2027 IEEE Aerospace Conference

Technical Cosponsors

CALL for PAPERS

Yellowstone Conference Center, Big Sky, Montana, March 6-13, 2027

The Conference

The international IEEE Aerospace Conference, with AIAA and PHM Society as technical cosponsors, is organized to promote interdisciplinary understanding of aerospace systems, their underlying science and technology, and their application to government and commercial endeavors. The annual, week-long conference, set in a stimulating and thought-provoking environment, is designed for aerospace experts, academics, military personnel, and industry leaders. The 2027 conference is the 48th in the conference series.

Who Should Attend

This is a conference for **Participants.** Consider attending if you have a professional interest in aerospace engineering or science and wish to:

- Present results and insights from your own work
- Interact with colleagues who present papers in your field
- Engage with people and ideas across a broad spectrum of aerospace technologies
- Understand how your organization might participate in next year's conference

What Sets This Conference Apart

High-Quality Papers and Presentations. Each year, a large number of presentations are given by professionals distinguished in their fields and by high-ranking members of the government.

Science and Aerospace Frontiers. The plenary sessions feature internationally prominent researchers working on frontiers of science and engineering that may significantly impact the world. Registrants are briefed on cutting-edge technologies emerging from and intersecting with their disciplines.

Multidisciplinary Focus. This is the single general IEEE conference designed to facilitate cross-fertilization of aerospace disciplines and dialogue among members of government, industry, and the academic community.

Exceptional Networking Opportunities. The conference provides extraordinary opportunities for discussions and collaborative dialogue with aerospace pacesetters. Professional exchanges benefit the participants, their organizational sponsors, industry, and the engineering and scientific professions.

Author Development. The conference provides thorough and supportive paper reviews, relying on expert guidance from senior engineers and scientists and an opportunity for instructive interaction between author and reviewers.

Conference Proceedings. Electronic download of Conference Proceedings (comprised of 420+ papers) is included in the registration package.

International Participation. Representatives of 28 countries participated in the 2026 conference.

Sequestered Venue. The Yellowstone Conference Center and lodging are nestled closely together in the small village of Big Sky, fostering communications and ensuring easy access to all events.

Exhibitors and Patrons

This unique venue is perfect for exhibiting products and materials in a central area of the conference and to sponsor both conventional and unconventional social events, getting your brand and products out in front of your customers.

What Attendees Say: Simply the Best!

- Highly acclaimed IEEE Conference Proceedings with peer review.
- A fantastic conference that fosters collaboration at the same time it encourages participants to strengthen their personal and family relations. Amazing achievement!
- I've made invaluable connections every year.
- I really enjoyed the collaborative and supportive atmosphere. The exchange of ideas that resulted was something that I have not seen in any other conference that I have attended.
- It is the most technical aerospace conference and incredibly useful for networking. The plenary talks were wonderful, and the diversity of subjects was fantastic.
- No conference packs so much into one week.
- Never have I encountered such a concentrated and collaborative environment at a conference.
- The technical stature of this conference makes it one of the best places to present your ideas and receive competent comments.
- Allows me to interact with people in ways that are simply not possible otherwise. The benefit to my work has been tremendous.
- For my company, the networking and high profile of the conference are second to none!
- Beautiful facility, amazing staff, conference well organized. Junior conference amazingly well done.

Technical Program

This Call invites papers reporting original work or state-of-the-art reviews that will enhance knowledge of:

- Aerospace systems, science and technology
- Applications of aerospace systems and technology to military, civilian or commercial endeavors
- Systems engineering and management science in the aerospace industry
- Government policy that directs or drives aerospace programs, systems and technologies

Specific topics planned for the 2027 Conference are listed in the **Tracks, Sessions and Organizers** section, pages 6–30.

Networking Program

The Networking Program provides opportunities for engaging with other conference professionals beyond the technical sessions. Networking events include:

- Saturday arrival icebreaker reception
- Buffet dinners at four evening meetings
- Pre-dinner receptions
- Midweek mountainside lunch
- Networking "Java Jams" prior to afternoon sessions
- Post-session fireside ice cream socials
- Friday evening farewell dinner

The costs for these are covered in the registration and guest registration fees.

Front Cover – *Mid-infrared data from NASA's James Webb Space Telescope (in white, gray, and red) and X-ray data from NASA's Chandra X-ray Observatory (in blue) come together in this photo of colliding spiral galaxies released on Dec. 1, 2025. The pair grazed one another millions of years ago; billions of years in the future, they will merge into a single galaxy.* ***Image credit: X-ray: NASA/CXC/SAO; Infrared: NASA/ESA/CSA/STScI/Webb; Image Processing: NASA/CXC/SAO/L. Frattare.***

Abstract Submission

An abstract of 500 words or less is due by **July 1, 2026** at the conference website www.aeroconf.org.

Abstracts will be accepted ONLY through the conference website. Accept/reject notices will be emailed promptly. Author instructions are on the website.

Note: The IEEE Aerospace Conference is designed as a venue for engineers and scientists to present and discuss their work. **Please submit only if you expect to attend the conference yourself to personally present your paper. (See IEEE Policies on Presentation and Reuse below.)**

Paper Submission

Properly formatted papers of 6-20 pages must be submitted for review no later than **Friday, October 2, 2026**, a **firm** deadline! Each paper must be in final publishable format and submitted via the conference website as a PDF file. Use our format template to type your paper and see useful links: http://www.aeroconf.org/paper-submission. **Revised** papers responsive to reviewer comments must be submitted to the website by **Friday, January 8, 2027**. This is a **firm** deadline!

Questions regarding the review process may be directed to:

Lisa May, Paper Review Chair
PaperReviewChair@aeroconf.org

IEEE Copyright Transfer forms (see link on your "My Submissions" page) must be signed and submitted by **Friday, January 8, 2027.**

Submitted papers are considered for track and conference **Best Paper Awards**, which are selected prior to the conference on the basis of technical innovation and quality of the written paper.

(See www.aeroconf.org for criteria.)

IEEE Policies on Presentation and Reuse

Publication of Conference Papers in the *IEEE Xplore* Digital Library

IEEE policy on publication of papers accepted for IEEE conferences states that "IEEE reserves the right to exclude a paper from distribution after the conference (e.g., removal from *IEEE Xplore*), if the paper is not presented at the conference."

IEEE Xplore is the association's digital library of over 4.5 million full-text documents. IEEE journals and conference proceedings are among the world's most highly cited technical publications.

Reuse of Conference Papers in Journal Publications

IEEE policy recognizes and encourages the evolutionary publication process from conference presentation to scholarly publication. Guidelines for author reuse of their presented papers and other intellectual property rights can be found at:

https://www.ieee.org/publications/rights/author-originality.html

A list of IEEE journals can be found at:

https://www.ieee.org/membership-catalog/index.html?srchProdType=Subscription&searchType=prodType

Registration

The conference registration fee includes:

- Access to all technical sessions
- Electronic copy of Conference Proceedings
- Electronic copy of Conference Digest and Schedule
- Networking/Social Program
- Recreation activities discount

REGISTRATION FEES (US$) Including Activities & Meals	Received by Dec 6, 2026	Received after Dec 6, 2026	Received after Jan 23, 2027
IEEE & AIAA Members	$1,015	$1,225	$1,485
Non-Members	$1,290	$1,590	$1,825
Guests* and Jr. Engineers (Activities & Meals only)	$475	$495	$550

*Spouse/partner/child of primary registrant

Travel and Lodging

Special rates for lodging near the Yellowstone Conference Center will be available through the conference website. Check www.aeroconf.org after October 1, 2026. Book early for best choice.

For More Information

Visit Our Web Site: www.aeroconf.org for additional information on abstract and paper submission, and any further notices on the 2027 Conference.

CONFERENCE-RELATED QUESTIONS

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Paper Review Chair
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JUNIOR CONFERENCE HELP

Please visit: https://aeroconf.org/junior-engineering

GENERAL HELP

IEEE Aerospace Conference — Info@aeroconf.org

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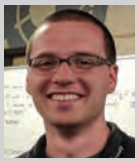

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SCHEDULE OVERVIEW

6 Days of Presentations, over 175 Hours of Technical Sessions and 20 Hours of Conference-Sponsored Technical Networking Events

Registration and Icebreaker Wine & Cheese Reception
Saturday March 6, 6:30–9:00 PM

Sunday March 7	Monday March 8	Tuesday March 9	Wednesday March 10	Thursday March 11	Friday March 12
Continued Registration 8:45–11:30 AM	Technical Sessions 8:30 AM–Noon	Technical Sessions 8:30 AM–Noon	Technical Sessions 8:30 AM–Noon	Technical Sessions 8:30 AM–Noon	Technical Sessions 8:30 AM–Noon
Continued Registration 3:30–6:45 PM	Lunch Break 12:15–1:25 PM	Catered Lunch Noon–1:30 PM	Lunch Break 12:15–1:25 PM	Lunch Break 12:15–1:25 PM	Lunch Break 12:15–1:25 PM
	Panels 1:25–4:00 PM	Jr Engineering & Science Conference 1:15–4:00 PM	Panels 1:25–4:00 PM	Panels 1:25–4:00 PM	Ad Hoc Individual Track Planning Meetings
Java Jam 4:00–4:30 PM	Java Jam 4:00–4:30 PM	Ad Hoc Session Workshops (see announcement board for time and location)	Java Jam 4:00–4:30 PM	Java Jam 4:00–4:30 PM	Track/Session Organizers Planning Session for 2028 Conference 4:00–5:30 PM
Technical Sessions 4:30–5:45 PM	Technical Sessions 4:30–5:45 PM		Technical Sessions 4:30–5:45 PM	Technical Sessions 4:30–5:45 PM	
Plenary Session 5:50–6:35 PM	Plenary Session 5:50–6:35 PM		Plenary Session 5:50–6:35 PM	Plenary Session 5:50–6:35 PM	
Hosted Reception 6:35–7:05 PM	Hosted Reception 6:35–7:05 PM	Free Evening in Big Sky Village	Hosted Reception 6:35–7:05 PM	Hosted Reception 6:35–7:05 PM	Farewell Networking Catered Reception & Dinner 7:00–11:00 PM (Buffet open 7:00 –9:00 PM)
Catered Dinner 7:05–8:05 PM	Catered Dinner 7:05–8:05 PM		Catered Dinner 7:05–8:05 PM	Catered Dinner 7:05–8:05 PM	
Plenary Session 8:05–8:50 PM	Plenary Session 8:05–8:50 PM		Plenary Session 8:05–8:50 PM	Plenary Session 8:05–8:50 PM	
Technical Sessions 9:00–10:15 PM	Technical Sessions 9:00–10:15 PM		Technical Sessions 9:00–10:15 PM	Technical Sessions 9:00–10:15 PM	
Après Session Fireside Cheer and Chat 10:15–11:00 PM	Après Session Fireside Cheer and Chat 10:15–11:00 PM		Après Session Fireside Cheer and Chat 10:15–11:00 PM	Après Session Fireside Cheer and Chat 10:15–11:00 PM	

All dinners and networking activities are intended to promote, enhance and facilitate technical discussions and long-term professional and personal relationships.

Tracks, Sessions & Organizers

Track 1 Science and Aerospace Frontiers (Plenary Sessions)

David Woerner
dwoerner@ieee.org

Deputy PI/Mission Integration Lead, U. of Dayton Research Institute; lunar work for NASA PRISM. Retired from JPL/Caltech 12/2025 after 42 years; multiple NASA awards. Editor, The Technology of Discovery (RTGs). Past: Systems Formulation Mgr, NASA RPS; MMRTG Office Mgr, MSL; Chief Engineer avionics, Mars Pathfinder; SE on Galileo, Cassini, Magellan. Chair, IEEE Aerospace Conferences Board.

Kendra Cook
kendra.l.cook@gmail.com

Space System Security SME at SAIC, supporting NASA on space system security. Two decades in aerospace engineering, cybersecurity, and mission operations. Nine years at NASA JPL, most recently System Security Engineer (Mission Protection Office) and Lead SE on Europa Clipper operations. 7 years as USAF Officer. BS AE, BU; MS Astronautical Eng. and MS CompE, AFIT. PMP, CUSECO, CEH certified.

Track 2 Space Missions, Systems and Architectures

Steven Arnold
steven.arnold@jhuapl.edu

Deputy Executive, Civil Space, APL. Oversees all Civil Space programs at APL, including NASA missions such as New Horizons, Parker Solar Probe, and Dragonfly. Responsible for core technology development, IRAD, external partnering, program formulation and execution. Formerly senior technical and management positions at Hughes and DirecTV. BSEE, Virginia Tech; MSEE, Purdue University.

