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PROGRAM GUIDE

ASCEND™

23–25 OCTOBER 2023 | LIVE IN LAS VEGAS

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The future is clear. Actually, it's nuclear.

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Welcome

We are delighted you're joining us for this 4th annual apex ASCEND event. This is your time to connect with the diverse dreamers and doers in the ASCEND community to accelerate the global space conversation. This year, we're focused on building our sustainable off-world future through collaboration.

We see positive signs of progress by ASCEND convening the space industry to advance the space ecosystem. ASCEND is expanding our reach to involve adjacent industries in this interdisciplinary and inclusive community. We are relentlessly driving the conversation toward delivering outcomes. Powered by AIAA, ASCEND starts with a vision and every aspect progresses through a program of activities, presentations, and conversations that focus on action.

This year, we are thrilled to partner with Boryung to bring their Humans in Space Symposium to ASCEND. This new collaboration is bringing an exciting dynamic to our community and involving critical adjacent markets in the conversation. The Humans in Space pitch sessions are early glimpses into the future of space commerce, exploration, and new discoveries. We encourage you to engage with the entrepreneurs and investors making these visions realities.

ASCEND's unique environment is intentionally designed to facilitate interaction and discussion. The thought leaders on our stages and in the technical paper sessions are encouraged to engage with attendees. Please take advantage of the opportunity to connect with them to further fuel collaboration. Your participation will enrich your experience. We are confident that the more you put into the experience, the more you'll get out of it.

Thank you to our generous sponsors, exhibitors, speakers, Guiding Coalition members, and collaborative and technical program chairs. Without these industry leaders' active involvement, ASCEND would not be possible.

Most importantly, we thank YOU for your attendance. We hope your experience at 2023 ASCEND will be insightful and rewarding.

JULIE VAN KLEECK
ASCEND Executive Producer
AIAA Space Domain Lead

CRAIG DAY
ASCEND Program Executive

Building an Off-World Future Together

Thank you to the key volunteers and partners who have made ASCEND possible.

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Schedule

Special Programming & Networking Sessions include the von Kármán Lecture in Astronautics, David W. Thompson Lecture in Space Commerce, William H. Pickering Lecture, AIAA committee-led sessions, daily opening sessions, finale closing session, networking coffee breaks, and receptions.

Macro Sessions include some of the world's most inspired thinkers and speakers, providing broad and bold perspectives on a wide range of topics around building our off-world future.

Meta Sessions offer mind-expanding knowledge from industry leaders and doers, and focus on spurring large-scale discussions of the trends, economic forces, technical challenges, and policymaking hurdles facing every member of the space ecosystem.

Micro Sessions include presentations, discussions, and interactive roundtables/ workshops featuring different perspectives and opinions across one of our 16 targeted session topics.

Technical Sessions explore the wide array of research and developments focused on interdisciplinary approaches to the art and science of space technology, exploration, economics, and more via one of our six paper topic themes.

Monday, 23 October Program

TIME	ROOM	TYPE	SESSION
0800–0930 hrs	*Summit Ballroom*	MACRO-01	From Dreaming to Doing: Utilizing Creativity and Imagination to Accelerate Our Off-World Future
1000–1100 hrs	*Summit Ballroom*	META-01	Space Workforce 2030: A Diversity Pledge to Go Boldly, Together
1000–1100 hrs	*Forum 135*	META-02	Use of Emerging and Venture-Funded Companies in National Security Space
1000–1100 hrs	*Forum 134*	META-03	Cislunar Ecosystem: 100,000 Mile Perspective
1000–1100 hrs	*Forum 130*	META-23	Next-Generation Space Habitats
1130–1230 hrs	*Summit Ballroom*	META-04	Space 2050: Our Future Shaped by Today's Space Technology Advances
1130–1230 hrs	*Forum 135*	META-06	Environmental Intelligence: The Critical Role of Satellites in Climate Change Monitoring
1130–1230 hrs	*Forum 134*	META-07	Sustainable Development of the Cislunar Ecosystem *Session Underwriter* BWXT BWX Technologies, Inc.
1130–1230 hrs	*Forum 130*	META-08	Making a Case for Space
1130–1230 hrs	*Forum 108*	SPEC-01	Space ISAC: Cyber Space Crisis Exercise Panel
1130–1230 hrs	*Forum 106*	SPEC-02	Drivers and Metrics for Autonomous Space Missions and Systems
1130–1230 hrs	*Forum 126*	SPEC-11	What Is the Future Workplace?
1130–1230 hrs	*Summit 204*	SPEC-13	2023 AIAA von Kármán Lecture in Astronautics: "Celebrating a Century of Kármán's Momentum-Integral and Space-Reductive Approaches: Applications in Rocketry and Beyond"
1245–1345 hrs	*Summit Ballroom*	SPEC-14	2023 AIAA David W. Thompson Lecture in Space Commerce: "Connecting Space to Earth" *Grab lunch and bring to the lecture.*
1400–1445 hrs	*Summit 204*	MICRO-02	Crisis, What Crisis? Does the Current Educational System Support the Future Needs of the Space Ecosystem?
1400–1445 hrs	*Forum 135*	MICRO-03	Technology Development for Science Missions: NASA-Funded vs Commercial Capabilities
1400–1445 hrs	*Forum 130*	MICRO-04	Prioritizing Protection While Protecting the Mission: Budget Implications and the Evolving Threat Picture
1400–1445 hrs	*Summit Ballroom*	MICRO-56	Space 2050: The Future of Space Policy and Regulation
1400–1445 hrs	*Forum 134*	MICRO-62	Humans in Space Challenge Research Pitch I
1500–1545 hrs	*Summit 204*	MICRO-06	SGAC/ASCEND Workshop on Space Sustainability
1500–1545 hrs	*Forum 135*	MICRO-07	Agile vs. Waterfall: Management in Aerospace to Encourage Empowerment & Inclusion
1500–1545 hrs	*Forum 134*	MICRO-08	Design Approaches for Lunar and Martian Space Architecture: Negotiating Universal Design with Customization and Personalization
1500–1545 hrs	*Forum 130*	MICRO-09	Space Nuclear: Civil and Defense
1500–1545 hrs	*Summit Ballroom*	MICRO-61	Founders Panel
1600–1645 hrs	*Forum 130*	MICRO-05	Space System Developments and Impacts on Critical Infrastructure: A 15-Year Outlook
1600–1645 hrs	*Summit Ballroom*	MICRO-13	Biomedical Research in Low Earth Orbit
1600–1645 hrs	*Forum 135*	MICRO-14	Space Sustainability and Stewardship: The Responsible Use of Space
1600–1645 hrs	*Summit 204*	MICRO-25	Developing the Universal Commercial Pad: How Do We Get There?
1600–1645 hrs	*Forum 134*	MICRO-51	The Power of 'AND' in a New Era of Space Exploration
1700–1745 hrs	*Summit 204*	MICRO-11	Responsible Operations in Space
1700–1745 hrs	*Forum 130*	MICRO-17	Lunar Industry Vision: What Incentivizes Other Industries to Enter the Lunar Market?
1700–1745 hrs	*Forum 135*	MICRO-19	Space Traffic: Roles, Responsibilities, and Safeguards
1700–1745 hrs	*Forum 134*	MICRO-49	Space Technology Challenges and Strategy: Cross-Cutting
1700–1745 hrs	*Summit Ballroom*	MICRO-63	Humans in Space Challenge Startup Pitch I
1800–1930 hrs	*Engagement Zone*	SPEC-27	Networking Reception *Sponsored By* Cimarron

Monday, 23 October Technical Sessions

TIME	ROOM	TYPE	SESSION
1400–1600 hrs	*Forum 122*	**2050-01**	Space 2050: Commerce & Logistics I
1400–1600 hrs	*Forum 108*	**EESE-01**	Investment and Financing Approaches
1400–1600 hrs	*Forum 123*	**EXP-01**	Artemis Efforts and Lessons Learned
1400–1600 hrs	*Forum 110*	**EXP-02**	Future Plans for Missions
1400–1600 hrs	*Forum 126*	**EXP-03**	Space Medicine and Human Health
1400–1600 hrs	*Forum 106*	**ISAM-01**	Space Resource Stewardship I
1400–1600 hrs	*Forum 113*	**NTIS-01**	Technologies for Surface Operations, Construction, and Infrastructure
1400–1600 hrs	*Forum 121*	**STMC-01**	Orbital Debris Mitigations I
1400–1600 hrs	*Forum 116*	**STMC-02**	Space Access & Safe Operations
1630–1830 hrs	*Forum 122*	**2050-02**	Space 2050: Commerce & Logistics II
1630–1730 hrs	*Forum 108*	**EESE-02**	Space Resources in Support of Past and Current Commercial Space Ventures
1630–1830 hrs	*Forum 123*	**EXP-04**	Development and Testing Platforms
1630–1830 hrs	*Forum 110*	**EXP-05**	Mars Transit Considerations
1630–1830 hrs	*Forum 113*	**EXP-06**	Opportunities with SLS
1630–1830 hrs	*Forum 126*	**HUM-01**	Astronaut Support Tools
1630–1830 hrs	*Forum 106*	**ISAM-02**	Space Resource Stewardship II
1630–1830 hrs	*Forum 116*	**STMC-03**	Autonomous Satellite Operations & Interoperability Across Space Assets
1630–1830 hrs	*Forum 121*	**STMC-04**	Orbital Debris Mitigations II

Scan here for greater session detail.

