

LSIC Excavation & Construction Focus Group Meeting

February Monthly Meeting

Sarah Hasnain & Jibu Abraham
LSIC Excavation & Construction Focus Group Co-Facilitators

LSIC E&C Focus Group

Athonu Chatterjee
Jibu Abraham
Sarah Hasnain
Claudia Knez
Raymond Lu
Michael Nord
Gus Terlaje

Excavation and Construction - Focus Areas

- **Infrastructure:**

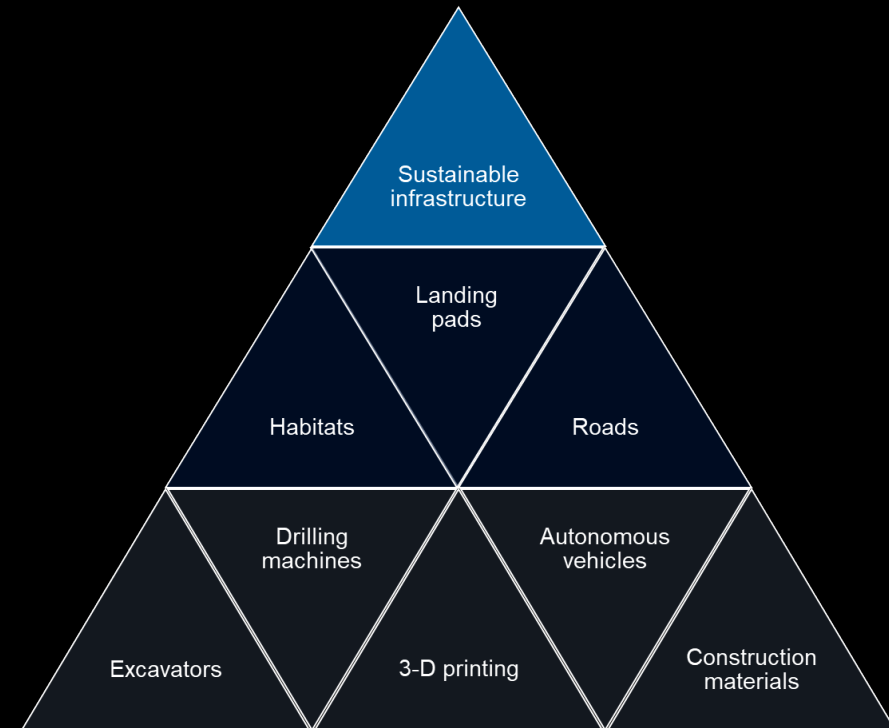
- Landing and Launch Pads
- Habitats: In-situ and deployable
- Roads, Berms, etc.
- Space architecture – urban planning and governance.

- **Technology:**

- Additive Construction
- Autonomous Construction technologies
- High-fidelity excavation tools for lunar applications
- Manufacturing technologies : sintering, regolith processing, additive manufacturing

- **In-situ Repair and Outfitting**

- Maintaining and refurbishing the infrastructure.
- Spare parts : in-situ fabrication vs. sending from earth
- Outfitting requirements



Assist NASA in developing technologies that enable affordable, robust, autonomous, construction of infrastructure on the lunar surface to establish a sustained human presence

Agenda

1. LSIC Sign-Ups & Call for Speakers – Email
Jibu.abraham@jhuapl.edu or Sarah.Hasnain@jhuapl.edu
2. Notable Events
3. Excavation & Construction of Tall Towers & Outfitting
 1. Hugh Broughton (HB Architects) – Lessons Learned From Standing Up Halley Station, Antarctica
 2. Matt Mahlin (NASA – Langley) – Tall Lunar Tower Project - Robotic Tower Assembly Development
4. Networking Breakouts (30 mins)



Notable News



Image posted on X by @Int_Machines



Notable Events

~ March 11, 2024 / NASA's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase I solicitations

Solicitations are opening, and the anticipated proposal due date for both SBIR and STTR is on or around March 11, 2024. Find more updates on the solicitations here: <https://www.sbir.gov/solicitations>.

May 21-22 / NASA-USGS Workshop on Planetary Subsurface Exploration for Science and Resources.

NASA and USGS are hosting the 2nd workshop on Planetary Subsurface Exploration for Science and Resources on Tuesday-Wednesday, May 21-22, 2024, in Moffett Field, California at the Moffett Field Auditorium facilities. Agenda and registration coming soon!

Space Resources Roundtable (June 4-7)

- <https://learn.mines.edu/srr/>
- Registration is open!
- Abstracts due March 15





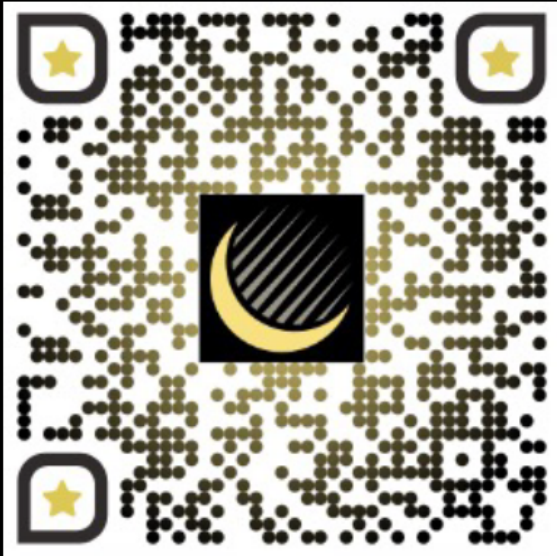
Lunar Surface Innovation

C O N S O R T I U M

SAVE THE DATE

LSIC 2024 Spring Meeting | April 23 – 25

*Johns Hopkins Applied Physics Laboratory,
Kossiakoff Center, Laurel, MD (hybrid)*



This spring, our focus is engaging our community on how to get back to the Moon together including NASA's plans and updates, infusion paths, partnerships, current technology investments, and more!