Keyur Patel
keyur@jpl.nasa.gov

Associate Director of Flight Projects and Mission Success at NASA JPL; member of JPL's Executive Council. Responsible for success of all JPL projects/instruments and for implementation processes and resources. Past: Director, Astronomy and Physics; Deputy Director, Planetary Science; Director, Interplanetary Directorate; PM Dawn (Vesta, Ceres); Deputy PM and Chief Engineer, Deep Impact (Tempel 1).

Session 2.01 Current Space and Earth Science Missions

Addresses status and results of missions in development, implementation, and operation. Session objective is to provide a full mission prospective and discuss the system level trade offs, challenges and lessons learned. From operational missions, results are discussed along with the in-flight challenges. Session addresses all types of missions from Earth orbiting to planetary to heliophysics to astrophysics missions.

Keyur Patel **keyur@jpl.nasa.gov**
Associate Director for Flight Projects and Mission Success, NASA Jet Propulsion Laboratory, California Institute of Technology

Kristen Brown **kristen.m.brown@nasa.gov**
Project Manager, NASA Goddard Space Flight Center

Session 2.02 Future Space and Earth Science Missions

Future space or Earth science programs or missions in formulation or concept development.

Alex Austin **alexander.austin@jpl.nasa.gov**
Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Michael Gross **magross@jpl.nasa.gov**
Deputy Director for Engineering and Science, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 2.03 System and Technologies for Landing on Planets, the Moon, Earth and Small Bodies

This session includes landing spacecraft, including precision and safe landing, atmospheric entry, descent, and landing/rendezvousing with small bodies.

Ian Clark **ian.g.clark@jpl.nasa.gov**
Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Clara O'Farrell **ofarrell@jpl.nasa.gov**
Guidance and Control Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 2.04 Robotic Mobility and Sample Acquisition Systems

Use of robotic systems for in situ space exploration involving robotic mobility, manipulation, and sampling. All aspects of these robotic systems - including design, development, implementation, validation and operation - are valued topics of presentation. Research prototypes as well as fielded or flown systems are of interest.

Richard Volpe volpe@jpl.nasa.gov

Directorate Chief Technologist, NASA Jet Propulsion Laboratory, California Institute of Technology

Paul Backes backes@jpl.nasa.gov

Group Supervisor, NASA Jet Propulsion Laboratory, California Institute of Technology

Joseph Bowkett bowkett@jpl.nasa.gov

Robotics Technologist, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 2.05 Future Missions & Enabling Technologies for In Situ Exploration, Sample Returns

Future mission concepts, planetary protection technologies, sample handling techniques, novel technologies for in situ exploration, technologies not covered under robotic mobility and sample acquisition, human precursor mission concepts, and technologies that enable precursor missions.

Elena Adams elena.adams@jhuapl.edu

Systems Engineer, Johns Hopkins University Applied Physics Laboratory

Christopher Green christopher.m.green-1@nasa.gov

Assistant Chief for Technology, NASA Goddard Space Flight Center

James Kinnison jim.kinnison@jhuapl.edu

Mission System Engineer, Johns Hopkins University Applied Physics Laboratory

Session 2.06 In Situ Instruments for Landed Surface Exploration, Orbiters, and Flybys

This session solicits papers that describe advanced instrument concepts and/or innovative analytical protocols that enable the in situ characterization of planetary bodies. Instruments and/or protocols that investigate surface and subsurface chemistry and geology (including elemental, isotopic, molecular, mineralogical composition), astrobiological potential, geophysical processes (such as tectonics, internal structure, heat flow, geochronology), atmospheric chemistry and dynamics, dust and particles, charged particles/plasmas, and/or magnetic fields of planetary bodies are encouraged.

Xiang Li xiang.li@nasa.gov

Research Scientist, NASA Goddard Space Flight Center

Jacob Graham jacob.graham@nasa.gov

Research Space Scientist, NASA Goddard Space Flight Center

Terry Hurford terry.a.hurford@nasa.gov

Planetary Scientist, NASA Goddard Space Flight Center

Rico Fausch rico.fausch@unibe.ch

Project Manager, University of Bern

Session 2.07 Mission Design, Formation Flying and Constellations

This session covers all aspects of mission design for spacecraft flying to or about Earth, other celestial bodies and deep space. A specific interest is devoted to missions involving distributed systems, as formation flying and constellations. Papers dealing with preliminary and advanced design, actual mission implementation and operational issues are welcome.

Giovanni Palmerini giovanni.palmerini@uniroma1.it

Professor, Guidance and Navigation, Sapienza Universita' di Roma

Leonard Felicetti leonard.felicetti@cranfield.ac.uk

Reader in Space Robotics and GNC, Cranfield University

Ryan Woolley woolley@jpl.nasa.gov

Mission Design Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 2.08 Space Radiation and its Interaction with Shielding, Electronics and Humans

The mitigation of adverse effects from radiation on humans and electronics in space is a critical step in mission success. This session focuses on research in understanding the nature of the radiation field in space and how that field is changed as it passes through shielding materials, electronics, and the human body. Topics include radiation measurements made in space, projectile and target fragmentation measurements and materials studies conducted at accelerator facilities on ground, radiation transport modeling, improvements of nuclear reaction models and radiation transport codes, shielding of electronics and humans, and benchmarking of measurements performed both in space and on ground for the verification and validation of the transport codes.

Lembit Sihver lembit.sihver@utrgv.edu

Professor Dr., TU Wien and Nuclear Physics Institute of the Czech Academy of Sciences

Ondrej Ploc ploc@ujf.cas.cz

Senior researcher, Nuclear Physics Institute of the Czech Academy of Sciences

Session 2.09 Space Debris and Micrometeoroids: The Environment, Risks, and Mitigation Concepts and Practices

Operational satellites are at risk from collisions with the more than 20,000 trackable debris objects that remain in orbit today, as well as hundreds of thousands of objects, including micrometeoroids, that are too small to be cataloged. Beyond the realm of Earth-oriented orbits, unique and immensely valuable science-gathering spacecraft can also be exposed to similar hypervelocity collisional risks, but from cometary and asteroidal micro-milliscale particles (dust). Papers are invited that address the space debris population and growth projections; debris and dust characteristics; impact modeling and materials testing; modeling and simulation and/or test results that can lead to quantification of the risks to spacecraft in various orbits and exploration missions; and mitigation strategies including debris removal or repositioning, spacecraft shielding, orbit selection, and spacecraft operations. Papers documenting past mission anomalies traced to space debris, and mitigation strategies employed today, are also of interest.

Yasin Abul-Huda yasin.abul-huda@jhuapl.edu

Space Environmental Effects Modeling and Analysis, Johns Hopkins University Applied Physics Laboratory

Rachel Sholder rachel.sholder@jhuapl.edu

Analyst, Johns Hopkins University Applied Physics Laboratory

Session 2.10 Asteroid Detection, Characterization, Sample-Return, and Deflection

This Session invites papers on flight and ground system concepts, mission concepts, and technologies that address the need to detect, characterize and deflect asteroids that could pose an impact hazard to Earth. Papers on instrument technologies and technologies for proximity operations near, and landing on, asteroids are also sought.

Michael Werth michaelwerthaerospace@gmail.com

Senior Scientist, The Boeing Company

Justin Atchison justin.atchison@jhuapl.edu

Mission Design and Navigation Engineer, Johns Hopkins University Applied Physics Laboratory

Jeffery Webster jeff.webster@aeroconf.org

Senior Systems Engineer, retired, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 2.11 In-Space Robotics: Rendezvous and Proximity Operations, Servicing, Assembly, Manufacturing, and Active Debris Removal

On-going and future missions involving in-space robotic systems and operations, to include in-space Inspection, Servicing, Active Debris Removal, Assembly, and Astronaut Assistance. All designs and methods to accomplish robotic tasks in orbit or on the Moon or Mars surface, such as mobility, manipulation, assembly or maintenance, are of interest. Specific aspects may be addressed, such as hardware design, open-loop or closed-loop control, rendezvous trajectory generation, computer vision, autonomy, tele-operation, experimental facilities on the ground, or others of relevance. Mission concept papers are to include technical development toward ground testing or flight operation.

David Sternberg david.c.sternberg@jpl.nasa.gov

Guidance and Control Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Kenneth Cheung kenny@nasa.gov

Research Scientist, NASA Ames Research Center

Track 3 Antennas, RF/Microwave Systems and Radio Science

Glenn Hopkins
glenn.hopkins@gtri.gatech.edu

Georgia Tech Research Institute (GTRI) Fellow and Principal Research Engineer of the Antenna Systems Division, GTRI Sensors and Electromagnetic Applications Laboratory; specializes in array antenna technologies. Interests include phased arrays, wide-bandwidth antennas, digital beamforming, and RF subsystems.

James Hoffman
jimhoffman@ieee.org

V.P. of Engineering at Kinemetrics, Inc., where he leads the development of advanced seismic and environmental monitoring systems. Formerly at NASA's Jet Propulsion Laboratory, contributing to missions such as InSight and NISAR. PhD in Electrical Engineering from Georgia Tech, specializing in microwave remote sensing.

Session 3.01 Phased Array Antenna Systems and Beamforming Technologies

Included are active power combining, thermal management, phasing networks, integration, power, test and evaluation and beamsteering, algorithm development and associated hardware implementations, and modeling and simulation for all levels of phased array development and beamsteering.

Glenn Hopkins glenn.hopkins@gtri.gatech.edu

Principal Research Engineer, Georgia Tech Research Institute/Georgia Institute of Technology

Session 3.02 Ground and Space Antenna Technologies and Systems

Topics on all aspects of antenna systems associated with ground-based and space-based sensors, communications, and antenna technologies. Systems include ground based terminals, ground-to-space and space-to-space data links, and radar sensors. Antenna technologies include reflectors, lenses, feeds, arrays, and the transmit/receive subsystems associated with the antenna(s).

James Hoffman **jimhoffman@ieee.org**

Vice President of Engineering, Kinemetrics

Thomas Williamson **thomas.williamson@gtri.gatech.edu**

Research Engineer, Georgia Tech Research Institute/Georgia Institute of Technology

Session 3.03 RF/Microwave Systems

Papers about RF and microwave systems or components, passive and active, including radar systems.

James Hoffman **jimhoffman@ieee.org**

Vice President of Engineering, Kinemetrics

Christopher Edmonds **christopher.edmonds@gtri.gatech.edu**

Senior Research Engineer, Georgia Tech Research Institute/Georgia Institute of Technology

Session 3.04 Radio Astronomy and Radio Science

Papers on the techniques, hardware, systems, and results in the fields of Radio Astronomy and Radio Science.

Mark Bentum **m.j.bentum@tue.nl**

Professor, Eindhoven University of Technology

Melissa Soriano **webguru@aeroconf.org**

Payload Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Track 4 Communication & Navigation Systems & Technologies

Kar Ming Cheung
kar-ming.cheung@jpl.nasa.gov

Principal Engineer and Technical Group Supervisor in the Communication Architectures and Research Section at NASA's Jet Propulsion Laboratory. Received NASA's Exceptional Service Medal for work on Galileo's onboard image compression scheme. BSEE, University of Michigan, Ann Arbor; M.S. and Ph.D., California Institute of Technology.

John Enright
jenright@torontomu.ca

Professor, Department of Aerospace Engineering, Toronto Metropolitan University (formerly Ryerson University). Primary research interests: development of attitude sensors for spacecraft, optical navigation, and mobile robotics.

Session 4.01 Evolving Space Communication Architectures

A forum in which to trace, examine and predict trends in the architectures of space communications and navigation, including ground infrastructure and support and interactions between terrestrial and space networks. Innovative concepts and game changing approaches with a system view are especially sought.

Shervin Shambayati **shervin.shambayati@aero.org**

Senior Systems Engineering, The Aerospace Corporation

Alexander Ford **alf@ku.edu**

Technical Fellow, Northrop Grumman Corporation

Session 4.02 Communication Protocols and Services for Space Networks

The focus is communication protocols and services supporting space systems, including ground- and space-based methods to increase efficiency, enable new exploration/applications, provide more secure systems, and improve Quality of Service. Techniques include relay communications, routing, delay/disruption tolerant networking, retransmission approaches, adaptive link/network/transport methods, demand access, and advanced scheduling. Novel space network architectures are of key interest, including microspacecraft swarms, sensor webs, and surface networks. Implementation and evolution of communications networking into space systems, as well as application to specific missions, are sought.

Shervin Shambayati **shervin.shambayati@aero.org**

Senior Systems Engineering, The Aerospace Corporation

Alexander Ford **alf@ku.edu**

Technical Fellow, Northrop Grumman Corporation

Session 4.03 Next Generation Space Systems: AESS GLUE

This session solicits papers on advanced, interdisciplinary topics in Space System Engineering, based on the concept of interdependency of systems. This includes terrestrial/non-terrestrial (T/NT) network integration, new broadband communications systems and techniques, their use platforms, such as: small satellites, Internet-of-Remote Things and Internet-of-Space-Things, software control and implementation of sky communications and networks (SDR and SDN), end-to-end system considerations, augmented 3D reality for manned space missions, integration of navigation, communications and sensing functionalities, AI applications for Space communications and networking, extraterrestrial communications, advanced signal processing techniques for emerging space communications and data applications.