Event App

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Tuesday, 24 October Program

TIME	ROOM	TYPE	SESSION
0800–0930 hrs	*Summit Ballroom*	MACRO-02	Accelerating Sustainable Space Exploration Through Global Cooperation
1000–1100 hrs	*Forum 134*	META-09	Space Agencies' Contributions to Monitoring Greenhouse Gases
1000–1100 hrs	*Forum 135*	META-10	Astrodebates I
1000–1100 hrs	*Summit Ballroom*	META-11	The Moon to Mars Strategy and the Future of Space Exploration
1000–1100 hrs	*Forum 130*	META-16	Commercial Telecom Services During Conflict
1130–1230 hrs	*Summit Ballroom*	META-13	ASCEND Diverse Dozen
1130–1230 hrs	*Forum 135*	META-14	Astrodebates II
1130–1230 hrs	*Forum 134*	META-15	Science and Exploration at the Extremes
1130–1230 hrs	*Summit 204*	SPEC-03	The Future of Work
1130–1230 hrs	*Forum 130*	SPEC-04	Bridging the "Valley of Death": Overcoming the Challenges of Technology Infusion
1130–1230 hrs	*Forum 106*	SPEC-05	Explainability and Human-Machine Teaming in Long-Duration Human Exploration Missions
1130–1230 hrs	*Forum 108*	SPEC-07	Space Settlement: Living Designs
1130–1230 hrs	*Forum 113*	SPEC-32	Space Cybersecurity Workshop
1245–1345 hrs	*Summit Ballroom*	SPEC-33	Chandraayan-3 - The Journey to the Moon *Grab lunch and bring to the lecture.*
1400–1445 hrs	*Summit 204*	MICRO-21	Sustainably Scaling Space Infrastructure: Now is the Time
1400–1445 hrs	*Forum 130*	MICRO-23	Space Technology Challenges and Strategy: Mars-Forward
1400–1445 hrs	*Forum 135*	MICRO-24	Orbital Debris: Mitigate, Track, or Remediate
1400–1445 hrs	*Summit Ballroom*	MICRO-28	Know Before You Go: Are Astronaut Analogs Useful Prep for High-Stakes Human Spaceflight?
1400–1445 hrs	*Forum 134*	MICRO-64	Humans in Space Challenge Research Pitch II
1400–1600 hrs	*Academy 407*	SPEC-12	Speed Mentoring
1500–1545 hrs	*Summit 204*	MICRO-22	Exploring the Unexpected Impact of Unconventional Career Paths to Space
1500–1545 hrs	*Forum 130*	MICRO-26	How Satellites Can Inform Water Management Decisions in American West and Beyond
1500–1545 hrs	*Summit Ballroom*	MICRO-27	Space 2050: Vision and Challenges for the Technology and Innovation Landscape
1500–1545 hrs	*Forum 135*	MICRO-29	Keeping an Eye on Space: Situational Awareness & the Future of Space Security
1500–1545 hrs	*Forum 134*	MICRO-30	The Future of Space Transportation Logistics
1600–1645 hrs	*Forum 130*	MICRO-31	Sustainable Use of Low Earth Orbit for Science and Society
1600–1645 hrs	*Summit 204*	MICRO-33	Innovative Approaches to Medical System Design for Space Exploration
1600–1645 hrs	*Summit Ballroom*	MICRO-35	Space 2050: Vision for a Robust Cislunar Economy
1600–1645 hrs	*Forum 134*	MICRO-38	Lunar Architecture: Leveraging Legacy and Next-Generation Capabilities for Deep Space Exploration
1600–1645 hrs	*Forum 135*	MICRO-40	Beyond Earth: Enabling Everyday Life in Space
1700–1745 hrs	*Forum 134*	MICRO-12	Space Resource Utilization and the Emergent Cislunar Economy: Challenges and Opportunities of a New Paradigm
1700–1745 hrs	*Forum 130*	MICRO-10	Lightning Talks (Space Cybersecurity)
1700–1745 hrs	*Summit 204*	MICRO-32	Reimagining Suborbital and Orbital Flight Tests: Leveraging a Continuum of Commercial Platforms to Rapidly Advance Space Technologies
1700–1745 hrs	*Forum 135*	MICRO-37	Approach and Challenges to Meeting NASA CLD Requirements in a Commercial Paradigm
1700–1745 hrs	*Summit Ballroom*	MICRO-65	Humans in Space Challenge Startup Pitch II
1800–1930 hrs	*Plaza*	SPEC-28	Networking Reception
1830–1930 hrs	*Summit Ballroom*	SPEC-32	2023 William H. Pickering Lecture: Observing Earth's Precious Water from Space *Grab refreshments from the reception and bring to the lecture.*

Tuesday, 24 October Technical Sessions

TIME	ROOM	TYPE	SESSION
1130–1230 hrs	*Forum 123*	**2050-03**	Space 2050: Protection & Security I
1400–1600 hrs	*Forum 122*	**2050-04**	Space 2050: Remote Sensing I & Exploration I
1400–1600 hrs	*Forum 108*	**EESE-04**	Major Drivers Enabling Expansion of Commercial Space
1400–1600 hrs	*Forum 116*	**EXP-07**	Digital Engineering for Future Autonomous Missions
1400–1600 hrs	*Forum 123*	**EXP-08**	Lunar Enabling Infrastructure Elements
1400–1600 hrs	*Forum 110*	**EXP-09**	Nuclear Thermal Power for Future Space Missions
1400–1600 hrs	*Forum 121*	**EXP-10**	Spacecraft Design Approaches
1400–1600 hrs	*Forum 126*	**HUM-02**	Supporting Human Health
1400–1600 hrs	*Forum 106*	**ISAM-03**	Space Logistics and In-Space Servicing/Assembly/Manufacturing
1400–1600 hrs	*Forum 113*	**NTIS-03**	Evolving Technologies for Space Exploration I
1630–1830 hrs	*Forum 122*	**2050-05**	Space 2050: Exploration II
1630–1830 hrs	*Forum 126*	**EDUC-01**	Educating the Next Generation of Space Leaders
1630–1830 hrs	*Forum 110*	**EXP-11**	Efforts Towards Nuclear Thermal Propulsion
1630–1830 hrs	*Forum 116*	**EXP-12**	Methods and Assessments of Autonomy/AL/ML Processes
1630–1830 hrs	*Forum 123*	**EXP-13**	Space Work Sites and Settlement Concepts
1630–1830 hrs	*Forum 106*	**ISAM-04**	Manufacturing Approaches for ISAM
1630–1830 hrs	*Forum 113*	**NTIS-04**	Evolving Technologies for Space Exploration II
1630–1830 hrs	*Forum 121*	**SUST-01**	Space Sustainability Frameworks

Scan here for greater session detail.

