Bioastronautics and Human Space Exploration

A session of Georgia Tech Space Week 2026

Marcus Nanotechnology Building

This session convenes the Georgia Tech bioastronautics community and researchers in human space exploration. It opens with an overview of the Bioastronautics Initiative and its future vision, a Georgia Human Space Exploration Alliance (GHSEA) presentation and short panel, and a facilitated discussion of community priorities and needs, followed by contributed oral presentations and poster lightning talks.

Format: A workshop-style program pairing strategic discussion with contributed technical talks. Oral presentations run in a single track and lead into rapid poster lightning previews just before the poster session and reception.

Schedule

1:00 – 1:10 pm	Welcome & framing
1:10 – 2:25 pm	**The Future of Bioastronautics**
1:10 – 1:25 pm	Current Progress and Future Vision
1:25 – 1:55 pm	GHSEA presentation & short panel
1:55 – 2:25 pm	Facilitated Community Discussion
2:25 – 2:35 pm	*Break*
2:35 – 4:30 pm	**Technical Talks**
2:35 – 4:22 pm	Oral presentations *(13 min each; 11 min presentation + 2 min Q&A)* *Speakers: Manning, Larrowe, Romero-Calvo, Diedrich, McNabb, Scifoni, Devapriyam, Jones*
4:22 – 4:30 pm	Poster lightning talks *

** The poster session is a campus-wide Georgia Tech Space Week event (all topics, 4:30 – 8:00 pm), held separately from this session; the lightning talks preview our bioastronautics and human space exploration posters.*

Oral Presentations

1. **Benjamin Manning** *(Research Faculty)*
   Intelligent Habitat Operating Systems: A Systems Architecture for Adaptive Human-Space System Interaction
2. **Daniel Larrowe** *(Graduate Student)*
   Mars Transit Habitat Design Space Exploration
3. **Álvaro Romero-Calvo** *(Professor)*
   Prototype Development of a Microgravity Electrolytic Oxygen Generator & Turntable Testbed
4. **Bella Diedrich** *(Undergraduate Student)*
   From Classroom to Console: Evaluating a Student-Led Mission Control Center in Analog Operations

5. **Jeffrey McNabb** *(Research Engineer)*
   So You Want to Build a Moon Base: Introducing LunaAgent, An Agent-based Modeling Environment for Lunar Surface Activities
6. **Luca Scifoni** *(Graduate Student)*
   Testing Electrodynamic Dust Shields on a Lunar Rover in an Analog Facility
7. **Jennifer Devapriyam** *(Graduate Student)*
   Pore-Scale Thermal Conductivity Modeling of Icy Lunar Regolith for In-Situ Resource Utilization
8. **Brant Jones** *(Senior Research Scientist)*
   Modeling Water Release Rates from TRIDENT Drilling Depositions for the NASA VIPER Mission

Posters

Lightning talks run in the order below — the ISRU and lunar-resource posters lead, following the Devapriyam and Jones oral talks. All posters are on display at the campus-wide Space Week poster session.

- **Ibrahim Muddasser** *(Postdoctoral Fellow)*
  Supporting VIPER Mission: Characterization of Vapor-Deposited Ice on Lunar Simulants and Apollo Samples
- **Sara Sole** *(Graduate Student)*
  Low Chance of Water Existence Below Tens of Meters at the Lunar Poles as Seen from Thermal and Chemical Kinetics Equilibrium
- **Florent Delvert** *(Graduate Student)*
  LARES: A Lunar On-Surface Cryogenic Refuelling Station — Concept Study, Architecture, and On-Site Construction
- **Michael Balchanos** *(Senior Research Engineer)*
  Model-based Systems Engineering Methods for Lunar Base Architectures
- **Kostas Konstantinidis** *(Faculty)*
  Differentiation of Bacterial Isolates Using Mass Spectrometry and Machine Learning Analysis of Volatile Organic Compounds

Resources

Georgia Tech Space Week: space.gatech.edu/georgia-tech-space-week

Bioastronautics website: bioastronautics.gatech.edu

Join the Bioastronautics Mailing List

Stay connected with the Bioastronautics Initiative — announcements, events, courses, and opportunities.

Sign up at: bioastronautics.gatech.edu/contact

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