Claudio Sacchi claudio.sacchi@unitn.it

Associate professor, University of Trento

Tommaso Rossi tommaso.rossi@uniroma2.it

Engineer, University of Rome Tor Vergata

Session 4.04 Navigation and Communication Systems for Exploration

Systems, technology, and operations for navigation and/or communication among elements involved in civil, commercial, or national security missions in any orbital domain (Earth and interplanetary). The session focuses on enabling technologies, strategies, new operational concepts and performance improvements for advancing mission capability.

Patrick Stadter patrick.stadter@jhuapl.edu

Mission Area Executive, Theater Defense, Johns Hopkins University Applied Physics Laboratory

David Copeland david.copeland@jhuapl.edu

Principal Professional Staff, Johns Hopkins University Applied Physics Laboratory

Session 4.05 Relay Communications for Space Exploration

For a wide range of space exploration scenarios, multi-hop relay communications can provide significant benefits in terms of increased data return and reduced user burden (mass, power, cost) over conventional space-to-ground links. In this session we examine relay communications for both Earth-orbiting missions and missions to the Moon, Mars, and throughout the solar system. Topics of interest include relay system architecture, relay spacecraft design (for both dedicated relay orbiters and for hybrid science/telecom spacecraft), relay telecommunications payload design, relay communication protocols, mission applications and operational experiences/lessons-learned.

Mazen Shihabi mazen.m.shihabi@jpl.nasa.gov

Technical Group Supervisor, NASA Jet Propulsion Laboratory, California Institute of Technology

Jaime Esper jaime.esper@nasa.gov

Project Manager, NASA Goddard Space Flight Center

Shannon Rodriguez-Sanabria shannon.rodriguez-1@nasa.gov

RF Communications Systems Engineer, NASA

Session 4.06 Innovative Space Communications and Tracking Techniques

This session solicits innovative contributions to improve flight and ground communication and tracking systems such as antenna arrays, software-defined radios, advance receivers, deployable antennas, relay satellites, Ka and Optical communications, novel signal formats, new coding methods, and CubeSat communications and tracking techniques.

Kar Ming Cheung kar-ming.cheung@jpl.nasa.gov

Technical Group Supervisor, NASA Jet Propulsion Laboratory, California Institute of Technology

Alessandra Babuscia alessandra.babuscia@jpl.nasa.gov

Telecommunication Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 4.07 Communication System Analysis & Simulation

This session solicits innovative contributions on modeling, analysis, and/or simulation of satellite, aerospace, or terrestrial communication systems. Topics include modeling and design of network services and systems, design and evaluation of communication waveforms, modulations, and coding, modeling of multipath effects in space communications, integration of terrestrial and satellite networks, deep space communication systems, terrestrial and deep space relay space networks, protocols for satellite communication, traffic modeling, traffic engineering and analysis, network optimization and resource provisioning, Delay Tolerant Networking, overlay and virtual networks, cross-layer & cross-system protocol design, and communication network monitoring.

Marc Sanchez Net marc.sanchez.net@jpl.nasa.gov

Telecommunications Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 4.08 Communications and/or Related Systems: Theory, Simulation, Signal Processing, and Artificial Intelligence (AI)

This session solicits innovative contributions on theory, modeling and simulation, Artificial Intelligence (AI) , and signal processing foundations of satellite, aerospace and terrestrial wireless communications

David Taggart dtaggart1912@gmail.com

Engineer

Claudio Sacchi claudio.sacchi@unitn.it

Associate professor, University of Trento

Len Yip len.yip@aero.org

Senior Communication Architecture Analyst, The Aerospace Corporation

Session 4.09 Narrow to Wideband Communications Components and Systems (Theory, Modeling, Manufacturing, and Testing)

This session solicits innovative contributions about narrow to wideband communication systems in terrestrial, satellite, and hybrid Space-terrestrial communications systems transmitting information at low to high data rates. Papers dealing with modelling, simulation, making, and testing of communications systems, evaluating performance, and/or describing hardware/software implementation of communication system components are welcome. Detailed topics include, but are not limited to: Narrowband to Broadband satellite and aerospace transmission; Broadband terrestrial wireless transmission; Microwave, Millimeter Wave, and Optical communications; Spread-spectrum and CDMA communications; TV and HDTV broadcasting over satellite; Modulation and channel coding techniques; MIMO techniques; Antenna design; Multi-carrier communications; Multi-user transmission; Channel equalization; Carrier and timing synchronization; Radio resource management and scheduling; Emerging technologies for safety-critical and emergency communications; Emerging standards for terrestrial and satellite communications in the framework of 5G and beyond. Energy-efficient terrestrial and satellite communications, networking, AI, GEO, NGEO satellite, & Deep Space communications covered in this session

David Taggart dtaggart1912@gmail.com

Engineer

Claudio Sacchi claudio.sacchi@unitn.it

Associate professor, University of Trento

Session 4.10 Software Defined Radio and Cognitive Radio Systems and Technology

This section presents papers on software and cognitive radio in general, and their application to space communications in particular. Both original and space-centric tutorial papers are welcome.

Eugene Grayver eugene.grayver@aero.org

Principal Engineer, The Aerospace Corporation

Genshe Chen gchen@intfusiontech.com

CTO, Intelligent Fusion Technology, Inc.

Session 4.11 Terrestrial and Planetary PNT Technologies, Systems, and Architectures

This session focuses on recent advances in satellite-based position, navigation, and timing systems for the Earth, cislunar, lunar, Martian, and beyond. Topics cover both traditional GNSS applications and technologies, PNT systems proposed for other bodies in the solar system, hybrid navigation and communications mission concepts including constellation design, orbit determination, and time synchronization. Session scope encompasses both high-level architectural studies and focused innovations.

Lin Yi lin.yi@jpl.nasa.gov

Technical Group Supervisor, NASA Jet Propulsion Laboratory, California Institute of Technology

Sriramya Bhamidipati sriramyab@gmail.com

Robotics Technologist, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 4.12 Space Navigation Techniques

Papers in this session are collected on topics of architecture, hardware and algorithms relating to space navigation techniques including, but not limited to: Ground-based deep space navigation using NASA Deep Space Network, ESA Deep Space Antenna, as well as similar deep space navigation facilities from China, India, Japan, etc.; Navigation at lunar surface and deep space gateway; Navigation in deep space CubeSats missions; Spacecraft formation flying navigation; Navigation in rendezvous missions; Novel navigation methods (e.g. using pulsars); Relative navigation between spacecraft; Spacecraft navigation with GNSS (Papers accepted under this topic can overlap with the GNSS session topics, and please expect coordination in the final program arrangement); Spacecraft navigation with in-situ sensors including but not limited to magnetometers, inertial sensors, etc. The session also welcomes papers on navigation robustness, autonomous navigation, and integrated navigation.

Lin Yi lin.yi@jpl.nasa.gov

Technical Group Supervisor, NASA Jet Propulsion Laboratory, California Institute of Technology

John Enright jenright@torontomu.ca

Professor, Toronto Metropolitan University

Evan Ward evan.ward@nrl.navy.mil

Aerospace Engineer, Naval Research Laboratory

Session 4.13 CNS Systems and Airborne Networks for Manned and Unmanned Aircraft

This session focuses on communications, navigation and surveillance systems, including on-board and ground-based systems for all vehicles operating in the National Airspace System (NAS): manned and unmanned vehicles, fixed wing and rotor-craft, general aviation, civil transport and military that may carry passengers, cargo or are performing surveillance-type missions. Topics range from concept development, simulation and modeling, technology development and verification, through flight testing and certification. Emerging fields include surface wireless networks, ADS-B, Datacomm, airborne network security, UAS integration, satellite-based CNS, and international activities.

Jason Glaneuski **jglaneus@gmail.com**

Program Manager, Air Traffic Management Systems, US DOT / RITA / Volpe Center

Mark Cockburn **mark.cockburn@dot.gov**

Data Scientist, US Department of Transportation

Session 4.14 Aerospace Cyber Security and Cyber-Physical Systems

Computer networks, information technology, and cyber security are contributing significant advances as well as challenges in aerospace. Systems that integrate with the cyberspace and enable safe, efficient and/or profitable operation and performance, with minimal or no human intervention, are of growing interest. This session focuses on cyber security and privacy developments in the areas including, but not limited to: aerospace software, data and multimedia distribution; air traffic control systems; IVHM; aeronautical and space networked systems; aircraft, airport and airline information systems; UAS/UTM/UAM/AAM, spacecraft and commercial space vehicles; cloud computing, cyber-physical systems, and IoT; and, aerospace cybersecurity regulations and industry standards.

Krishna Sampigethaya **sampiger@erau.edu**

Department Chair and Professor, Embry-Riddle Aeronautical University

Patrick Morrissey **patrick.morrissey@collins.com**

Principal Technical Fellow, Collins Aerospace

Track 5 Small Spacecraft, Low-Cost Missions, Systems and Technologies

Alex Austin
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Systems Engineer in the Advanced Design Engineering group at JPL. Flight System SE for the INCUS mission, and Lead Engineer for Team Xc, JPL's formulation team for CubeSat and SmallSat missions. BS in Aeronautical and Mechanical Engineering and MS in Aeronautical Engineering, Rensselaer Polytechnic Institute.

Catherine Venturini
catherine.c.venturini@aero.org

Principal Engineer, Office of the CTO, The Aerospace Corporation. Focus areas: space mission architectures, mission concept development, and smallsat capabilities/technology. Leads studies on smallsat technical trends, mission concepts and capabilities, and approaches to mission success.

Session 5.01 Small, Low-Cost Missions in Development and Operations for Space and Earth Exploration

This session will explore the use of small spacecraft and other low-cost implementations to enable new, exciting missions for space exploration. The session will focus on SmallSat and low-cost missions in development and operations and how form factor or other novel approaches can reduce cost and affect the mission.

Young Lee **young.h.lee@jpl.nasa.gov**
Senior Program Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Benjamin Donitz **benjamin.p.donitz@jpl.nasa.gov**
Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Lee Jasper **lee.jasper@sdl.usu.edu**
System Engineer, Space Dynamics Laboratory*f*/Utah State

Session 5.02 Future Small, Low-Cost Mission Concepts

This session is focused on small mission concepts and missions in formulation. Missions in all areas of space exploration are welcome, including Earth science, planetary science, astrophysics, and heliophysics.

Dexter Becklund **dexter.becklund@aero.org**
Project Leader, The Aerospace Corporation

Laura Jones-Wilson **laura.l.jones@jpl.nasa.gov**
Guidance and Control Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Tyler Presser **tyler@endeavornetworks.com**
PhD Student, Endeavor Optical Networks

Session 5.03 Applications for Distributed Systems of Small Spacecraft

This session focuses on distributed systems, swarms, networks, and constellations of small spacecraft, enabling low-cost missions while unlocking new capabilities and scientific opportunities. Advances in miniaturization and launch accessibility have fueled the rise of modular distributed architectures, such as fractionated systems, that transform space operations. We invite contributions on the design, coordination, and application of these modular systems for Earth observation, space weather monitoring, formation flying, inter-satellite communications, space domain awareness, and deep-space exploration. Key topics include guidance, navigation, and control (GNC), onboard autonomy, AI/ML-driven collaborative decision-making, and scalable resource sharing. The focus is on addressing the challenges of modular system-level design, resilience, and performance in contested or constrained environments. Researchers and mission planners are invited to contribute theoretical insights, flight tests, and practical concepts that demonstrate the way in which modular distributed small spacecraft systems facilitate flexible, scalable, and resilient missions and transform the future space exploration and technology.

Ryan Woolley **woolley@jpl.nasa.gov**
Mission Design Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Ashwati Das-Stuart **ashstudas@gmail.com**
Navigation Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Rachit Bhatia **rachitbhatia31@gmail.com**
Principal GN&C Engineer, CesiumAstro

Session 5.04 Lessons Learned from Small Spacecraft Missions

The past decade has seen major advancements in the development and demonstration of CubeSat and SmallSat technologies and missions. There are many issues and challenges to flying CubeSats and SmallSats successfully, including performance, cost, risk, reliability, fault tolerance, thermal management, radiation hardness, and mission lifetime. University involvement in CubeSat and SmallSat development has provided an excellent training ground for future spacecraft developers. CubeSat and SmallSat technology demonstrations have been experimental and operational. CubeSat and SmallSat technology and mission developments and demonstrations have experienced total successes, partial successes, and, undoubtedly, a few failures. Each success and failure provide opportunities to learn. The objective of this session is to allow CubeSat and SmallSat developers to share their lessons learned, both good and bad, with the CubeSat and SmallSat community.