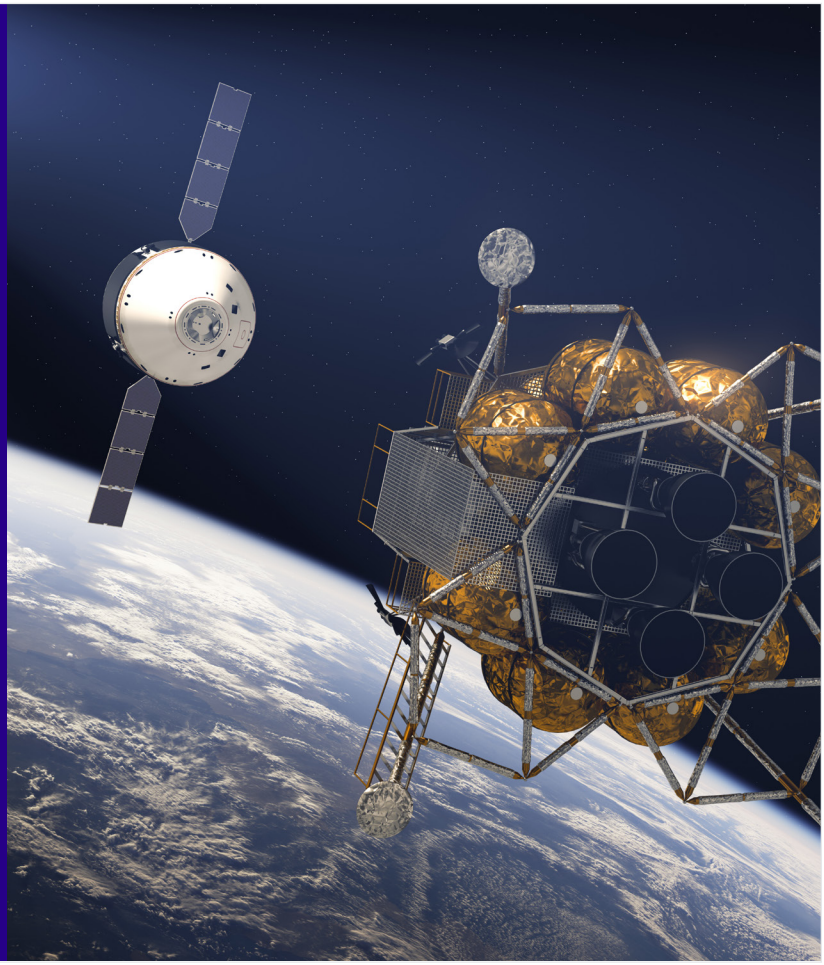
Wednesday, 25 October Program

TIME	ROOM	TYPE	SESSION
0800–0915 hrs	*Summit Ballroom*	MACRO-03	What Has Space Done for Me Lately?
0930–1030 hrs	*Forum 135*	META-17	International Space Station Research and Development in Transition
0930–1030 hrs	*Forum 134*	META-18	Designing the Right Space Architecture for the 21st Century
0930–1030 hrs	*Forum 130*	META-19	Bridging Competition by Cooperation: Private Industry Partnerships that Improve Outcomes for Customers
0930–1030 hrs	*Summit Ballroom*	META-20	Pathways to Space Regulation: Enabling Market Growth Through an Orderly Transition
1100–1200 hrs	*Forum 134*	META-05	Space Market Analysis: What You Need to Know About Today's Changing Market
1100–1200 hrs	*Summit Ballroom*	META-21	Engaging the Public Through the International Space Station
1100–1200 hrs	*Forum 135*	META-22	Next-Generation Technology Driving the Future of In-Space Servicing, Assembly, and Manufacturing
1100–1200 hrs	*Forum 130*	META-24	Guiding and Accelerating Research, Technology and Capability Delivery to Enable and Accelerate the Cislunar Ecosystem
1100–1200 hrs	*Forum 126*	SPEC-06	What a Mobile and Telework-Focused Workforce Is Looking for in an Employer
1100–1200 hrs	*Forum 106*	SPEC-08	The Increasing Role of SmallSats in Space Exploration and Infrastructure
1100–1200 hrs	*Summit 204*	SPEC-09	Moon 2035: Living off the Land
1100–1200 hrs	*Forum 110*	SPEC-10	Making Space Sustainability Relevant: An Interactive Adventure in Connection, Impact, and Conversations
1300–1345 hrs	*Summit Ballroom*	MICRO-41	Bridging the Gap: Providing Ongoing Support for the Scientific Research Community over the Next Decade and Beyond
1300–1345 hrs	*Summit 204*	MICRO-42	Systems Thinking Through Our Hardest Problems
1300–1345 hrs	*Forum 135*	MICRO-43	Safety Frameworks for Commercial Human Spaceflight
1300–1345 hrs	*Forum 134*	MICRO-57	Robotics: A Game Changer for Space Applications
1300–1345 hrs	*Forum 130*	MICRO-68	Bridging the 'Valley of Death': Overcoming the Communication Challenges in Advancing Research & Development
1400–1445 hrs	*Forum 130*	MICRO-18	Space Technology Challenges and Strategy: Lunar Surface
1400–1445 hrs	*Summit 204*	MICRO-46	Next Generation of Space Station Infrastructure
1400–1445 hrs	*Forum 134*	MICRO-48	Explainability and Human-Machine Teaming in Autonomous Robotic Exploration Missions
1400–1445 hrs	*Forum 135*	MICRO-50	The Appropriate Role of the Military in Commercial Space
1400–1445 hrs	*Summit Ballroom*	MICRO-53	The Orbital Sustainability Paradox: Lots of Debris - Where are the Economic Incentives?
1500–1545 hrs	*Forum 134*	MICRO-45	Resolving Barriers to Infusion: Fielding Dependable Autonomous Space Systems
1500–1545 hrs	*Forum 135*	MICRO-47	Space Policy: How To Gain and Maintain Policymakers' Attention
1500–1545 hrs	*Forum 130*	MICRO-52	Toward Sustainability: Step by Step, Orbit by Orbit
1500–1545 hrs	*Summit Ballroom*	MICRO-55	Implications to National Security from the Rise of Commercial Space Stations in LEO
1500–1545 hrs	*Summit 204*	MICRO-67	Exploring Beyond Boundaries: The Imperative of Space Suits in Cislunar Space
1600–1645 hrs	*Forum 135*	MICRO-59	Commercial Radioisotope Power to Enable New Lunar Missions
1600–1645 hrs	*Forum 134*	MICRO-60	Hype: Help or Hurt
1600–1645 hrs	*Summit Ballroom*	MICRO-66	Humans in Space Challenge Startup Pitch III
1700–1730 hrs	*Summit Ballroom*	MACRO-04	Closing Ceremonies

Wednesday, 25 October Technical Sessions

TIME	ROOM	TYPE	SESSION
1100–1200 hrs	*Forum 123*	**2050-06**	Space 2050: Protection & Security II
1245–1445 hrs	*Forum 122*	**2050-07**	Space 2050: Protection & Security III and Remote Sensing II
1245–1445 hrs	*Forum 126*	**EDUC-02**	Workforce Development for an Innovative, Diverse, and Inclusive Space Industry
1245–1445 hrs	*Forum 108*	**EESE-06**	Emerging Commercial Services and Capabilities
1245–1445 hrs	*Forum 110*	**EXP-14**	Enabling Propulsion Tech for Landers/Ascent Vehicles
1245–1445 hrs	*Forum 123*	**ISAM-05**	Tall Lunar Tower Efforts Enabled by ISAM
1245–1445 hrs	*Forum 106*	**ISRU-01**	ISRU of Water
1245–1445 hrs	*Forum 113*	**NTIS-05**	Power and Propulsion Technologies and Subsystems for Space Exploration
1245–1445 hrs	*Forum 116*	**SEC-01**	Securing Future Space Architectures
1245–1445 hrs	*Forum 121*	**SUST-02**	Minimizing Future Planetary and Environmental Impact
1500–1700 hrs	*Forum 122*	**2050-08**	Space 2050: Remote Sensing III
1500–1700 hrs	*Forum 126*	**EDUC-03**	Space Design & Architectures Student Competition Winning Teams Presentations
1500–1700 hrs	*Forum 108*	**EXP-16**	Conceptual Missions
1500–1700 hrs	*Forum 123*	**EXP-17**	Lunar Power Infrastructure
1500–1700 hrs	*Forum 110*	**EXP-18**	Space Transport Propulsion Enablers
1500–1700 hrs	*Forum 106*	**ISRU-02**	ISRU of Regolith
1500–1700 hrs	*Forum 116*	**SEC-02**	Planning for Resilience in Future Space Systems

Scan here for greater session detail.



Humans In Space

HUMANS IN SPACE

The Humans In Space (HIS) Symposium calls for innovative solutions and research on the challenge of human life in space. We are proud to bring the HIS Symposium and HIS Challenge to 2023 ASCEND. This extraordinary gathering unites visionaries, experts, and enthusiasts from across the globe to explore and shape the future of humanity in space.

The HIS Challenge competition aims to discover early-stage startups and researchers dedicated to transforming human life in space. During the HIS Symposium, finalists will present solutions and research before a panel of prominent space experts. HIS Challenge winners will receive investments, research awards, and opportunities to participate in mentorship programs.

Don't miss this extraordinary moment of inspiration and discovery as we celebrate the best and brightest in the realm of space innovation.

Humans In Space Challenge Research Pitch I & II

Ten distinguished research finalists, selected by leading experts, are poised to unveil their groundbreaking research endeavors, where the winner will secure a prestigious $30,000 research grant to advance their pioneering work.

Humans In Space Challenge Startup Pitch I, II, & III

Join us every day as fifteen pioneering startup finalists are set to present their game-changing ideas in front of top-tier space experts, with a chance to secure a $100,000 equity investment and $500,000 Axiom Space Credit.*

**Total of $500,000 Axiom Space credit will be shared amongst eligible startups to see their experiment in the next Axiom mission.*

Monday, 23 October

MICRO-62
Humans In Space Challenge Research Pitch I
1400–1445 hrs — *Forum 134*

MICRO-63
Humans In Space Challenge Startup Pitch I
1700–1745 hrs — *Summit Ballroom*

Tuesday, 24 October

MICRO-64
Humans In Space Challenge Research Pitch II
1400–1445 hrs — *Forum 134*

MICRO-65
Humans In Space Challenge Startup Pitch II
1700–1745 hrs — *Summit Ballroom*

Wednesday, 25 October

MICRO-66
Humans In Space Challenge Startup Pitch III
1600–1645 hrs — *Summit Ballroom*

HIS EXHIBIT OVERVIEW

The Humans In Space exhibit will serve as an informative and networking area for people deeply interested or engaged in areas related to Space Exploration such as Human Health Research, Human Healthcare Journey, In-Space Lifestyle, and Advanced Data Analytics and Intelligence. Participants will have the chance to not only explore the prototypes of the HIS Startup Finalists and discuss their focused area and concerns in space application of their unique technology with them, but also will have the opportunity to build connection with notable HIS partners who have expertise in the relevant area of work.