Registration opens
February 16th

Abstract Portal open until
March 1st



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LSIC 2024 Spring Meeting Technology Demonstration Showcase

Apply to be considered!

LSIC is taking submissions from individuals and/or companies interested in bringing a prototype to our event for a “show and tell.” The community has expressed interest in learning more about what technologies are out there to drive partnerships and establish networks that bridge us to a sustainable existence on the Moon. To be considered for this showcase, please submit an application since space limited.

Applications close **March 15th**





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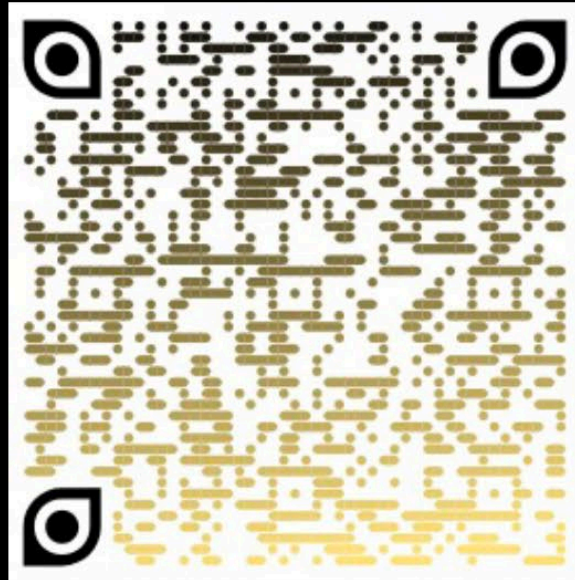
C O N S O R T I U M

LSIC 2024 Spring Meeting **ATTENTION STUDENTS**

Apply to be considered for free in person registration!

This sponsorship will include covered registration fees and an opportunity to meet with NASA STMD leadership. Through this opportunity, enthusiastic students will have the chance to interact with the lunar technology community and gain first-hand knowledge of deployed technologies needed for the current and future lunar surface exploration.

Applications will be open
February 1st – March 1st



Sponsorship awards are dependent on
sponsor availability and relevance

2024 LSIC E&C Plan

Month	Topic
January	Excavation & Construction of Landing Pads
Feb	Outfitting & Towers
Mar	Autonomous Construction & Generative AI
Apr	Spring Meeting
May	CC - Topic
June	Workshop – Landing Pad
July	Excavation & Construction of Shelters and Habitats
Aug	ASCE ASD Committee
Sept	CC Topic
Oct	Fall Meeting
Nov/Dec	Year in Review, Lighting Talks & Mark Hilburger

TENTATIVE



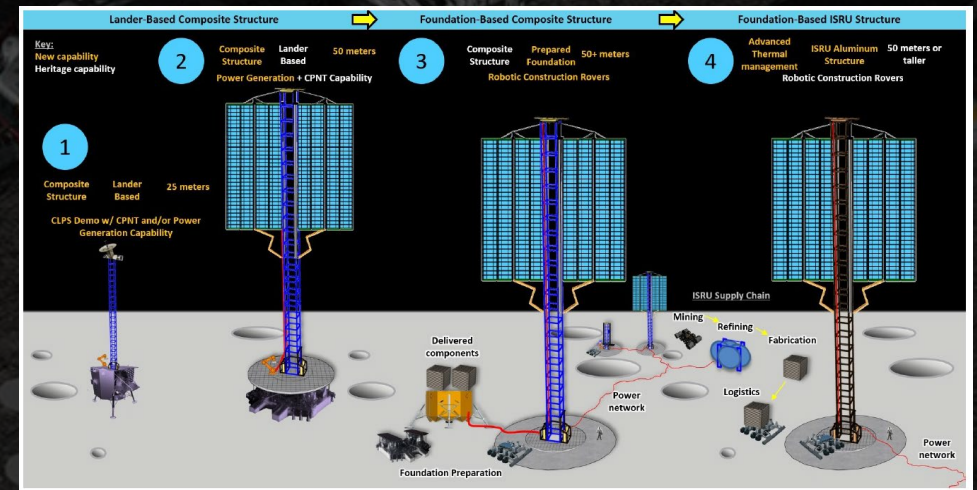
Hugh Broughton – Hugh Broughton Architects

Hugh Broughton (Hugh Broughton Architects) founded Hugh Broughton Architects in 1995. The practice is based in West London. In 2005 Hugh's practice won an international competition for the design of the UK's most southerly Antarctic research station – Halley VI. The modular elevated base was completed in 2013 and is the world's first fully relocatable polar research facility. Hugh's practice has gone on to win a string of design competitions for remote projects and is now considered one of the world's leading designers of research facilities in the Polar Regions.



Matt Mahlin (NASA – Langley)

Matthew Mahlin is the principal investigator for the Tall Lunar Tower project. Matthew received a bachelor's degree in Mechanical Engineering and a master's degree in Mechanical Engineering and Applied Mechanics from the University of Nebraska – Lincoln. Matthew is currently a civil servant in the Structural Mechanics and Concepts branch at NASA Langley Research Center working to develop in-space assembly technologies since 2017.



An aerial, top-down view of a lunar base. The base consists of several interconnected modules, including a large central dome, smaller cylindrical units, and a cluster of yellow and white tanks. The surrounding lunar surface is dark and textured, with various craters and shadows. The text "Networking Breakouts" is centered in a bold, yellow font.

Networking Breakouts



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