Michael Swartwout **mswartwo@slu.edu**

Professor, Saint Louis University

Bruce Yost **bruce.d.yost@nasa.gov**

Director, Small Spacecraft Systems Virtual Institute, NASA Ames Research Center

John Samson **jrsamson1970@gmail.com**

Research Affiliate / Aerospace Consultant, Morehead State University

Session 5.05 Small Missions for Workforce Development and Education

The purpose of this session is to highlight the use of Smallsat missions for workforce development/education. While examples of undergraduate education programs that leverage Smallsats are welcome, this session has a particular emphasis on the use of these systems for professional workforce development as well as the training of graduate researchers. We invite papers covering individual missions (past, present, future) as well as workforce development programs at an institution or company.

Michael Swartwout **mswartwo@slu.edu**

Professor, Saint Louis University

Jin S. Kang **kang@usna.edu**

Professor, U.S. Naval Academy

Session 5.06 Instruments and Payloads for Small, Low-Cost Missions

Instruments and payloads for small, low-cost missions bring unique challenges, yet can offer unique opportunities. These opportunities range from the delivery of novel science data to meeting new business cases to delivering capabilities at great scale. This Session is focused on all types of instruments and payloads for small, low-cost missions and the benefits they can deliver.

Michael O'Connor **moconnor0@gmail.com**

United States Space Force

Rashmi Shah **rashmi7@gmail.com**

Managing Director, Mandala Space Ventures

Laila Kazemi **lailakazemi@starforge.ca**

ADCS R&D Engineer, Star Forge Consulting

Session 5.07 Technologies for Small, Low-Cost Missions

This session seeks papers covering technologies, systems, and RF components for very small spacecraft (secondary platforms such as CubeSat, ESPA and ASAP-class) that enable "big" science and technology missions on a small budget. Papers that evaluate flight or testing results are strongly encouraged.

John Dickinson **jrdicki@sandia.gov**

Manager, Research & Development, Radiation Effects & Mission Sciences, Sandia

Dimitris Anagnostou **danagn@ieee.org**

Associate Professor, Heriot Watt University

Michael Mclelland **michael.mclelland@swri.org**

Vice President, Space Systems Division, Southwest Research Institute

Track 6 Remote Sensing

Jordan Evans
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Director, Flight Projects Directorate. Previous roles: Europa Clipper Project Manager; Deputy Director for Engineering and Science at JPL; Division Manager. Development experience with space projects at both NASA Goddard and JPL, including FUSE, WFC3, GLAST, LISA, MSL, and Europa Clipper, along with numerous architecture studies.

Darin Dunham
darin@vectraxx.com

LM Fellow and Spiral Chief Engineer, C2BMC Missile Defense National Team, Lockheed Martin, Huntsville. Working on target tracking and discrimination algorithms within the Ballistic Missile Defense System. Served almost 10 years in the Marine Corps. MSEE, Naval Postgraduate School; BSEE, Carnegie Mellon.

Session 6.01 Systems Engineering Challenges and Approaches for Remote Sensing Systems

The need to make a particular measurement from a particular vantage point drives us to build sophisticated remote sensing instruments and launch them on similarly sophisticated spacecraft, aircraft, submersibles, balloons, etc. This session explores the highly coupled nature of the instrument, platform architecture, flight path design, ground system and mission operations, and the systems engineering challenges and solutions employed. Topics include instrument influences on platform architectures and flight path design, platform-to-instrument integration, trade studies, trends and novel solutions.

Travis Imken **travis.imken@jpl.nasa.gov**

Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Bogdan Oaida **bogdan@jpl.nasa.gov**

Group Supervisor, NASA Jet Propulsion Laboratory, California Institute of Technology

Maria De Soria Santacruz Pich **maria.de.soria-santacruz.pich@jpl.nasa.gov**

Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 6.02 Instrument and Sensor Architecture, Design, Test, and Accommodation

This session covers topics related to the physical or functional architecture and design of instruments/sensors. Topics include hardware/software trade studies, fault protection approaches, unique or innovative system interfaces, accommodation of payloads within a system, system-level instrument/sensor testing, instrument/sensor integration, test, and calibration, and approaches to the processes involved in engineering an instrument or sensor.

Keith Rosette **keith.a.rosette@jpl.nasa.gov**

Deputy Project Manager, NASA Jet Propulsion Laboratory, California Institute of Technology

Michael Lisano **michael.e.lisano@jpl.nasa.gov**

Project Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 6.03 Spectral Imaging in Remote Sensing

This session covers multi-spectral, hyperspectral, and imaging spectrometer remote sensing techniques from ultraviolet to infrared wavelengths. Papers are welcome on instrument design, implementation, calibration, and operation; science and applications; and lessons learned from all phases.

Peter Sullivan **peter.sullivan@jpl.nasa.gov**

Electrical Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Mohamed Abid **mabid@jpl.nasa.gov**

SRL Payload Chief Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 6.04 Radar, IR, and Electro-Optical Sensor Systems and Signal Processing

This session focuses on remote sensing devices, systems, and signal processing. Topics of interest include surveillance and imaging radars, infrared search and track systems, IR components and instrumentation, and electro-optic imagers and their application to environmental, defense, astronomical, and meteorological sensing. Papers that use AI in sensing applications are also of interest.

Thomas Backes **tdbackes@gmail.com**

Research Engineer, Georgia Institute of Technology

Donnie Smith **donnie.smith@gatech.edu**

Radar Engineer, Waymo

Session 6.05 Information Fusion

This session focuses on exploitation of all sources of information, including physical sensor data, context information, and human inputs. Methodologies for effective multi-sensor multi-target tracking and sensor management of disparate sources are of interest, as are algorithms and advances in downstream analysis of track data for situational awareness.

Craig Agate **cagate@toyon.com**

Chief Scientist, Toyon Research Corporation

Dan Harris **m082844@gmail.com**

Causal AI Architect, Northrop Grumman Corporation

Session 6.06 Multisensor Fusion

Papers that address all aspects of information fusion for the integration of multiple sensors are sought. Of particular interest are the theoretical aspects of some popular questions. When is sensor fusion better than a single sensor? How does one ensure that sensor fusion produces better results? Papers that document algorithms that address one of the many challenges in multisensor/multitarget tracking or multisensor resource management are also sought. Finally, fusion papers that use AI would also be of interest to this session.

William Blair — **dale.blair@gtri.gatech.edu**

Principal Research Engineer, Georgia Tech Research Institute/Georgia Institute of Technology

Laura Bateman — **laura.ritter.bateman@gmail.com**

System Engineer, Johns Hopkins University Applied Physics Laboratory

Benjamin Davis — **benjamin.peter.davis@gmail.com**

Chief Technical Advisor, KBR Inc

Session 6.07 Classical and AI-Based Applications of Target Tracking

Tracking of cooperative and non-cooperative targets across underwater, surface, land, air, and space domains using sonar, radar, passive RF, and electro-optical sensors. Topics include maneuvering target estimation, data association, and estimation of sensor properties such as biases and noise. Contributions spanning traditional tracking algorithms and AI/ML-based methods are welcome, particularly those demonstrating robustness, scalability, and performance in operationally relevant environments.

John Glass — **jglass20@gmail.com**

Systems Engineer, RTX

John Grimes — **john.p.grimes@baesystems.com**

Scientist, BAE Systems, Inc

Session 6.08 Fusion Integration of Sensor Harvesting

Methods for situation awareness/assessment, threat/impact analysis, sensor/processing refinement, user/man-machine interfaces, and mission awareness/responsiveness. Techniques for system design leveraging information fusion for Command, Control, Communications, Computers, and Cyber Intelligence, Surveillance and Reconnaissance (C5ISR) over multi-domain sensor data and intelligence collections. Applications focusing on space, air, and architecture developments for efficient and effective distributed net-centric operations, edge computing, and complex networks. Approaches for software/hardware dynamic data-driven applications systems (DDDAS) improvements, context-enhanced results, and avionics protocols for big data scenarios. Use of information fusion to optimize and coordinate machine analytics with users for human-machine teaming.

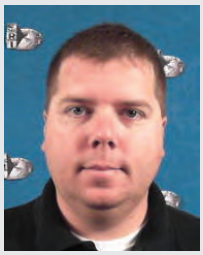
Erik Blasch — **erik.blasch@gmail.com**

IEEE Aerospace & Electronic Systems Society, Air Force Research Laboratory

Track 7 Avionics and Electronics for Space Applications

John Dickinson
jrdicki@sandia.gov

Manages $45M research investment in radiation-effects assessment for state-of-the-art digital microelectronics. Experience in spacecraft and payload systems engineering and avionics design/test on Kepler, WISE, JUNO, IBEX, RBSP, MMS, SPP, Solar Orbiter, CYGNSS, and multiple government programs. BSEE, JHU; MSEE, Georgia Tech.



Patrick Phelan
pphelan@swri.org

Senior Manager, Space Systems Division, Southwest Research Institute (SwRI), San Antonio, TX. BS Computer Engineering (2005) and MSEE (2006), Georgia Tech. Nearly 20 years at SwRI in roles of growing responsibility on space programs. Former project manager for a DoD technology demonstration program and NASA programs.

Session 7.01 High Performance Computing and On-Board Data Processing for Space Applications

Explore innovations and new developments in spacecraft on-board and embedded computing architectures for GEO, MEO, LEO and 5G NTN missions . Example hardware topics: processors, data handling and companion processing ASICs and FPGAs, multicore processing architectures, application of soft-core embedded FPGA processors, emerging GPU technologies for space-based applications, on-orbit reconfiguration, and new or applied standards for embedded space electronics applications. Example software topics: machine learning techniques, embedded cluster computing, on-board big data analytics, power-aware optimal reconfiguration algorithms, reconfigurable software-implemented hardware fault tolerance algorithms and designs, evolutionary platforms, and autonomous computing designs. Papers should address, as applicable: processing performance, size-weight-power (SWaP) comparisons of different components and architectures, standardized form factors, protocols and interfaces, radiation hardness by design, process, or technology, mitigation of other spacecraft environmental factors, software support, and integration and test of elements. Descriptions and performance of actual development, test, flight, or mission usage are highly sought.

Jamal Haque — **jamal_haq@yahoo.com**

Chief Satellite Architect/ LM Fellow, Lockheed Martin Space Systems Company

Robert Merl — **merl@lanl.gov**

Electrical Engineer, Los Alamos National Laboratory

Session 7.02 Peripheral Electronics, Data Handling, and Interconnects for Space Applications

This session explores novel concepts for hardware and software technologies that support but are peripheral to the main computing core. Example topics include: novel instrument or payload hardware and software technologies; network connections architectures; high speed interconnects; mixed signal and systems-on-a-chip technologies; onboard signal, data, and command processing; telecommand reception, decoding, and distribution; payload data pre-processing; dedicated accelerators for data processing; transmission and storage (e.g. compression, encoding, parallel processing for payloads (GIPs, GFLOPs), etc.); fault-tolerance mechanisms; autonomous operations, reconfigurable approaches, and failsafe strategies; emerging and novel designs and tests for high performance embedded computing platforms; temporal and spatial reuse of systems' resources; sensor, detector, and imager readout circuits; high resolution/ high speed ADCs and DACs; resource efficient (mass/ volume) miniaturized multi-channel/ parallel systems; circuit designs for analog and digital processing functions; and designs for integrated communications systems applications on a chip.

Patrick Phelan **pphelan@swri.org**

Sr. Manager - R&D, Southwest Research Institute

Mark Post **mark.post@york.ac.uk**

Senior Lecturer, University of York

Session 7.03 Assembly, Integration, and Test for Electrical Space Systems

This session explores all aspects of assembly, integration, and test of electrical space systems. This includes assembly, integration, and test efforts at the board-level for RF, analog, or digital card assemblies; box-level for command, telemetry, data handling, data processing, control, power, or mixed-purpose avionics; subsystem-level for instruments/payloads; or system-level for entire spacecraft electrical subsystems. Papers can address innovative uses of test software, test scripts, mission simulation, human-computer interface, electrical support ground equipment, and harnessing to accomplish integration and test. Papers also address unique system engineering and configuration control approaches to manage test, and transition from system test to launch and mission operations.

Eric Bradley **eric.w.bradley6.civ@us.navy.mil**

Computer Engineer, Naval Research Laboratory

Eric Rossland **eric.a.rossland.civ@us.navy.mil**

Electronics Engineer, Naval Research Laboratory

Session 7.04 Power Electronics for Aerospace Applications

This session explores advanced power electronics designs and systems for space and avionics applications. Example topics include: power devices; wide bandgap power semiconductors; power electronics; electro-magnetic devices; photo-voltaic modules; energy storage and battery management systems and power systems. Papers discuss technical aspects of power electronics including extreme thermal and power requirements, radiation hardening, efficiency and power management, tolerance to aerospace environments, and reliability.