STARTUP JUDGES

Audrey Berthier, Director, MEDES

Monica Jain, Partner, Wavemaker 360

Deok-Ho Kim, Professor, Johns Hopkins University

Kyu-Sung Kim, Professor, Inha University

Solange Massa, CEO, Ecoatoms

Junaid Mian, Partner, SpaceFund

Kathy O'Donnell, Leader of Space Product Solutions Architecture, Aerospace & Satellite, Amazon Web Services

Aenor Sawyer, Director, UC Space Health

Jacob Scoccimerra, Former Program Manager, Nanoracks

Arun Sharma, Assistant Professor, Cedars-Sinai

David Zuniga, Senior Director, In Space Solutions, Axiom Space

RESEARCH JUDGES

Dawn Bowles, Assistant Professor in Surgery, Duke University

Charles Chiu, Professor, Medicine, UC San Francisco

Alexander Chouker, Panel Chair, European Space Sciences Committee

Marissa Rosenberg, Senior Medical Research Engineer, SpaceX

Cathy Yeung, Associate Professor, Department of Pharmacy, University of Washington

David Zuniga, Senior Director, In Space Solutions, Axiom Space

STARTUP FINALISTS

Human Health Journey

AvatarMEDIC Inc. | U.S.
AvatarMEDIC Inc. offers real-time, remote medical relief for Austere, Isolated, and Confined Environments through their XR software, HoloTRIAGE, which integrates spatial computing to provide advanced visualization, data overlay, and interactive capabilities to complement medical providers.

BioBankHealing | South Korea
BioBankHealing develops an all-in-one cartridge and diagnostic device that monitors the gut microbiome of space travelers using just 1g of stool sample.

brain.space | Israel
brain.space builds an AI-based data collection gear and analysis software that enables effective long-term brain monitoring and expansive data collection and analysis.

Megnosis Co., Ltd. | South Korea
Megnosis develops a headset that measures EEG and brain impedance and applies electrical current to the scalp, which diagnose and treat Alzheimer's disease (differentiation accuracy: 95%) and depression simultaneously.

Neursantys, Inc | U.S.
Neursantys is a pioneer in developing non-invasive bioelectronic medical devices and treatments for neuromotor conditions with no widely available pharmacological alternatives.

PAPRICALABS Co., LTD | South Korea
PAPRICALAB specializes in radiation detectors and radiation therapy products by developing wearable dosimeters that are soft contact lenses worn in the eye and flexible patches attached to the skin. They utilize a high-performance inorganic perovskite radiation=sensitive part that is flexible and responds to radiation even at a thin thickness of 350-450nm.

Splendo Health | U.S.
SplendoHealth has its own platform which aggregates and calculates raw data, in real-time, from selected wearable device to make Cardiorespiratory Fitness (CRF)/VO2 max assessments accessible, affordable and efficient outside of a dedicated lab or hospital setting.

Humans In Space Continued

In-Space Lifestyle

Extremo Technologies | Poland
Extremo Technologies uses microalgae in in-house designed products to support the future of life in space and on Earth. The microalgae bio-panel supports crew space missions through effective CO2 sequestration and O2 production.

Lumen Bioscience | U.S.
Lumen Bioscience plans to produce genetically engineered spirulina to provide on-demand biomedicines, protein nutrition, and remediation of environment for long-term space exploration.

Manakin Robotics | U.S.
Manakin Robotics specializes in real-time monitoring and detection of airborne pathogens using patent-pending biosensors for effective protection against exposure.

Data & Analytics

Mutagentech, Inc | U.S.
Mutagentech has developed the most precise error-corrected Next Generation Sequencing (ecNGS) platform for detecting rare somatic mutational variants in DNA.

Uptimai s.r.o | U.S.
Uptimai s.r.o characterizes models of human stress level response for professionals often exposed to stressful situations through Machine Learning methods.

Bio R&D Platform

Odyssey SpaceWorks | U.S.
Odyssey SpaceWorks offers high launch-cadence research lab satellites in space. They offer environmental control, in-orbit spectrophotometry, and organoid growth chambers that can better mimic human cancer growth than in labs on earth.

SpaceBox | Germany
SpaceBox develops fully automated mini laboratories, powered by AI, for biopharmaceutical research in space and earth applications.

Molecule & Therapeutics

LambdaVision Incorporated | U.S.
LambdaVision is developing the first protein-based artificial retina to restore meaningful vision for patients who are experiencing advanced retinal degenerative diseases, including Retinitis Pigmentosa (RP) and Age-related Macular Degeneration (AMD).

RESEARCH FINALISTS

Circulatory

Gopal Katkoria, International Institute for Astronautical Sciences (IIAS), U.S.
Citizen Science Research to build a data repository to understand the physiological effects of gravity transition on new and frequent flyers across different health profiles.

Miroslav Rozloznik, Faculty of Medicine, University of Ostrava, Czech Republic
Quantitative analysis of nitrogen elimination and venous gas emboli production during Normobaric oxygen breathing.

Cognitive

Hak Soo Choi, Harvard Medical School, U.S.
Point-of-care monitoring of space environmental stress using near-infrared fluorescence.

Alysson Muotri, University of California San Diego, U.S.
The impact of microgravity on human cognition.

Health Monitoring

Boaz Lerner, Ben-Gurion University of the Negev, Israel
AI system for continuous explanatory space and Earth health monitoring.

Immune

JangKeun Kim, Weill Cornell Medicine, U.S.
Comprehensive biomedical and multi-omic profiling of immune dysregulation with countermeasure development for astronauts.

Devon Lundine, Sloan Kettering Institute, U.S.
Shields up! Inhibition of DNA polymerase theta as a galactic cosmic ray countermeasure.

Christopher Porada, Wake Forest Institute for Regenerative Medicine, U.S.
Impact of uG-induced immune alterations on astronaut cancer risk.

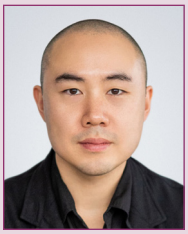
Musculoskeletal

Luke Hughes, Northumbria University, UK
Personalized Tourniquet System for Spaceflight (ASTRA Study).

Alejandro Marcano, Karolinska Institutet, Sweden
Optimizing Fracture care for long-duration space missions.

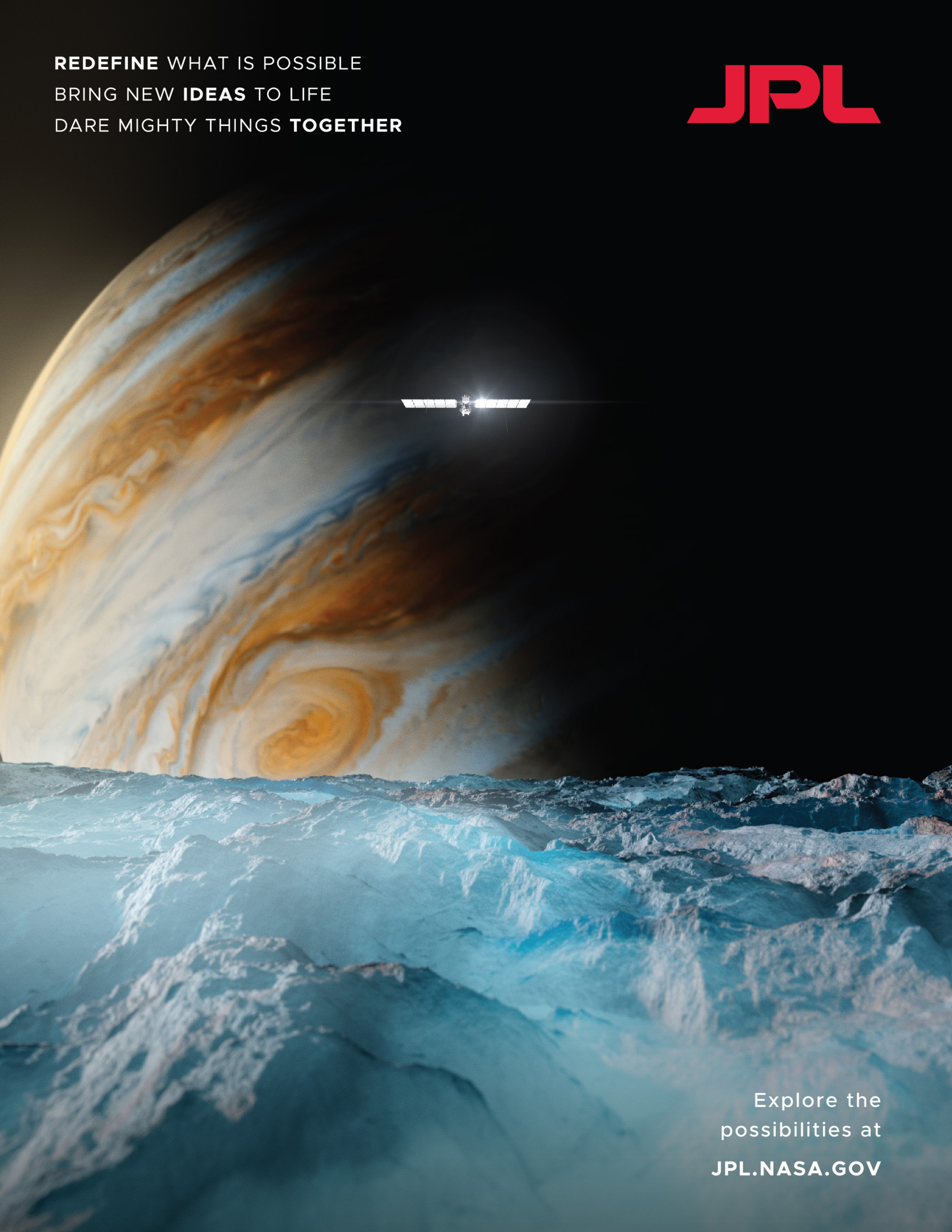
I'm delighted to bring the Humans In Space (HIS) Symposium to 2023 ASCEND, the world's premier collaborative, outcomes-driven, interdisciplinary event. Building on the success of the inaugural 2022 Care In Space (CIS) Challenge, Boryung launched the HIS initiative to explore the ideas and solutions for human survival in space. The HIS initiative aims to foster an ecosystem of innovative minds working to advance human activities in space. The initiative started with launching the HIS Challenge in May this year, and I'm thrilled to watch the grand finale of HIS Challenge and our HIS finalists' insightful pitches here at the phenomenal stages of ASCEND.

