave N Maple Grove, MN 55369 <a href="http://www.virtusaero.com">www.virtusaero.com</a></td>
</tr>
<tr>
<td>A variety of fundamental and applied research is performed by Turbo Lab faculty, post docs, and students at Texas A&amp;M. This research is sponsored by a combination of government and industry sources through traditional grants and contracts that includes turbomachinery, energy, and propulsion systems. Unique test rigs and extreme environments are among the many reasons why the Turbo Lab continues to be a leader in research.</td>
<td>Tri Models is the Premier supplier of wind tunnel models &amp; ground test hardware for the global aerospace community. From “standard” wind tunnel models, to icing/deicing certification models to hot-firing hypersonic test rigs, we have done it all. We support most major airframers world-wide and have worked with most major testing facilities around the world. We provide a complete, turn-key solution to your testing needs. Contact us to see how we can help you achieve all of your testing goals.</td>
<td>VirtusAero delivers powerful software for high-fidelity CFD analysis, specifically focused on supersonic and hypersonic flow regimes. US3D is our state-of-the-art research and analysis tool developed collaboratively at the University of Minnesota, NASA Ames and VirtusAero, providing unstructured-grid, finite-volume CFD.</td>
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2020

2021

2022

Coming in March

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AIAA Registration and Information Center Hours
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AIAA provides limited Wi-Fi service for attendees to use while onsite. To keep this service available and optimized for all attendees, please do not download files larger than 2MB, create multiple sessions across multiple devices, or download multiple files in one session. If you receive an error message that an AIAA server is blocking your current IP address, please inform the AIAA registration desk.

Network Name: AIAA Password: 22scitech

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2. Corrections will be available online approximately 15 business days after the last day of the conference.

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All attendees will receive a Certificate of Attendance on the last day of the AIAA forum via email. Claims of hours or applicability toward professional education requirements are the responsibility of the participant.

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AIAA accepts registrations irrespective of age, race, creed, sex, sexual orientation, color, physical handicap, and national or ethnic origin.

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It is the policy of AIAA to maintain a professional environment at its events that is free from all forms of discrimination, harassment and conduct that can be considered unprofessional, disruptive, inappropriate or discourteous. Full details can be found at aiaa.org/about/Governance/Anti-Harassment-Policy

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AUTHOR & SESSION CHAIR INFORMATION

Speakers’ Briefing in Session Rooms
Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute briefing on the day of their sessions to exchange bios and review final details prior to the session. Please attend on the day of your session(s). Laptops preloaded with the Speakers’ Briefing preparation slides will be provided in each session room. Speakers’ Briefings will be held, 3–7 January: 0730 hrs.

Speaker Ready Room
Speakers who wish to practice their presentations may do so in Show Office 8 by Ocean Beach on the 3rd Level. A sign-up sheet will be posted on the door. In consideration of others, please limit practice time to 30-minute increments.

Session Chair Reports
All session chairs are asked to complete a session chair report to evaluate their session for future planning purposes, including session topics and room allocations. Please submit your session chair report electronically by Friday, 7 January.

Audiovisual
Each session room will be preset with the following: Laptop computer, LCD projector, screen, microphone and sound system (if necessitated by room size), and a laser pointer. You may use your own laptop if you wish. Any additional audiovisual equipment requested onsite will be at cost to the presenter. Please note that AIAA does not provide security in the session rooms and recommends that items of value not be left unattended.

“No Paper, No Podium” and “No Podium, No Paper” Policies
If a written paper is not submitted by the final manuscript deadline, authors will not be permitted to present the paper at the forum. It is also the responsibility of those authors whose papers or presentations are accepted to ensure that a representative attends the forum to present the paper. If a paper is not presented at the forum, it will be withdrawn from the forum proceedings. These policies are intended to eliminate no-shows, to improve the quality of the forum for all participants, and to ensure that the published proceedings accurately represent the presentations made at a forum.

Journal Publication
Authors of appropriate papers are encouraged to submit them for possible publication in one of the Institute’s archival journals: AIAA Journal; Journal of Aerospace Information Systems; Journal of Air Transportation; Journal of Aircraft; Journal of Guidance, Control, and Dynamics; Journal of Propulsion and Power; Journal of Spacecraft and Rockets; or Journal of Thermophysics and Heat Transfer. You may now submit your paper online at http://mc.manuscriptcentral.com/aiaa.
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<td>Andy Hoskins <a href="mailto:wah@rocket.com">wah@rocket.com</a></td>
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**Wednesday, 5 January**

**Thursday, 6 January**

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*Most updated listing of meeting can be found here*
SEE YOU NEXT YEAR!

23–27 JANUARY 2023
NATIONAL HARBOR, MD