Thomas Cook **thomas.cook@voyagertechnologies.com**

Senior Electrical Engineer, Voyager Space

Chris Iannello **iannecj@gmail.com**

Professor of Practice, Space Electrical and Power, University of Central Florida

Session 7.05 Electronics for Extreme Environments

This session explores innovations in electronics technologies and packaging that help enable operation of electronics in extreme environments, including space. Technologies resilient to extremes in temperature, radiation, and launch vehicle environments are relevant. Example topics include: materials and techniques for assembling and testing microelectronics; component packaging, attachment, and connectors; thermal/mechanical/electrical/radiation performance comparisons; reliability and failure analyses; adaptation of manufacturing methods for space applications; and integration of diverse modules such as MEMS, power electronics, sensors, optics, RF and microprocessors.

Mohammad Mojarradi **mohammad.m.mojarradi@jpl.nasa.gov**

Assistant Division Manager for Formulation and Technology, NASA Jet Propulsion Laboratory, California Institute of Technology

Andrew Kirby **akirby@lanl.gov**

R&D Engineer, Los Alamos National Laboratory

Session 7.06 Fault Tolerance, Autonomy, and Evolvability in Spacecraft and Instrument Avionics

This session explores adaptation, including Fault Tolerance, Autonomy, and Evolvability, in space electronics. Adaptation reflects the capability of a system to maintain or improve its performance in the presence of internal or external changes, such as faults and degradations, uncertainties and variations during fabrication, modifications in the operational environment, or incidental interference. This session addresses all aspects of adaptivity for spacecraft and instrument avionics with the scope of papers encompassing theoretical considerations, design solutions, and actual techniques applied to space flight operations.

Didier Keymeulen **didier.keymeulen@jpl.nasa.gov**

Principal, Member Technical Staff, NASA Jet Propulsion Laboratory, California Institute of Technology

Neil Dahya **neil.t.dahya@jpl.nasa.gov**

Manager, GRACE-C Flight System, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 7.07 Guidance, Navigation, and Control Technologies for Space Applications

This session explores sensor, actuator, algorithm and processing innovations related to the guidance, navigation, and control of space vehicles. This session welcomes manuscripts that discuss technologies applicable to satellites, probes, landers, launchers, and other space-related missions.

Leena Singh lsmindstorm@gmail.com

Senior Staff, Lincoln Lab/Massachusetts Institute of Technology

Matthew Lashley matthewvlashley@gmail.com

Senior Research Engineer, Georgia Tech Research Institute/Georgia Institute of Technology

John Enright jenright@torontomu.ca

Professor, Toronto Metropolitan University

Sheral Crescent Tissera tsheral@nus.edu.sg

Assistant Professor/Deputy Director, National University of Singapore

Session 7.08 Emerging Technologies for Space Applications

This session explores a wide range of advanced, novel, and cutting edge device technologies for space applications. Example topics include: advanced MEMS devices; 3D circuit printing; innovative embedded electronics applications (including multi-functional components); as well as the leveraging of advanced commercial electronics for space applications. This session also serves as a catch-all for unique advanced technology topics that do not fit cleanly into other sessions or are inherently multi-disciplinary in nature.

William Jackson william.jackson01@l3harris.com

Senior Scientist, L3Harris Technologies

Michael Mclelland michael.mclelland@swri.org

Vice President, Space Systems Division, Southwest Research Institute

Session 7.09 COTS Utilization for Reliable Space Applications

This session explores the use of commercial, off-the-shelf electronics and technologies in a space environment. Using commercial electronics not intended for an application in a space environment is becoming increasingly common. Topics of interest include: adaptations of COTS electronics for fault tolerance and environmental resilience; flight proven COTS electronics; novel implementations of electrical functions using COTS components; and results of COTS component use. Papers address theoretical considerations, design solutions, and actual techniques applied to space flight operations.

Douglas Carssow douglas.b.carssow.civ@us.navy.mil

Electronics Engineer, Naval Research Laboratory

Matthew Spear matthew.spear.4@spaceforce.mil

Electronics Engineer, Air Force Research Laboratory

Track 8 Spacecraft & Launch Vehicle Systems & Technologies

Greg Chavers
greg.chavers@nasa.gov

Retired from 33 years at NASA leading research, engineering, and was program manager for various NASA missions. Performed technical integration for human space flight and deputy program manager for the Human Landing System. B.S., Aerospace Engineering, Auburn University; M.S. and Ph.D., Physics, University of Alabama, Huntsville.

Kevin Duda
kduda@draper.com

Senior Program Manager and Distinguished Member of the Technical Staff in the Space Systems Program Office at The Charles Stark Draper Laboratory, Inc. BS AE, Embry-Riddle Aeronautical U.; MS and PhD A&A, Massachusetts Institute of Technology.

Session 8.01 Human Exploration Beyond Low Earth Orbit

This session seeks papers addressing the strategic aspects of human and scientific exploration including mission planning, system development and concepts, and operational execution of missions beyond low Earth orbit which include lunar vicinity and surface missions as well as missions in support of humans to Mars. Potential topics include mission system studies of human missions to the Moon and Mars, design reference mission analyses and concepts, trade study and systems engineering analyses addressing human and scientific space exploration systems beyond low-Earth orbit, and post-mission analyses and lessons learned from executed missions. In-space vehicles, landers, surface systems and sustainable concepts for lunar exploration extensibility toward Mars exploration missions are in focus.

Chel Stromgren chel.stromgren@nasa.gov

COO, Binera, Inc.

Sarah Shull sarah.a.shull@nasa.gov

SE&I Manager, EVA & Human Surface Mobility Program, NASA Johnson Space Center

Session 8.02 Human Exploration Systems Technology Development

This session seeks papers dealing with technology development for human exploration of space. This can include development efforts with technology readiness levels anywhere from laboratory to full-scale flight demos. It can also include assessments of technology needs of programs, program elements, or individual mission concepts.

James Johnson jejohnso@mines.edu

Ph.D. Candidate & Sr. Systems Engineer, Colorado School of Mines

Session 8.03 Advanced Launch Vehicle Systems and Technologies

This session seeks papers covering on-going development and future advances in space transportation from Earth to orbit and distant destinations. Topics including transportation architectures, launch vehicles, infrastructure, transportation business, and enabling technologies are of interest.

Melissa Sampson melissa@melissasampson.com

CEO & Founder, Sampson Strategic

Randy Williams randall.l.williams@aero.org

Systems Director, The Aerospace Corporation

Session 8.04 Commercial Services for Moon Base and Lunar Exploration

This session seeks papers related to commercial services, such as Commercial Lunar Payload Services (CLPS), Human Landing Systems (HLS), and Deep Space Logistics (DSL), etc. for enabling the Moon Base and Lunar exploration. This includes opportunities and challenges for mission planners and project/program management within NASA as well as opportunities and challenges for the commercial providers. Lessons learned on past and near-term missions are valuable to evolving the commercial services approach and are of high interest. Perspectives on business cases for commercial services is of interest.

Regina Blue regina.b.blue@nasa.gov

Deputy Manager, NASA Commercial Lunar Payload Services, NASA Johnson Space Center

Ryan Woolley woolley@jpl.nasa.gov

Mission Design Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 8.05 Human Factors & Performance

This session seeks papers on human performance, integration, and operations within complex spacecraft systems. Suggested human factors topics may include cockpit and flight deck displays and controls, autonomous crew performance, handling qualities and flight performance, human-robotic interaction and performance, team performance and dynamics, training, countermeasures technologies/systems, and behavioral health and performance during short- and long-duration spaceflight. Papers including operations to experimental and modeling approaches, both in the laboratory and in spaceflight analog locations are of interest.

Jessica Marquez jessica.j.marquez@nasa.gov

Human System Engineer, NASA Ames Research Center

Kevin Duda kduda@draper.com

Senior Program Manager, Space Systems, The Charles Stark Draper Laboratory

Session 8.06 Space Human Physiology and Countermeasures

This session focuses on the physiological aspects of humans in space and current or future countermeasures and technologies to maximize human health and performance in the space environment. Suggested topics include (but are not limited to) bone loss, muscle atrophy, psychological effects, sensory-motor deconditioning, extravehicular activity, cardiovascular adaptation, Spaceflight Associated Neuro-ocular Syndrome (SANS), decompression sickness, radiation, exercise, injury biomechanics, or artificial gravity. Physiological and psychological aspects of missions at Space Analogue sites are also of interest. Both experimental and modeling approaches are welcome.

Ana Diaz Artiles adartiles@tamu.edu

Associate Professor, Texas A&M University

Andrew Abercromby andrew.abercromby@x3po.io

Founder, X-3PO: Extreme Physiology, Performance, Protection & Operations

Session 8.07 Mechanical and Thermal Systems, Design and Technologies

This session seeks papers on spacecraft mechanical and thermal configurations, structures, mechanical and thermal systems, devices, and technologies for space flight systems and in situ exploration. Papers addressing mechanical and thermal systems design, ground testing, and flight validation are also encouraged.

Palak Patel palak@mit.edu

PhD Candidate, Massachusetts Institute of Technology

Peter Rossoni peter.rossoni-1@nasa.gov

Flight Manager, Orion Artemis 2 Optical Communications, NASA Goddard Space Flight Center

Session 8.08 Spacecraft Propulsion and Power Systems

This session seeks papers on the development and infusion of in-space propulsion and power generation, storage, and management technologies for Earth orbiting applications, future deep space science and lunar missions, along with in-space maneuverability. The session's primary focus is on in-space applications and is not intended for launch vehicles.

Ryan Conversano **rconversano@sepstrat.com**

Founder, President, & CEO, SpaceProp Strategies, Inc.

James Polk **james.e.polk@jpl.nasa.gov**

Principal Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Michael Snyder **snyder@star-catcher.com**

Chief Technology Officer, Star Catcher Industries

Session 8.09 Nuclear Space Power Generation

The Nuclear Space Power Generation session invites papers on all things related to nuclear power generation in space: concepts for dynamic power systems and static generators at all scales, conversion technologies, fuel processing, reactors for manned and unmanned space missions, lessons learned and best practices, plans for future devices, models and simulations, test results, government policies, nuclear launch safety, infrastructure, and technologies on any scale that address the future success of space missions. Papers are especially welcomed which report on recent/current unit and subsystem technology maturation efforts for fission and radioisotope power generation.

Christofer Whiting **chris.whiting@nasa.gov**

Technology Development and Commercialization Manager, NASA Glenn Research Center

Lindsey Holmes **linzlou82@gmail.com**

Vice-President, Advanced Projects, Muon Space

Track 9 Air Vehicle Systems and Technologies for Atmospheric Platforms

Christopher Elliott
cmelliott.llc@gmail.com

Principal Research Engineer at CMElliott Applied Science LLC. 25+ years in aerospace, including roles as a Lockheed Martin Aeronautics Technical Fellow in Flight Control and Vehicle Management Systems. Adjunct Professor at TCU and UT Arlington. PhD and MS AE, UT Arlington; BS AE, UT Austin. AIAA Associate Fellow.

Tom McAteer
thomas.mcateer@navy.mil

Systems of Systems Test and Evaluation, Naval Air Warfare Center Aircraft Division, Patuxent River, MD.

Session 9.01 AV Physics, Modeling, and Simulation

This Air Vehicle (AV) session focuses on methodology and techniques for the governing physics, modeling and simulation of atmospheric vehicles including piloted, remotely piloted, and autonomous platforms including fixed wing, rotary wing, and any other aerial vehicle(s). The AV Physics, Modeling, and Simulation is open to any atmospheric vehicle concept including fixed wing, rotary wing, propulsive and buoyant lift applications for Earth-based or other Planetary Atmospheric GNC applications (atmospheric referring to the envelope of gases that surrounds any planet or dwarf planets or moons within or outside the solar system).

Will Goins **wgoinsaerospace902@gmail.com**

Sr. Principal Electronics Engineer, William Goins P.E.

Richard Hoobler **rhoobler@utexas.edu**

Graduate Research Assistant, University of Texas at Austin

Session 9.02 AV Autonomy, Artificial Intelligence, and Distributed Atmospheric Platforms

This session includes papers on all aspects of autonomy and artificial intelligence and machine learning for Air Vehicle (AV) applications including piloted, remotely piloted, and autonomous platforms in atmospheric flight. Example topics may include human and autonomy interaction; real time prognostics and integrity monitoring and mitigation; path planning in dynamic and uncertain environments; conflict detection and resolution; and work from experimental to operational applications. Other topics may range from resource allocation and command and control of complex, autonomous systems to self-organization and autonomous operation and decision making, or any AI augmented concepts with GNC for homogeneous or mixed types of a multi-vehicular distributed AV system.

Will Goins **wgoinsaerospace902@gmail.com**

Sr. Principal Electronics Engineer, William Goins P.E.