Our co-location with ASCEND is an invaluable partnership where we can add new perspectives and value to each other. We're committed to this premier global space event, opening doors to endless opportunities. Starting with this year's co-location, I'm looking forward to expanding our broader partnership with ASCEND.



Jay Kim
Chairman and CEO of Boryung

BORYUNG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BRING NEW **IDEAS** TO LIFE
DARE MIGHTY THINGS **TOGETHER**
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possibilities at
JPL.NASA.GOV

Recognition

AIAA is committed to ensuring that aerospace professionals are recognized and celebrated for their achievements, innovations, and discoveries that make the world safer, more connected, more accessible, and more prosperous. AIAA celebrates the pioneering spirit showcasing the very best in the aerospace industry.

Monday, 23 October

SPEC-13

2023 AIAA von Kármán Lecture in Astronautics

1130–1230 hrs *Summit 204*

"Celebrating a Century of Kármán's Momentum-Integral and Space-Reductive Approaches: Applications in Rocketry and Beyond"

Joseph Majdalani, Francis Chair of Excellence and Professor of Aerospace Engineering, Auburn University

Named in honor of Theodore von Kármán, a world-famous authority on aerospace sciences, the lectureship honors an individual who has performed notably and distinguished themselves technically in the field of astronautics. Majdalani's lecture celebrates the centennial of the momentum-integral approach, one of the most significant theoretical contributions of Theodore von Kármán, taught widely in the fields of aerodynamics. He will discuss the broad impact of this approach and often used in conjunction with Pohlhausen's polynomial approximations.

SPEC-14

2023 AIAA David W. Thompson Lecture in Space Commerce

1245–1345 hrs *Summit Ballroom*

Grab lunch and bring to the lecture.

"Connecting Space to Earth"

George Whitesides, Partner, Convective Capital

The lectureship recognizes a prominent industry leader who has created or grown a space-related business and generated substantial economic benefits and market value. The award commemorates the long and distinguished career of commercial space pioneer, David W. Thompson.

Whitesides' lecture will address this moment in time when aerospace lessons and solutions can help solve the world's greatest challenges. "Our leaders must be active in seeking out connections to national and global problems that we can help or solve. Climate change, inequality and inaccessibility, the carbon transition, foreign repression – all of these are among the challenges of our time. Perhaps now more than ever, the abilities of the aerospace sector are directly relevant to many of these challenges," said Whitesides.

Tuesday, 24 October

SPEC-32

2023 William H. Pickering Lecture: Observing Earth's Precious Water from Space

1830–1930 hrs *Summit Ballroom*

The lecture will explore a space mission that will address some of Earth's most pressing climate change questions of our time by informing decisions about our daily lives and livelihoods. Using state-of-the-art radar interferometry technology, SWOT is measuring the elevation of water to observe millions of lakes and wetlands with surface areas 250 m2 and thousands of rivers whose width exceeds 100 m, while detecting ocean features with unprecedented resolution, accuracy, and spatial coverage. The primary science payload, a novel Ka-band Radar Interferometer (KaRIn), is the first in-flight demonstration of wide-swath (2, 50Km swaths) SAR interferometry for more accurate and comprehensive mapping of Earth's ocean and surface water from space.

The SWOT Mission is expected to revolutionize hydrology and oceanography, providing a set of observations for nearly all surface waters on planet Earth, allowing scientists to determine changing volumes of water across the globe. SWOT will also significantly advance climate and ocean sciences by detecting ocean features with 10 times better resolution than present technologies. The higher resolution will reveal small-scale ocean features that contribute to the Earth's fundamental cycles of heat, energy, carbon, moisture, and nutrients.

Speakers: Nadya Vinogradova Shiffer, Ocean Physics Program Manager, NASA Headquarters

Parag Vaze, Project Manager, SWOT Mission, NASA Jet Propulsion Laboratory

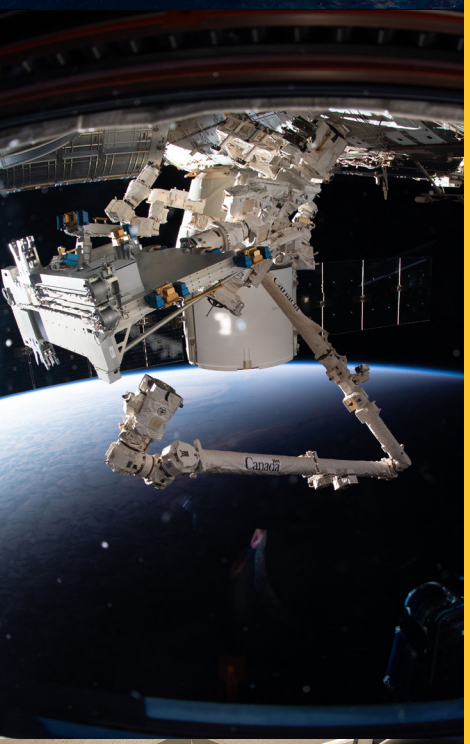
TECHNICAL EXCELLENCE AWARD

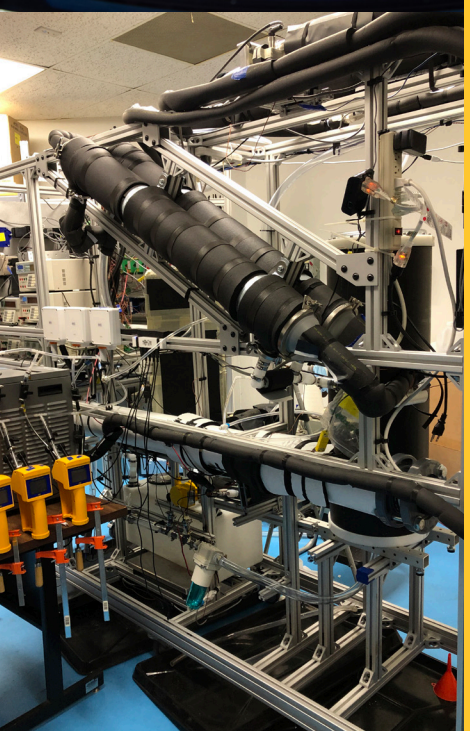
2023 AIAA von Braun Award for Excellence in Space Program Management

0800 hrs *Summit Ballroom*

John M. Grunsfeld, Endless Frontier Associates LLC

For exceptional leadership of America's space science program resulting in amazing achievements exploring the Earth, our solar system, and unravelling the mysteries of the cosmos.





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Onsite and General Information

REGISTRATION

ASCEND Registration is located in the Caesars Forum Lobby, at the bottom of the escalator.

Registration Hours

Sunday, 22 October	1500–1900 hrs
Monday, 23 October	0700–1800 hrs
Tuesday, 24 October	0700–1700 hrs
Wednesday, 25 October	0700–1700 hrs

FIRST AID

ASCEND will have a medic onsite, offering basic first aid services throughout the event. Contact event staff if needed.

HOTEL RESORT FEE

For those who booked their hotel reservations in the ASCEND room blocks at Harrahs and the LINQ, please note that the resort fee is optional and you should have been notified of that during the check-in process. You have the option to pay the resort fee, or pay for any of the services you wish to use individually. Please check your folios carefully so you do not overpay.

LUGGAGE STORAGE

There will be an unattended designated area in the Engagement Zone on Wednesday where you are welcome to leave your bags. AIAA is not responsible for any lost or missing items.

RECYCLING AND SUSTAINABILITY EFFORTS

ASCEND and our host facility are proud to do our parts toward making events green. Please help us continue to reduce our carbon footprint:

- All leftover conference materials and supplies are donated to local schools in need. This includes all office supplies, sign boards, leftover giveaways, etc. Please look for the box near registration where you can put any items you are not taking home with you.
- All waste and recycling is collected together and sorted off-site in Las Vegas to ensure maximum recycling and composting.
- There will be water coolers around the Engagement Zone.

CONNECT TO THE WI-FI

To connect to the event wireless internet please select:

Network: **ASCEND2023**
Password: **Airbus23**

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MEALS & COFFEE BREAKS

Lunch and coffee breaks will be provided throughout the day in the Engagement Zone Room 118. Join us Monday and Tuesday evening for a fun-filled networking reception both in the Engagement Zone and outside on the Forum Plaza. Look for the Daily Re-Fueling Board to find the offerings.