Nathaniel Hamilton **nate.hamilton@udri.udayton.edu**

Reinforcement Learning Engineer, University of Dayton

Session 9.03 AV Systems, Sensors, Flight Testing, and V&V

This session includes a broad focus on topics ranging from integrated systems, sensor technologies and safety critical hardware, and operator feedback and avionics technologies for atmospheric flight applications including piloted, remotely piloted, and autonomous platforms. Papers may address concepts and practices for the design, integration and testing of these systems for improving aircraft performance, operator situational awareness, survivability, energy state, and airspace deconfliction. Novel sensor concepts and sensor fusion, aircraft state estimation, and operator feedback are all important example topics for this session.

Andrew Lynch **vvtp01@gmail.com**

Director, U.S. Marketing, Tactical Air Support Inc.

Session 9.04 AV Flight Guidance, Navigation, and Control Theory and Application

This session focuses on Atmospheric Flight Control and includes theory, application, and future or historical operational example topics ranging from guidance algorithms and path planning; navigation state estimation and sensing and control variable construction; to flight control law loop closure design, synthesis, and evaluation. The Air Vehicle Flight GNC session is open to any atmospheric vehicle concept including piloted, remotely piloted, and autonomous platforms categorically ranging from fixed wing, rotary wing, propulsive and buoyant lift applications for Earth-based or other Planetary Atmospheric GNC applications (atmospheric referring to the envelope of gases that surrounds any planet or dwarf planets or moons within or outside the solar system). Example topics may include linear and nonlinear derivation, analysis and simulation results to experimental or operational flight events and lessons learned.

Christopher Elliott **cmelliott.llc@gmail.com**

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Richard Hoobler **rhoobler@utexas.edu**

Graduate Research Assistant, University of Texas at Austin

Nikolaus Ammann **nikolaus.ammann@dlr.de**

Research Scientist, German Aerospace Center (DLR)

Track 10 Software and Computing

Virgil Adumitroaie
publications@aeroconf.org

Data Scientist, JPL. Working on planetary atmospheric and magnetospheric modeling. Past research in high-speed turbulent combustion modeling, data dimensionality reduction, neural networks, decision support, climate data assimilation, and scientific software development. Ph.D., ME, University at Buffalo.

Ronnie Killough
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Senior Program Director, Space Science Division, Southwest Research Institute (SwRI). 34 years at SwRI developing software. Returned to space passion as software systems lead and flight director for CYGNSS (launched Dec 2016). PM for PUNCH Heliophysics SMEX (launched March 2025).

Session 10.01 Computational Modeling

The focus of this session is Computational Modeling in any discipline, with emphasis on the mathematical model of the phenomenology and on the numerical algorithms used for solution. Disciplines include fluid dynamics and fluid/thermal sciences, biological flows, earth and planetary physics, systems engineering studies, sensor management and sensor modeling, and radar and signal processing.

Virgil Adumitroaie **publications@aeroconf.org**

Data Scientist, NASA Jet Propulsion Laboratory, California Institute of Technology

Tiberiu Barbat **tibi_bb@yahoo.com**

Director, Virtual-Ing

Session 10.02 Innovative Software Engineering and Management Techniques and Practices

Practices followed during development and management of aerospace software systems vary across the industry. This divide seems to be growing as emerging markets, such as commercial space and cubesats, adopt techniques from other software domains while the traditional aerospace market works to tailor existing processes. Suggested topics covering both experience and research in software engineering and management techniques with both flight and ground system development such as: innovative software architectures, software management techniques to ensure and measure software progress, effective review processes, COTS integration and code reuse strategies, new design methods, and unique approaches to software test and verification. Other software engineering topics will also be considered in this session.

Ronnie Killough **rkillough@swri.org**

Sr. Program Director - R&D, Southwest Research Institute

Jeremiah Finnigan **jeremiah.finnigan@jhuapl.edu**

Senior Professional Staff, Johns Hopkins University Applied Physics Laboratory

Session 10.03 Software Architecture and Design

Appropriate software architecture is critical to the design, development and evolution of all software systems, and its role in the engineering of software-intensive applications in the aerospace domain has become increasingly important. This session solicits novel ideas on the foundations, languages, models, techniques, tools, and applications of software architecture technology. Topics include software architecture for space mission systems; architecture across software, system and enterprise boundaries; architectural patterns, styles and viewpoints; architecture frameworks; design reasoning, capturing and sharing design decisions; and open architectures, product-line architectures, and systems of systems software architects' roles and responsibilities.

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Research Associate, German Aerospace Center (DLR)

Peter Lehner **peter.lehner@dlr.de**

Team Lead Mobile Manipulators, German Aerospace Center (DLR)

Session 10.04 Software Quality, Reliability and Safety Engineering and Other Illities

The focus of this session is to share systematic practices followed in aerospace to ensure an adequate confidence level that a software system conforms to its requirements and will perform in a safe and reliable manner. Software quality, reliability and safety engineering covers methodologies and techniques used for assessment of the development cycle, verification, validation and test programs, standards, models, certifications, tools, data analysis and risk management. This session is also a forum for discussion on other illities, such as software maintainability.

Robert Klar **robert.klar@swri.org**

Institute Engineer, Southwest Research Institute

Christina Collura **christina.collura@jhuapl.edu**

Systems Assurance Manager, The Johns Hopkins University Applied Physics Laboratory

Session 10.05 Model-based Systems and Software Engineering

This session is concerned with the application, or potential application, of advanced model-based approaches, methodologies, techniques, languages, and tools to the aerospace domain. Topics ranging from theoretical and conceptual work in these areas to specific, concrete applications, in scope from small software systems to complex monolithic systems to large system-of-systems, are welcome. Other driving current themes include: coordination and usage of multiple types of models, e.g., digital twins, descriptive versus behavioral models; the use of MBSE simulations and analyses in support of architecture development; the application of information visualization techniques for improved MBSE deliverables; the use of MBSE in specialized domains such as fault protection or electrical systems engineering. The Session's areas of interest including model-based architecture and analysis, design, control systems, verification and testing, simulation, domain specific languages and transformations, aircraft, spacecraft, instruments, flight systems, ground systems, planning and execution, guidance and navigation, and fault management.

Aleksandra Markina Khusid **amarkina@gmail.com**

Department Manager, MITRE

Hongman Kim **unifrnd@gmail.com**

Systems Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 10.06 Machine Learning / Artificial Intelligence (ML/AI) for Aerospace Applications

This session considers how to create state-of-the-art single and multi-agent system technologies necessary for developing algorithms, software, or hardware for intelligent, adaptive, and learning systems. Application areas include single and multiple homogeneous or heterogenous platforms and their related systems, e.g., ground movers / stations, single or constellations of spacecraft/satellites, unmanned aerial systems (UAS), etc., including mission systems, and autonomy. Techniques considered will include, but are not limited to, all artificial intelligence, machine learning, and reinforcement learning paradigms, genetic programming and algorithms, swarm intelligence, probabilistic AI, trustworthy and explainable AI (XAI), cooperative multi-agent systems, and training, testing, & verification tools and methodologies. This session invites papers on best practices towards implementing new state-of-the-art autonomy and intelligence systems for aerospace. Papers on adversarial machine learning, novel single and multi-agent AI/ML systems, multi-objective AI/ML protocols, and AI/ML architectures and algorithms with guaranteed stability, robustness, and / or performance bounds are of particular interest.

Daniel Clancy **daniel.clancy@gtri.gatech.edu**

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Georges Labrèche **georges@tanagraspace.com**

Spacecraft Operations Engineer, Tanagra Space

Pooria Madani **pooria.madani@ontariotechu.ca**

Assistant Professor, Ontario Tech University

Session 10.07 Human-Systems Interaction

The future of aerospace operations hinges on seamless collaboration between humans and complex systems—whether in spacecraft, robots, or mission control. Human-Computer Interaction (HCI) and Human-Machine Interfaces (HMI) serve as foundation, enabling precise control, immersive situational awareness, and data-driven decision-making, while extended reality (XR), teleoperation, and natural interfaces are becoming critical for training, real-time operation and data driven decision making, by transforming how we visualize, control, and interact with these systems. This session explores integrated solutions that bridge physical and digital domains, ensuring safety, efficiency, and adaptability across aerospace applications. Core Focus Areas - Multimodal Interaction & Sensory Integration, Extended Reality (XR) for Aerospace HMI – VR/AR/MR environments, Scientific Visualization & Natural Interfaces – AI-enhanced visualization and interaction and Teleoperation & Real-Time Remote Interaction, We invite innovations that bridge physical/digital domains and cross-disciplinary breakthroughs redefining human-aerospace interaction, from design to deployment.

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Lead Researcher in Extended Reality (XR), German Aerospace Center (DLR)

Session 10.08 Image Processing and Computer Vision

The focus of this session is both theoretical and experimental work on Image Processing and Computer Vision in aerospace applications. The disciplines include, but not limited to image-based navigation, image classification, image reconstruction, image segmentation, feature extraction, image compression, object detection and tracking, image correlation, coding and limitations, computational complexity, adaptive algorithms, video coding (e.g., MPEG, H.265), hardware and bandwidth limitations, key improvements, contributions, and lesson learned.

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Timothy Chase tj.chase@lmco.com

Autonomy/AI Research Engineer, Advanced Technology Center, Lockheed Martin Space

Wout Boerdijk wout.boerdijk@dlr.de

Research Scientist / PhD Student, German Aerospace Center (DLR)

Track 11 Diagnostics, Prognostics and Health Management (PHM)

Andrew Hess
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Consultant to government and industry on advanced diagnostics, prognostics, data and predictive analytics, CBM, smart manufacturing, and health and asset management of machines and engineering systems. Previously program office lead for the JSF PHM effort. Current President of the PHM Society.

Wolfgang Fink
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Associate Professor and Keonjian Endowed Chair (emeritus), University of Arizona with joint appointments in the Departments of ECE, BME, SIE, AME, and Ophthalmology and Vision Science. AIMBE Fellow, PHMS Fellow, SPIE Fellow, UA da Vinci Fellow, UA ACABI Fellow, and Senior Member IEEE. Ph.D., Physics, University of Tübingen, Germany.

Session 11.01 PHM for Aerospace Systems, Subsystems, Components, Electronics, and Structures

Advanced Diagnostics and PHM can be and is applied separately or concurrently at the device, component, subsystem, structure, system and/or total platform levels. This session will give PHM developers, practitioners, integrators, and users a chance to discuss their capabilities and experiences at any or all of these application levels. Discussion of the integration of PHM capabilities across these various levels of application is welcome and encouraged. Applications involving propulsion systems, fuel management, flight control, EHAS, drive systems, and structures are particularly solicited.

Andrew Hess andrew_hess@comcast.net

President, The Hess PHM Group, Inc.

David He davidhe@uic.edu

Professor, University of Illinois at Chicago

Session 11.02 PHM for Autonomous Platforms and Control Systems Applications

This session focuses on diagnostics and prognostics for autonomous system applications and control systems. This would include autonomous system architectures, electronic controls, control systems, and electronic systems for both the item under control and the controlling system. Methods for autonomous decision making, fault detection, rate of progression, and consequence or mission risk are encouraged. The session also is looking for novel technical approaches to use diagnostic and prognostic information to provide control input adjustments that can slow or reverse fault progression.

Derek De Vries derek.devries@ngc.com

LMDS Fellow Emeritus, Northrop Grumman Propulsion Systems

Wolfgang Fink wfink@arizona.edu

Associate Professor and Keonjian Endowed Chair (emeritus), University of Arizona

Session 11.03 PHM System Design Attributes, Architectures, and Assessments

Design of complex systems, such as aircraft and space vehicles, requires complex trade-offs among requirements related to performance, safety, reliability, and life cycle cost. The development of effective architectures and implementation strategies are extremely important. This session will focus on the application of methods such as testability, diagnosability, embedding sensors, prognostics, remaining useful life estimates used to design complex aerospace systems, and architectures to design, enable, and implement complex aerospace systems. We invite papers discussing new methodologies, lessons learned in application of health management methods in system design, and operational experience with health management capabilities embedded into systems early in the design process.

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President, The Hess PHM Group, Inc.

Derek De Vries derek.devries@ngc.com

LMDS Fellow Emeritus, Northrop Grumman Propulsion Systems

Session 11.04 PHM for Non-Aerospace Applications

This session seeks contributions in non-aerospace but related applications, e.g., automotive industry, trains, marine, oil & gas, etc. Both programmatic and technology presentations are solicited, particularly those focused on capabilities, cost benefits, and lessons learned.

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President, The Hess PHM Group, Inc.

David He davidhe@uic.edu

Professor, University of Illinois at Chicago

Session 11.05 PHM for Commercial Space Applications

This session seeks papers on diagnostics, prognostics, health management (PHM) and autonomous fault management for satellites, satellite in-space servicing, and other commercial space applications (e.g., asteroid mining, etc.). Papers are sought in the areas of satellites, launch vehicles, and other new space ventures (e.g., tourism, natural resource exploitation). Papers may address research, actual flight experience, and future planning related to satellite and launch vehicle PHM and fault management.

Wolfgang Fink wfink@arizona.edu

Associate Professor and Keonjian Endowed Chair (emeritus), University of Arizona

Andrew Hess andrew_hess@comcast.net

President, The Hess PHM Group, Inc.

Derek De Vries derek.devries@ngc.com

LMDS Fellow Emeritus, Northrop Grumman Propulsion Systems

Session 11.06 PHM and Digital Engineering and Transformation

This session solicits contributions in the areas of PHM applications focused around the recent Digital Twin and Digital Thread paradigm, Model Based System Engineering, and Enterprise-wide Digital Transformation in aerospace and associated industries. Of particular interest are solutions, architectures, and technologies that leverage or enhance the use of DTs and MBSE for end-to-end PHM management and the delivery of enhanced overall situation awareness.

Andrew Hess andrew_hess@comcast.net

President, The Hess PHM Group, Inc.

Mark Walker mwalker@eecomputing.com

Director AI, Autonomous Systems, End to End Enterprise Solutions

Session 11.07 PHM for Human Health and Performance

This session is an effort to bridge PHM to Space Medicine and healthcare domain as part of Integrated System Health Management (ISHM) as applied to High Value Human Asset. PHM4HHP is focused on tracking status of very healthy individuals 24/7, as well as ensuring a sustained top-level performance required on manned space exploration missions. Papers are sought that show how systems engineering and its particular subdomain PHM with MBSE techniques and methodologies, such as predictive analytics, predictive diagnostics, root cause analysis, virtual sensors, data and information fusion, data mining, and big data analytics with computationally generated biomarkers can serve as a scientific and engineering foundation for building both evidence-based and analytics-based individual health maintenance/support for human assets. Objectives include developing and demonstrating PHM capabilities for assessing, tracking, predicting, and ultimately improving long-term individual human health status to ensure mission success.

Alexandre Popov **alexandre.popov@mail.mcgill.ca**

NASA Emeritus Docent at the USSRC and AIAA Systems Engineering Technical Committee (SETC) Member, AIAA SETC

Wolfgang Fink **wfink@arizona.edu**

Associate Professor and Keonjian Endowed Chair (emeritus), University of Arizona

Session 11.08 AI for Prognostics and Health Management (PHM) Applications

Artificial intelligence (AI) is transforming how we monitor, predict, and manage the health of complex aerospace systems. This session explores cutting-edge AI and machine learning techniques applied to PHM, including, but not limited to, fault detection, remaining useful life estimation, anomaly detection, and condition-based maintenance. Topics span physics-informed neural networks, deep learning for sensor fusion, reinforcement learning for maintenance decisions, and digital twin frameworks enabling real-time state estimation and predictive analytics. Presentations address data-driven, physics-based, and hybrid modeling approaches, with emphasis on safety-critical deployment. Key challenges including limited fault data, uncertainty quantification, and explainability for human-machine teaming are examined. Applications range from aircraft structures and propulsion systems to spacecraft subsystems and ground support equipment. Attendees will gain insight into the state of the art and emerging directions for AI and digital twin-enabled PHM across the aerospace enterprise.

Wolfgang Fink **wfink@arizona.edu**

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Andrew Hess **andrew_hess@comcast.net**

President, The Hess PHM Group, Inc.

David He **davidhe@uic.edu**

Professor, University of Illinois at Chicago

Yigitcan Coskunturk **yigitcan.coskunturk@emerson.com**

Research Specialist, Emerson

Session 11.09 Panel: PHM from a Practitioner's Perspective – a Potpourri of Capabilities, Issues, Case Studies, and Lessons Learned

Practitioners in the PHM field are solicited to share their experiences and observations as part of a distinguished panel of experts. A short presentation will be required of all participants that describes their focus topic within the PHM and CBM+ domains. This session will cover a broad range of research, lessons-learned experiences and application topics covering the challenges and innovative engineering and/or business approaches associated with the development and implementation of PHM capabilities and CBM+ architectures. The session will feature presentations by senior leaders in the field and a panel discussion. Panel members from PHM communities, academia, government, and industry, will focus on strategies that have resolved or will resolve historical issues, and challenges, and provide insight. Interested parties should contact the session organizers.

Andrew Hess **andrew_hess@comcast.net**

President, The Hess PHM Group, Inc.

Derek De Vries **derek.devries@ngc.com**

LMDS Fellow Emeritus, Northrop Grumman Propulsion Systems

Track 12 Ground and Space Operations

Michael Machado
michael.j.machado@nasa.gov

Nearly 30 years of Mission Operations experience as either a contractor or civil servant at NASA's Goddard Space Flight Center. Formerly the International Earth Science Constellation Mission Operations Manager as well as the Associate Branch Head for the GSFC Mission Validation and Operations Branch (Code 584).

Vandi Verma
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Program Area Manager at NASA JPL, and Chief Engineer of Robotic Operations for the Mars 2020 mission. Robotics capabilities she has worked on are in use on Perseverance and Curiosity rovers and in human spaceflight projects. Worked on the Ingenuity helicopter Technology Demonstration. Led the onboard global localization effort.

Session 12.01 Orbital, Surface and Payload/Instrument Mission Operations

This session solicits papers which highlight innovative approaches for conducting spacecraft orbital, surface and payload/instrument mission operations. Responding to in-flight anomalies, mission operations challenges, automation, risk reduction and space debris collision avoidance are also topics that are encouraged. Additional topics solicited include: challenges to managing single or multi-mission operations, managing multiple payloads, operating satellite constellations, small satellite operations, team development, staffing, cost reduction and lessons learned for future missions.

Heidi Hallowell **heidi.hallowell@baesystems.us**

Staff Consultant GNC Engineer, Ball Aerospace

Rachel Sholder **rachel.sholder@jhuapl.edu**

Analyst, Johns Hopkins University Applied Physics Laboratory

Sarah Bucior **sarah.bucior@jhuapl.edu**

Systems Engineer, Johns Hopkins University Applied Physics Laboratory

Session 12.02 Mission Planning, Mission Operations Systems and Ground Architectures

This session focuses on the design, development, integration, and operation of mission operations systems, ground data systems, and flight-ground interfaces. Topics may include methods, architectures, and technologies that support mission planning, development, testing, and operations across the mission lifecycle. Areas of interest include uplink systems and operations (e.g., procedures, planning, scheduling, commanding, and sequencing), downlink systems (e.g., telemetry processing, data analysis, and operational response), and strategic operations planning. We also welcome contributions related to autonomy and AI-assisted operations, as well as the design, integration, automation, and scalability of efficient ground systems. Submissions addressing multi-mission architectures, distributed and cloud-enabled operations, and large-scale constellation operations are encouraged. Submissions will be evaluated primarily on novelty, technical innovation, and broader impact to the mission planning and operations communities.

Kedar Naik **kedar.naik@baesystems.us**

Chief Engineer - AI Technical Lead, BAE Systems, Space & Mission Systems

Rob Lange **rdlange@gmail.com**

Staff Mission Lead Systems Engineer, Muon Space

Session 12.03 Human Space Flight Development, Processing, and Operations

This session covers all facets of human spaceflight development, processing, and operations across every mission phase. Topics include the design, development, and operation of crewed spacecraft and extraterrestrial destination systems, and associated support infrastructure. Emphasis is placed on commercial human spaceflight capabilities in low Earth orbit (LEO) and beyond, including the Commercial Crew and Commercial LEO Development Programs and crewed missions to the moon and Mars. Submissions are encouraged on operations research related to pre-flight, in-flight, and post-flight human activities. Additional focus areas include mission analogs; IVA and EVA procedures; launch, landing, and recovery operations; and physiological and psychological effects on crew members throughout all mission types and phases.

William Koenig **william.j.koenig@nasa.gov**

Production Operations Lead, NASA Kennedy Space Center

Aileen Rabsahl **aileen.rabsahl@dlr.de**

LUNA Campaign Director, German Aerospace Center (DLR)

Session 12.04 Resilient and Cyber Secure Systems for Operational Missions

Cyber secure, resilient space systems are necessary to ensure continuity of operations and operators' ability to execute their missions successfully. This session welcomes novel approaches, tailored to the aerospace domain, for ground systems as well as those spanning both space and ground segments. Examples of resilient operational technologies and systems include: cryptography, architectures (e.g. Zero Trust Architectures (ZTA)), compute and network infrastructure (e.g. redundant, failover systems), software, root of trust (RoT), intrusion detection/prevention, vulnerability/red team assessments, approaches to simplify and streamline Risk Management Framework (RMF) implementations, access control, diversified orbits from Very Low Earth Orbit (VLEO) to CisLunar, and others. We are also interested in applications of advanced technologies like AI-based analytics, blockchain, active defense, embedded agents, lessons learned in attempted attacks/breaches. Note: if presenting on vulnerabilities, please follow responsible disclosure practices to ensure operators' abilities to protect their systems.

John Kenworthy **john@albedo.com**

Vice President Strategy & Growth, Albedo

Seth Kricheff **skricheff@lynx.com**

Software Engineer, Lynx Software Technologies

Session 12.05 Automation and Machine Learning Applications in Spacecraft Operations

This session invites contributions that are concerned with the applications of machine learning and data science techniques to deal with the increasing amounts of data being collected in spacecraft operations on flight and/or ground segments. These techniques could be related to any subsystem of the spacecraft, including telecom, power, thermal, or specific instrument data and that of the ground segments. Topics ranging from theoretical and conceptual treatment in these areas to specific and operational treatments are solicited. The benefits of these techniques are very wide in scope from enhancing operator productivity by providing diagnostic tools that detect and explain causes of anomalous behavior either in real-time or by post-processing, to automating mission operations. These benefits are also crucial for smaller missions, such as the emerging CubeSats missions, that typically have very lean teams. Some consideration is made for the computing platforms required for the algorithms.

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Director of Algorithms, Atomathic

Dennis Ogbe do@ieee.org

Software Engineer, Northwood Space

Session 12.06 Robotics, Autonomy and Operations

This sessions addresses the challenges and opportunities of space robotics autonomy and operations. Topics include autonomous systems, robotics, perception, machine learning, AI and their practical application to space robotics. Papers are solicited that discuss approaches for operating spacecraft with autonomous capabilities, advances in onboard and ground automation and tools, software and systems engineering for operability, fault tolerance and recovery, and human-robot interaction for both manned and unmanned missions. Approaches that address the unique challenges that come with operating robots in space, such as risk, uncertainty, harsh environment, communication delays, and limited resources are also encouraged, as are analyses of successes and challenges, highlights of latest trends, technologies, and best practices that can be leveraged to operate robots effectively in space.

Vandi Verma vandi@jpl.nasa.gov

Program Area Manager, NASA Jet Propulsion Laboratory, California Institute of Technology

Alexandra Holloway alexandra.holloway@gmail.com

Flight Software Engineer, NASA Jet Propulsion Laboratory, California Institute of Technology

Track 13 Systems Engineering, Management, and Cost

Jeffery Webster
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Retired Senior Systems Engineer, NASA/JPL: Project Support Lead, Project Support Office; Mission Systems Concepts Section, Mars Trace Gas Orbiter; Project Planner & Systems Engineering; Associate Engineer, Mission & Systems Concepts Section. Publications and awards available upon request.

Torrey Radcliffe
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Principal Director of Civil Technology, The Aerospace Corporation. Background in preliminary spacecraft design, space architecture development, and portfolio analysis of manned and unmanned systems. SB, SM, and PhD in Aeronautics and Astronautics from MIT.

Session 13.01 Systems Architecture, Engineering and System of Systems

This session is dedicated to papers dealing with the fundamental challenges associated with architecting and high level systems engineering of large-scale systems and systems-of-systems, including development and application of tools and techniques that support both architecting and system engineering processes (e.g., Architecture Descriptions, Model Based Systems Engineering, Architecture Decision Support), maintaining the integrity of "the architecture" across the project lifecycle, and discussions of successful (and not so successful) architecting and systems engineering endeavors with an emphasis on the lessons learned.

Lisa May lisa.may@aeroconf.org

Principal Consultant, Murphian Consulting LLC

Daniel Selva dselva@tamu.edu

Associate Professor, Texas A&M University

Rachel Trevenna rachel.l.trevenna@aero.org

Associate Director, The Aerospace Corporation

Session 13.02 Management and Risk Tools, Methods and Processes

This session addresses tools, methods, and processes for managing aerospace system development programs/projects, mission operations, technology development programs, systems engineering organizations, and artificial intelligence (AI)/machine learning (ML) programs/projects related to the aerospace domain. Topics include analyzing risks; managing all life cycle phases of programs/projects; using project-level management disciplines including project management, systems engineering, scheduling, safety and mission assurance, and configuration management; and improving training and capability retention (passing expertise between generations of systems engineers); and managing aerospace technology development programs. Applications include commercial, military and civil space systems, and commercial and military aircraft systems. This session also covers the topic of risk management in aerospace endeavors including new insights from the successful application of risk management, lessons learned when risk management did not prevent realization of consequences, and managing new risks associated with AI/ML.