AIAA
SHAPING THE FUTURE OF AEROSPACE

DEFYING GRAVITY IS ONLY THE BEGINNING

You routinely accomplish the unimaginable—solving the mysteries of space and flight. But your goal, like ours, is never wonder for wonder's sake. When you join the world's largest technical society devoted to aerospace engineering, you'll become part of a fellowship of peers driven to push the limits of humanity. Take your place among AIAA's community of 30,000 aerospace engineers and scientists and prepare for unmatched access to professional development, thought leadership, and global collaboration.

Become a Member Today!

AIAA.org/join

Onsite and General Information Continued

BADGE POLICY

AIAA event badges are provided to those individuals who have paid for a registration to the event. Badges must be worn at all times to participate in all ASCEND activities. Badges are not provided at the registration desk for committee meetings attendance. In order to obtain an ASCEND badge, one must register for the event.

CERTIFICATE OF ATTENDANCE

All attendees will receive a Certificate of Attendance on the last day of the event via email. AIAA offers this service to better serve the needs of the professional community. Claims of hours or applicability toward professional education requirements are the responsibility of the participant.

EMPLOYMENT OPPORTUNITIES

AIAA members can post and browse resumes, browse job listings, and access other online employment resources by visiting the AIAA Career Center at **careercenter.aiaa.org.**

CONTINUE THE CONVERSATION ON ENGAGE

The conversation doesn't have to end when ASCEND ends. AIAA Engage allows you to connect with a community of nearly 30,000 of your AIAA colleagues online and continue your conversations from the event. Discuss the sessions, connect with attendees you meet at ASCEND, and share your experiences. Visit **engage.aiaa.org** to start connecting.

BECOME AN AIAA MEMBER

AIAA is dedicated to helping forward-thinking professionals advance their work and continue shaping the future of aerospace. As part of that mission, we provide more than 30,000 members with thoroughly researched content focused on industry news, innovations, updates, and technical developments. Become an AIAA member to unlock a world of benefits designed to enhance your capabilities, career, and network. Visit **aiaa.org/join**.

NONDISCRIMINATORY PRACTICES

AIAA accepts registrations irrespective of race, color, creed, gender, physical handicap, and national or ethnic origin.

ANTI-HARASSMENT POLICY

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

RESTRICTIONS

Photos, video, or audio recording of sessions or exhibits, as well as the unauthorized sale of AIAA-copyrighted material, is prohibited.

AIAA PHOTOGRAPHY AND VIDEO NOTICE

Attendance at, or participation in, this American Institute of Aeronautics and Astronautics (hereinafter "AIAA") event constitutes consent to the use and distribution by AIAA, its employees, agents, and assignees of the attendee's image and/or voice for purposes related to the mission of AIAA, including but not limited to publicity, marketing, other electronic forms of media, and promotion of AIAA and its various programs and events. Please contact AIAA Director of Communications, Rebecca Gray, at rebeccag@aiaa.org with requests or questions.

Onsite and General Information Continued

CONFERENCE PROCEEDINGS

Proceedings for the event are now available. The cost is included in the registration fee where indicated.

Proceedings

To view proceedings visit **aiaa.org → ARC → Meeting Papers**

- Log in with the link at the top right of the page
- To browse, click on the **Meeting Papers** link at the top of the page and select the appropriate conference from the list
- To search for individual papers, use the **Quick Search** toolbar at the top and then use the Search textbox to find papers by author, title or keyword. To search by paper number - click the **Anywhere** drop down, select **Find by Paper,** select the conference year, and enter the paper number

All manuscript files submitted by four days prior to the conference event are currently in the proceedings. For questions concerning access to proceedings or ARC, email **arcsupport@aiaa.org.**

Manuscript Corrections

The manuscript in the proceedings is the version of record and may not be edited. All changes will be available through the Crossmark feature. View corrections by clicking the Crossmark icon, located on every article's page and PDF. Corrections will be available online approximately 15 business days after the last day of the conference. Visit **arc.aiaa.org/page/crossmark** for more information.

Author & Session Chair Information

"No Paper, No Podium" and "No Podium, No Paper" Policy
If a written paper is not submitted by the final manuscript deadline, authors will not be permitted to present the paper at the conference. It is also the responsibility of those authors whose papers or presentations are accepted to ensure that an author attends the conference to present the paper. If a paper is not presented at the conference, it will be withdrawn from the conference proceedings.

These policies are intended to eliminate no-shows, to improve the quality of the conference for all participants, and to ensure that the published proceedings accurately represent the presentations made at a conference.

Journal Publication
Authors of appropriate papers are encouraged to submit them for possible publication in one of the Institute's archival journals: *AIAA Journal*; *Journal of Aerospace Information Systems*; *Journal of Air Transportation*; *Journal of Aircraft*; *Journal of Guidance, Control, and Dynamics*; *Journal of Propulsion and Power*; *Journal of Spacecraft and Rockets*; or *Journal of Thermophysics and Heat Transfer*. You may now submit your paper online at **http://mc.manuscriptcentral.com/aiaa**.

TECHNICAL PAPERS SESSION PREP

Authors who are presenting papers will meet with session chairs and co-chairs in their session rooms for a short 30-minute briefing on the day of their sessions to review final details prior to the session. Please attend on the day of your session(s). Technical Paper Session Prep will be held from 1315–1345 hrs for Monday and Tuesday sessions, and from 1200–1230 hrs for Wednesday sessions.

SPEAKER READY ROOM

Speakers who wish to practice their presentations may do so in room 221. A sign-up sheet will be posted on the door. In consideration of others, please limit practice time to 30-minute increments.

SESSION CHAIR REPORTS

All session chairs are asked to complete a session chair report to evaluate their session for future planning purposes, including session topics and room allocations. Please submit your session chair report electronically by Wednesday, 1 November.

AUDIOVISUAL

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

COMMITTEE MEETINGS

Sunday, 22 October

TIME	ROOM	SESSION
1400–1600 hrs	*Forum 126*	Space Automation and Robotics TC Meeting
1600–1800 hrs	*Forum 119*	Unidentified Anomalous Phenomena IOC Meeting
1700–1900 hrs	*Forum 126*	Space Systems TC Meeting
1800–1930 hrs	*Forum 119*	Management IOC Meeting

Wednesday, 25 October

1700–1900 hrs	*Summit 222*	Space Architecture TC Meeting
1700–1900 hrs	*Summit 220*	Space Resources TC Meeting

Exhibitors

Advanced Test Equipment Corp. BOOTH 910

10401 Roselle St.
San Diego, CA 92121
www.atecorp.com

Advanced Test Equipment Corp. (ATEC) is a leading provider of test & measurement equipment rentals, sales, calibration, and service. Since 1981, test engineers, government agencies, and Fortune 500 companies have relied on ATEC to guide them to the right equipment, ship it quickly, and offer them the industry's best technical expertise and customer care. ATEC's broad inventory includes EMC, Power Supplies & Loads, RF Safety, Electrical, NDT, Environmental, Communications, and General Purpose test equipment. Explore the ATEC inventory at www.atecorp.com.

AIAA BOOTH 623

12700 Sunrise Valley Dr.
Reston, VA 20191
www.aiaa.org

Since 1963, members from a single professional society have achieved virtually every milestone in modern American flight. That society is the American Institute of Aeronautics and Astronautics. With nearly 30,000 individual members from 91 countries, and 95 corporate members, AIAA is the world's largest technical society dedicated to the global aerospace profession. Created in 1963 by the merger of the two great aerospace societies of the day, the American Rocket Society (founded in 1930 as the American Interplanetary Society), and the Institute of the Aerospace Sciences (established in 1933 as the Institute of the Aeronautical Sciences), AIAA carries forth a proud tradition of more than 80 years of aerospace leadership.

AIAA Los Angeles - Las Vegas Section BOOTH 1018

2629 Manhattan Ave.
Hermosa Beach, CA 90254

BORYUNG BOOTH 1023

104 Bukchon-Ro
Seoul, Republic of Korea
https://www.boryung.co.kr/en/

Boryung is a healthcare investment company founded in 1957 and headquartered in Seoul, South Korea. Following the company's mission to become an indispensable contributor to human health, we have expanded our business portfolio to the space healthcare industry. Recognizing space as a new growth realm, we acknowledge the increasing number of individuals anticipated to embark on extended space missions, highlighting the importance of ensuring human survival in the hostile space environment. Hence, Boryung believes there will be substantial opportunities to foster new technologies and meet the emerging needs in this field.

ispace BOOTH 816

12876 E Adam Aircraft Cir.
Englewood, CO 80112
www.ispace-inc.com

ispace is a lunar exploration company with a vision to extend human presence into outer space. Our vision is to expand our living sphere and create a sustainable world. The Moon's water resources represent untapped potential. Our aspiration is to explore and develop these water resources and spearhead a space-based economy. Water can be broken down into hydrogen and oxygen to produce fuel, so we are mapping lunar resources to accelerate the pace of space development. Imagine the Moon supporting construction, energy, steel procurement, communications, transportation, agriculture, medicine, and tourism... We believe that by 2040 the Moon will support a population of 1,000, with 10,000 people visiting every year. ispace will be instrumental in supporting life on Earth through space-based infrastructure.

Lockheed Martin Space BOOTHS 609 & 613

12257 S Wadsworth Blvd.
Littleton, CO 80125
www.lockheedmartin.com

Headquartered in Bethesda, Maryland, Lockheed Martin Corporation is a global security and aerospace company that employs approximately 116,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

Magneto Space BOOTH T14

4646 13th St. N.
Arlington, VA 22207
www.magneto.space

Magneto Space (MS) is enabling R&D to bring Pulsed Electromagnetic Fields (PEMF) & Spintronics to improve the performance of biological and abiotic systems beyond Earth.

For more than 50 years since the 1970s, spacecraft, systems, and space stations have operated without based on principals of electromagnetism. As organisms have evolved within Earth's magnetic field .2-.7 Gauss (20-70μT) and electric field (100-300 V/min) for billions of years, electromagnetic fields induce vibrations for ion transport, signaling, and molecular bonds to sustain the health of plants, humans, and life.

Magneto is pioneering a new breed of subsystems that hold potential to monitor and improve energy storage & generation by 50-100%+. Our team is designing an affordable low power PEMF device to replicate Earth's electromagnetic field in NNMF and space environments.

Motiv Space Systems

BOOTH **922**

350 N Halstead St.
Pasadena, CA 91107
www.motivss.com

Motiv Space Systems is the leading provider of innovative space robotic systems, mechanisms and motion control solutions for mission critical orbital and planetary applications.

NASA

BOOTH **517**

300 E St. S.W.
Washington, DC 20546
www.nasa.gov

The National Aeronautics and Space Administration (NASA) is responsible for unique scientific and technological achievements in human spaceflight, aeronautics, space science, and space applications that have had widespread impacts on our nation and the world. Established in 1958, NASA has been the center of U.S. civil aerospace research and development for more than half a century.

National Reconnaissance Office (NRO)

BOOTH **313**

14675 Lee Rd.
Chantilly, VA 20151
www.nro.gov

NRO develops and operates the world's most capable and innovative overhead reconnaissance systems to collect intelligence for U.S. national security, and to support disaster relief and humanitarian efforts.

Nevada National Security Sites

BOOTH **1022**

2621 Losee Rd.
Las Vegas, NV 89030
https://nnss.gov

Nevada Space Proving Ground at the NNSS is a full-scale lunar/martian analog testbed featuring hundreds of craters, a 50m tall HLS/Starship analog, and ample supporting infrastructure for all types of equipment testing and personnel training.

Northrop Grumman

BOOTH **511**

45101 Warp Dr.
Dulles, VA 20166
www.northropgrumman.com

Northrop Grumman is a leading global aerospace and defense technology company. Our pioneering solutions equip our customers with the capabilities they need to connect and protect the world, and push the boundaries of human exploration across the universe. Driven by a shared purpose to solve our customers' toughest problems, our 95,000 employees define possible every day.

NovaWurks, Inc

BOOTH **414**

10772 Noel St.
Los Alamitos, CA 90720
www.novawurks.com

NovaWurks is a pioneering aerospace company headquartered in Los Alamitos, California. We specialize in the development and production of SLEGO building blocks, a revolutionary type of space architecture that integrates diverse-sized space applications to create adaptable and configurable buses capable of supporting any payload.

Our visionary approach to space architecture is redefining the future of space exploration and transportation. By focusing on payload-centric bus designs, NovaWurks aims to overcome the limitations of traditional spacecraft by offering a versatile and scalable platform capable of accommodating a wide range of payloads, regardless of their size or complexity.

Exhibitors Continued

Orbiter by Astroscale — BOOTH 924

2201 S Deleware St.
Denver, CO 80223
https://astroscale.com/orbiter-desktop

Astroscale is the first private company with a mission to secure spaceflight safety and orbital sustainability for the benefit of future generations. Founded in 2013, Astroscale is developing innovative and scalable solutions for satellite End of Life and Active Debris Removal services to mitigate the hazardous buildup of space debris.

PickNik Robotics — BOOTH 914

4730 Walnut St.
Boulder, CO 80301
www.picknik.ai

The Unstructured Robotics Company. We are the industry leaders in solving the hardest robotics problems.

Companies of all sizes, both on Earth and in space, rely on PickNik for bringing the most advanced solutions to life for both structured and unstructured environments.

RS&H, INC. — BOOTH 410

10748 Deerwood Park Blvd. South
Jacksonville, FL 32256
www.rsandh.com

RS&H provides fully integrated architecture, engineering, and consulting services to help clients realize their most complex facility and infrastructure projects for land, air, and space. We are consistently ranked among the nation's top 100 design firms and have worked in over 50 countries across the globe. With a tradition that began in 1941, RS&H has helped pioneers build the launch platforms for the national space program, create global airports that connect communities, shape progressive highway systems across the country, and provide facilities for Fortune 1000 companies.

As an employee-owned firm, our people are our greatest asset. Our forward-looking experts streamline complex challenges at every stage, providing a panoramic view of each client's requirements and opportunities.

Sierra Lobo Inc. — BOOTH T12

12600 NASA Rd.
Las Cruces, NM 88012
https://sierralobo.com/

Sierra Lobo, Inc. specializes in providing test, evaluation and engineering services to the aerospace sector nationwide. We also offer in-house engineering and R&D services through our Technology Development and Engineering Centers (TDEC) in Milan, Ohio and Pasadena, California. We have a proud history providing excellent services and products to our customer in government and industry. We believe that our success is based on adhering to our core principles and values that include: integrity; service; excellence; dignity; and growth. Please take time to learn more about our people, business, and ideals.

Space Force Association — BOOTH 412

Colorado Springs, CO

SFA's mission is to achieve superior national spacepower by shaping a Space Force that provides credible deterrence in competition, dominant capability in combat, and professional services for all partners.

Stellar Access — BOOTH 912

13100 Space Center Blvd.
Houston, TX 77059
www.stellaraccess.com

Stellar Access is your connection to space. We are building an out-of-this-world network – literally – to bring space to you, your community, your business.

Everything you need to make a space experience a reality – information, resources, providers, and partners – whether for business or pleasure, Stellar Access provides it. We created a network of space flight providers, equipment, and specialists in retail, tourism, and business, all interested in finding resources and working together for future commerce in space.

We have more than 40 years of experience in the space and aerospace industries. Let us bring your project over the finish line.

Terran Orbital — BOOTH 617

6800 Broken Sound Parkway NW
Boca Raton, FL 33487
www.terranorbital.com

Terran Orbital is a leading manufacturer of satellite products primarily serving the aerospace and defense industries. Terran Orbital provides end-to-end satellite solutions by combining satellite design, production, launch planning, mission operations, and on-orbit support to meet the needs of the most demanding military, civil, and commercial customers.

The University of Nevada Las Vegas Branch of AIAA

BOOTH **T13**

1550 Orchard Falls Ct.
Henderson, NV 89014
https://involvementcenter.unlv.edu/organization/unlvaiaa

We will showcase projects and aircraft that the local student branch of AIAA has been working on for the past year. This may include a VTOL prototype and a cinelifter drone for aerial photography.

Thunderbird School of Global Management

BOOTH **T8**

One Global Pl.
Phoenix, AZ 85004
https://thunderbird.asu.edu/thought-leadership/centers/space-leadership-initiative

The Thunderbird Initiative for Space Leadership, Policy and Business serves as a hub for academic-industry-governmental collaboration in space research, education and development. We bring scholars, executives, founders, policymakers and military officers together to address industry, national and global challenges.

Our vision is to build a better future for our nation and planet by ensuring that space organizations are well managed, and that space technologies are well applied. We will achieve this by empowering the next generation of global space leaders with domain expertise, 21st-century management skills, and powerful personal networks in the space community. The future is launching here.

United Launch Alliance (ULA)

BOOTH **T11**

9501 E. Panorama Cir.
Aurora, CO 80018
www.ulalaunch.com

With more than a century of combined heritage, ULA is the world's most experienced and reliable launch service provider. ULA has successfully delivered more than 130 satellites to orbit that provide Earth observation capabilities, enable global communications, unlock the mysteries of our solar system and support life-saving technology.