Joshua Calkins jjcalkins@ebad.com

Systems Engineering Manager, Ensign-Bickford Aerospace & Defense (EBAD)

Charlene Ung charlene.ung@jpl.nasa.gov

EMIT Project Manager, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 13.03 Cost and Schedule Tools, Methods, and Processes

This session addresses cost and schedule analysis tools, methods, processes, and results including design trades for design concepts and technologies throughout a project's life cycle. Topics addressed include cost or schedule model development, regression analysis and other tools, historical studies addressing trends, databases, government policies, industry training, mission cost analysis, technology development, operations and supporting/infrastructure cost, mission portfolio analysis, case histories, lessons learned, process control, and economic and affordability analysis that assesses program/project viability across the defense, civil and commercial sectors.

Stephen Shinn steve.a.shinn@aero.org

Vice President, CFO, and Treasurer, The Aerospace Corporation

Eric Mahr eric.m.mahr@aero.org

Senior Project Leader, The Aerospace Corporation

Session 13.04 Advances in Conceptual Design Methods and Applications

This session is dedicated to the discussion of the current state of practice and future advances in conceptual design methods and applications. The goal is to foster the application of Digital Engineering (DE) in conceptual design, concurrent engineering, and collaborative engineering practices across the lifecycle, including advances in team-based systems engineering methods and novel applications of concept design methods. Example topics include MBSE applications, optimization techniques, results visualization, digital twin integration, and trade space exploration.

Rob Stevens robert.e.stevens@aero.org

Director of Concurrent Design Office, The Aerospace Corporation

Alfred Nash alfred.e.nash@jpl.nasa.gov

Lead, A-Team, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 13.05 System Simulation and Verification

This session addresses the design, implementation, and use of system-level simulations to measure or verify the performance and utility of space, ground, and related systems.

Virgil Adumitroaie publications@aeroconf.org

Data Scientist, NASA Jet Propulsion Laboratory, California Institute of Technology

Gregory Falco gfalco@cornell.edu

Assistant Professor, Cornell University

Session 13.06 System Verification & Validation and Integration & Test

This session focuses on the Verification & Validation and Integration & Test processes and case studies for Projects/Flight/Sub systems, and systems of systems.

Benjamin Solish bsolish@gmail.com

Systems Engineer, Millennium Space Systems

Sarah Bucior sarah.bucior@jhuapl.edu

Systems Engineer, Johns Hopkins University Applied Physics Laboratory

Evan Smith evan.smith@jhuapl.edu

Systems Engineer, Johns Hopkins University Applied Physics Laboratory

Session 13.07 Strategic Technology Planning, Management & Infusion

This session addresses strategic planning, research, development, and infusion of innovative technology to meet the future needs of civil space, commercial space, and national security space users. It includes technology strategy and roadmaps, technology maturation, and mission infusion to overcome the valley of death. This session also focuses on opportunities as well as legal and operational challenges as associated with partnerships, technology transfer, commercialization, and recent developments in aerospace startup accelerators for public and private sectors.

Andrea Belz abelz@usc.edu

Vice Dean, Transformative Initiatives, University of Southern California

Session 13.08 Promote (and Provoke!) Cultural Change

"Culture Eats Strategy for Breakfast!"* Culture is a byproduct of habits, and this session explores how to create habits, environments, and nutrients that help great things grow. *Peter Drucker, noted management consultant, educator, and author.

David Scott **2davescott@gmail.com**

Idea Tamer, (Self)

Brendan Kach **brendan.m.kach@rtx.com**

Associate Director, Raytheon

Session 13.09 PANEL: Current Challenges in Model Based System Engineering

A focused topic within MBSE to be determined soon. Following last year's panel on "Keeping the 'SE' in MBSE", the panelists and audience expressed interest in following up in 2027 with a focused topic on a more specific issue of current interest. That specific issue is still being determined, and this description will be updated before conference registration opens.

Robert Minnichelli **robert.minnichelli@alum.mit.edu**

Adjunct Lecturer, University of Southern California

Track 14 Government Plans, Policies and Education

Richard Mattingly
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Retired member of the Mars Program Formulation Office at NASA's Jet Propulsion Laboratory (JPL), recently Chief Engineer for Mars Sample Return Receiving Facility. He has been involved in the formulation and development of many of JPL's planetary and Earth-orbiting spacecraft and payloads since the 1970's.

Erica Deionno
erica.deionno@aero.org

Principal Director in the Defense Systems Group, The Aerospace Corporation. Research background in molecular and polymer-based electronic devices, radiation testing and modeling of memristor-based memory devices (RRAM), and solar cell degradation modeling. Ph.D. in Chemistry, UCLA.

Session 14.01 PANEL: Technology Development for Science-Driven Missions

Discussion will focus on the intersection of novel engineering and science discovery. Topics will include technology for Moon to Mars missions, and how novel technology can be the primary catalyst for reaching compelling science goals beyond that were previously inaccessible. Panelist opening remarks followed by a moderated dialogue and integrated audience participation.

Vandi Verma **vandi@jpl.nasa.gov**

Program Area Manager, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 14.02 PANEL: Emerging Technologies for Mars Exploration

This panel will discuss recent progress on new technology for future robotic Mars exploration. The panel has been a regular part of the conference for many year, with technical themes varying from year to year within the broad topic of Mars technology.

Larry Matthies **lhm@jpl.nasa.gov**

Technology Coordinator, Mars Exploration Program, NASA Jet Propulsion Laboratory, California Institute of Technology

Session 14.03 PANEL: Small Satellite Trending – End-to-End Mission Innovation: From Concept to Execution

The conversation in 2027 shifts focus from the era of small satellite innovations to the broader challenge of executing integrated end-to-end missions. While past decades have witnessed a satellite "revolution," today's discourse pivots to comprehensive mission planning—from conceptualization and agile acquisition, through on-orbit operations, all the way to decommissioning and beyond. Small satellites are no longer restricted to tech development and R&D, they're now proliferating Low Earth Orbit performing a vast array of mission sets. Our discussion will explore how evolving cultural mindsets, breakthrough technologies, and modernized operational strategies are redefining the way missions are planned, financed, managed, and executed. Advances in automation, system integration, machine learning, power, propulsion, communications, and rapid access to space are converging to transform the entire mission lifecycle. How can these capabilities be harnessed to streamline decision-making and optimize resources over the full span of a mission?

Kara O'Donnell **kara.a.odonnell@aero.org**

General Manager, The Aerospace Corporation

Nicole Fondse **nicole.fondse@aero.org**

Systems Director, The Aerospace Corporation

Session 14.04 PANEL: Commercial Services for Space Exploration

In recent decades, U.S. space companies have developed business models to enable commercial transportation services for space exploration. One notable example is the Launch Services Program (LSP), where entities compete for NASA's launch task orders. LSP missions adhere to NASA's standards, facilitating programs like the Commercial Crew Launch Program for low Earth orbit (LEO). Beyond LEO, the Commercial Lunar Payload Services (CLPS) initiative allows companies to compete for orders to transport NASA payloads to cis-lunar space. The goal is for NASA to be a primary, but not exclusive, client for cis-lunar payloads, boosting robotic missions, scientific output, and reducing costs. These savings may enable non-NASA payloads from academia, private sectors, and other agencies, fostering a commercial ecosystem. Discussions will explore commercial service models, draw insights from past programs, and assess ongoing initiatives' commercial viability, including predictions for potential services at Mars and on other deep space exploration programs

Greg Chavers **greg.chavers@nasa.gov**

NASA (retired)

Session 14.05 PANEL: CLPS Landers, Mission Successes, Lessons Learned and Path Forward

The Commercial Lunar Payload Services (CLPS) initiative allows rapid acquisition of lunar delivery services from commercial vendors to send NASA science and technology payloads, enabling industry growth and supporting long-term lunar exploration. This Panel addresses the status of the program, mission successes, lessons learned and the path forward.

Regina Blue **regina.b.blue@nasa.gov**

Deputy Manager, NASA Commercial Lunar Payload Services, NASA Johnson Space Center

Session 14.06 PANEL: Artemis

NASA has been charged with leading a sustainable program of exploration with commercial and international partners to enable human exploration of the Lunar South Pole. Realizing this vision requires advancement of key capabilities and an implementation approach that pulls from the best NASA and the global industry can offer. This panel will discuss the current plans and status of several key Artemis missions and elements. More specifics will be defined in the fall.

Sarah Shull **sarah.a.shull@nasa.gov**

SE&I Manager, EHP, NASA Johnson Space Center

Session 14.07 PANEL: Commercial LEO Habitats: Our Next Step into the Space Economy

Leading commercial organizations will describe their capabilities, market vision and timeline to deliver habitats to orbit. The key technical and program challenges will be discussed. How can NASA, industry and regulatory organizations support these next steps into an expanded human space presence.

Blair Bigelow May **blair@bbmay.com**

Founder, Selene Space Corporation

Session 14.08 PANEL: Fission Surface Power - Technology and Deployment Vision

Surface power is critical to both the lunar and mars exploration initiatives. New goals and directives have pushed NASA and industry to accelerate technology development and system deployment. Organizations are adapting to this new vision and assessing the technology, system design and programs that can deliver on these new goals. This panel will discuss the how the new goals are reshaping the programs and system design and describe the key technology and hardware development needs. Key technical and programmatic barriers will be identified. Launch and lander system options will also be discussed.

Torrey Radcliffe **torrey.o.radcliffe@aero.org**

Chief Technologist for Civil Programs, The Aerospace Corporation

Session 14.09 PANEL: Radioisotope Systems - Advancing Early Exploration and Science Capabilities

Sponsored by Session 8.09, this panel brings together the lunar science community and organizations with lunar service or radioisotope systems capability to delve into the future of lunar exploration and the integration of radioisotope technology with their systems over the next decade. Radioisotope devices can provide critical heat and continuous power to survive the night or reach into the permanently shadowed regions. Panelists will provide unique insights into their missions and discuss capability that could be uniquely enabled by radioisotope power systems or heat sources, as well as the challenges and opportunities. The nuclear material supply chain and the respective regulatory issues will be included. The panelists will also discuss how government support or guidance can improve the deployment of these systems.

Robert Sievers **rksievers@comcast.net**

Consultant, Power Systems

Junior Engineering & Science Conference

Yellowstone Conference Center
Big Sky, Montana March 9, 2027

Junior Conference Submission Deadlines
Junior Abstract Deadline: January 12, 2027
Junior Presentation Deadline: February 9, 2027

Who may participate

Any student, 1st through 12th grade, who is registered at the conference as an official guest of a primary registrant, is eligible to present a paper as a Junior Engineering & Science Speaker.

Number of participants

To provide sufficient time for each presentation, the number of participants will be limited to 25. Preference will be given to the earliest submissions.

Topics

Topics with direct or tangential relationship to science, engineering, or mathematics are encouraged.

Student's Research

The presentation should describe one of the following:

1. An original idea accompanied by supportive reasoning and data
2. An experiment, invention or field work
3. A review summarizing a topic of interest.

How to Submit Your Presentation

1. Write a short **abstract** describing your topic.
2. Have your parent or guardian who is registered for the conference register you as a junior engineer, complete a release form, and submit your abstract to Session 15.01 (Junior Conference) on the conference website, www.aeroconf.org (select Session 15.01 Junior Engineering Conference). **Registration opens on November 29, 2026** - spaces fill quickly. You will receive an email confirmation of acceptance.
3. Prepare a 5–10 slide PowerPoint presentation of your work. The title slide should include your name, age, grade, special interests, and (if you choose) a photo of yourself. You may have help from an adult, but the presentation should be primarily your own work.
4. Once your abstract is confirmed, submit your PowerPoint presentation to the conference website as soon as possible. **The presentation deadline is Tuesday, February 9, 2027**. No late presentations will be included in the conference.
5. Prior to the conference all Junior Engineering & Science presentations will be loaded onto a single laptop. You will have an opportunity to practice before giving your presentation.
6. After the last presentation, all participants will receive an electronic copy of the Junior Engineering & Science Conference Proceedings.

Please check the Junior Conference webpage for additional information: https://aeroconf.org/junior-engineering

2027 Junior Engineering & Science Conference Contacts

Co-Chair Rich Terrile — **E-mail richt@aeroconf.org**
Co-Chair Christine Terrile — **E-mail christine@aeroconf.org**

Back Cover –*NASA's SPHEREx has mapped the entire sky in 102 infrared colors, which are invisible to the human eye but can be used to reveal different features of the cosmos. This image features a selection of colors emitted primarily by stars (blue, green, and white), hot hydrogen gas (blue), and cosmic dust (red).* ***Photo Credit: NASA/JPL-Caltech.***

2027 IEEE Aerospace Conference

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