UTEP Aerospace Center

BOOTH **T9**

500 W. University Ave.
El Paso, TX 79968
www.utep.edu/aerospace

Valcor Engineering Corporation

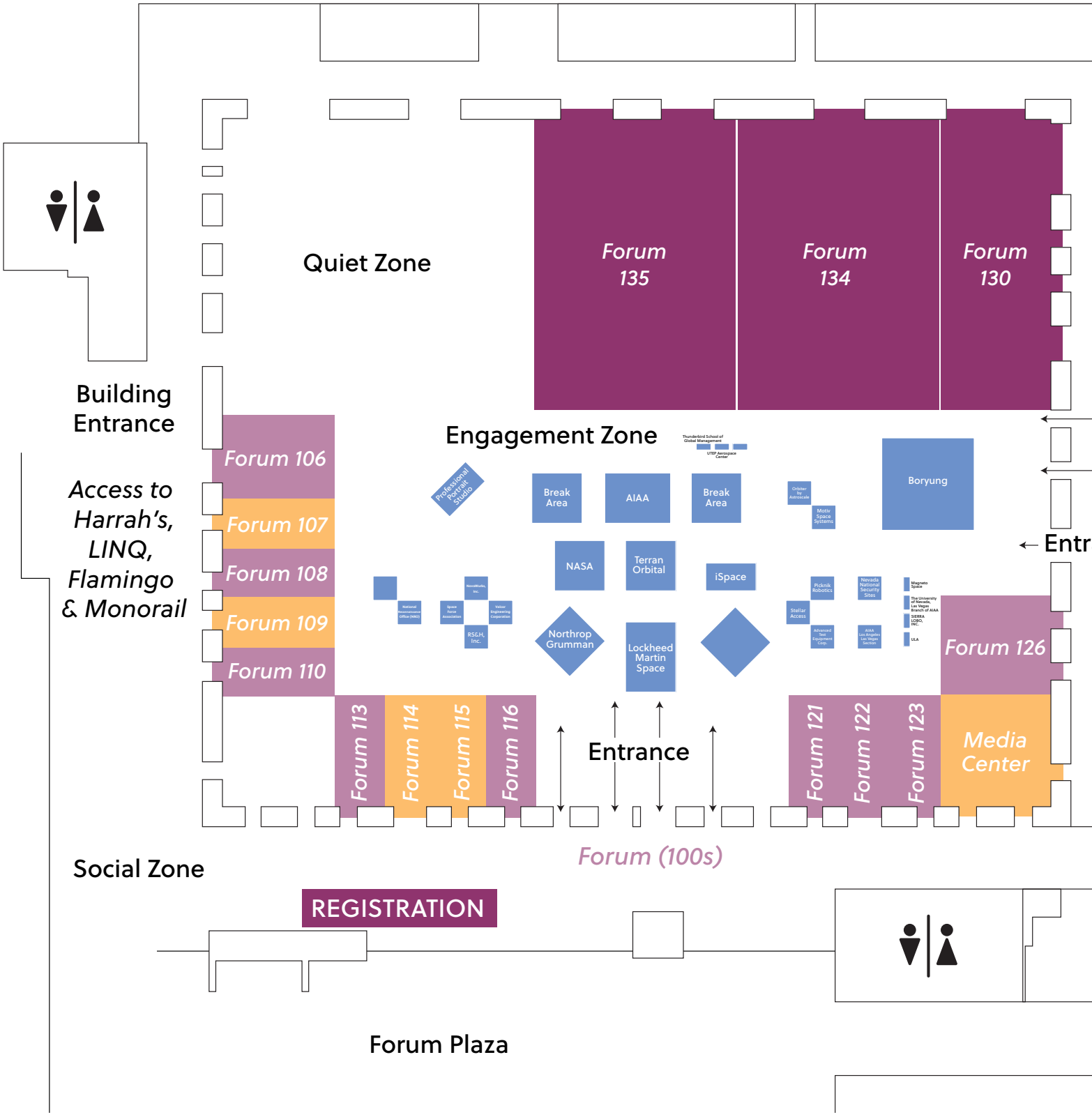
BOOTH **413**

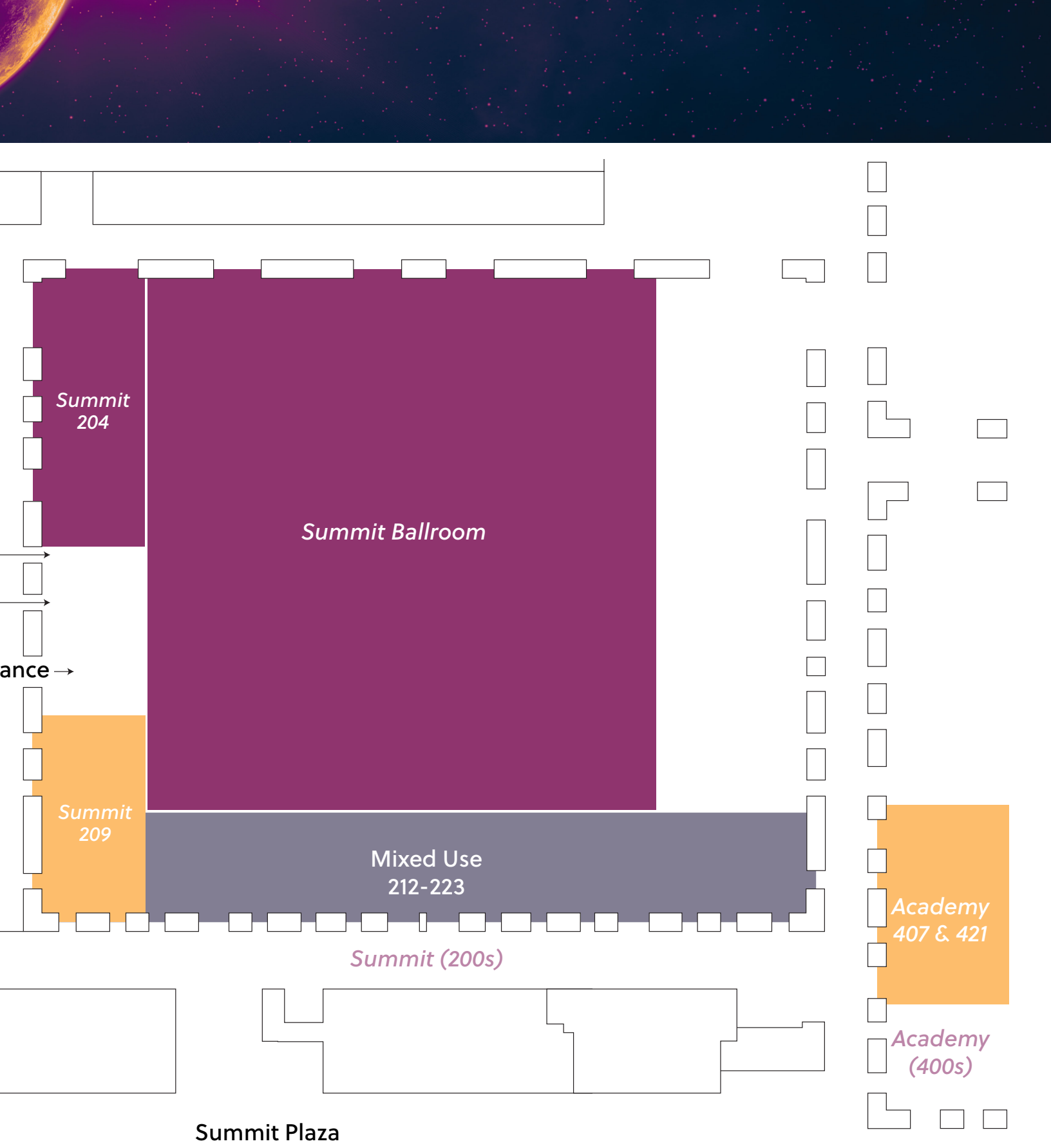
2 Lawrence Road
Springfield, NJ 07081
www.valcor.com

Valcor Engineering Corporation, founded in 1951, designs and manufactures solenoid valves and other fluid control components, as well as subsystems, clutches, brakes and OBIGGS systems in critical applications in the aerospace, nuclear, light industrial and scientific industries. Headquartered in Springfield, New Jersey, Valcor's world-class staff of engineers, designers, and technical support personnel utilize fully equipped, modern test facilities to test the most precise and exacting standards.

With a library of more than 18,000 designs, Valcor's design team can modify existing technology to suit practically every hard to handle application. Valcor specializes in custom applications and can create an entirely new product to meet your needs.

Floorplan


Quiet Zone
Forum 135
Forum 134
Forum 130
Building Entrance
Engagement Zone
Forum 106
Forum 107
Forum 108
Forum 109
Forum 110
Access to Harrah's, LINQ, Flamingo & Monorail
Professional Portrait Studio
Break Area
AIAA
Break Area
Boryung
NASA
Terran Orbital
iSpace
Northrop Grumman
Lockheed Martin Space
Forum 126
Forum 113
Forum 114
Forum 115
Forum 116
Entrance
Forum 121
Forum 122
Forum 123
Media Center
Forum (100s)
Social Zone
REGISTRATION
Forum Plaza


Summit 204
Summit Ballroom
ance →
Summit 209
Mixed Use 212-223
Summit (200s)
Academy 407 & 421
Academy (400s)
Summit Plaza

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30 JULY – 1 AUGUST 2024 | LAS VEGAS, NEVADA

2024

CALL FOR CONTENT OPEN

PARTICIPATE IN NEXT YEAR'S PROGRAM

ASCEND supports an interdisciplinary, collaborative community of aerospace professionals, students, and enthusiasts who are accelerating humanity's progress toward our off-world future.

Help shape the 2024 ASCEND program with your own session proposal or technical presentation. Session formats include roundtables, panels, debates, workshops, and more.

2024 ASCEND Session & Paper Topics:

- Expanding and Evolving the Space Economy
- Space Exploration and Infrastructure: Exploring, Living, and Working in Space
- Space and Society, Education, and Workforce
- Space and Sustainability
- Space Security and Protection
- Space Traffic Management / Coordination

WILL YOU ANSWER THE CALL?

DEADLINE IS 12 DECEMBER 2023.

www.ascend.events/presenters

CORNERSTONE INDUSTRY PARTNER LOCKHEED MARTIN