Lunar Surface Innovation Consortium

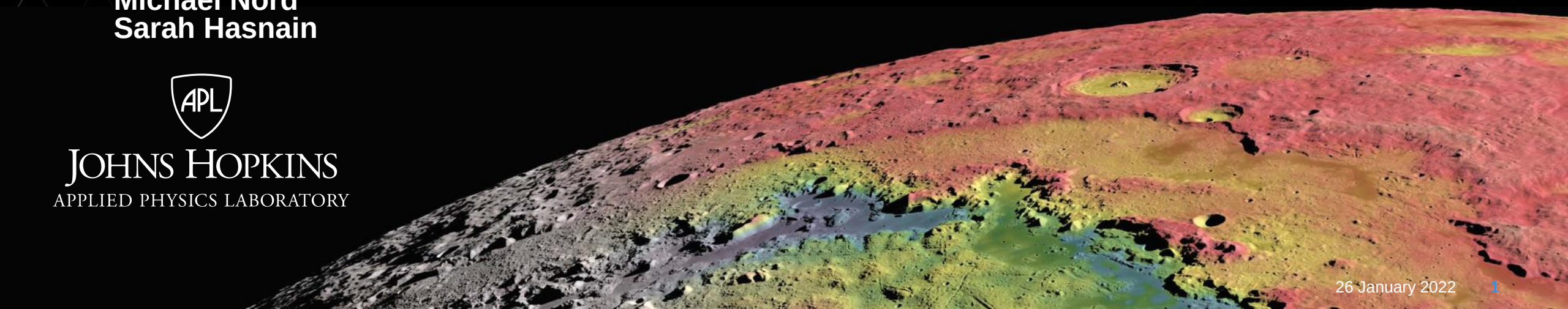
LSIC Excavation and Construction Monthly Meeting

http://lsic.jhuapl.edu/

January 26, 2022

Athonu Chatterjee
Claudia Knez
Jibu Abraham
Michael Nord
Sarah Hasnain

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY



Friendly Reminders

- Recordings will be posted on our website.
  (http://lsic.jhuapl.edu/Focus-Areas/Excavation-and-Construction.php)
- Please post your questions in **‘chat’ .**
- Mute yourself if you are not speaking.

Focus Group Update

- Next month's meeting on Feb. 23rd cancelled because of metal workshop (next slide).

Lunar Surface Innovation CONSORTIUM

Regolith to Rebar: Joint ISRU – E&C Metal Workshop on Feb. 23, 2022

- One-day virtual workshop that looks into the supply and demand sides of in-situ derived metals derived from O_2-extraction and other technologies.
- Speakers from NASA leadership and industry on supply and demand sides. Panel discussion.
- Some issues to be addressed :
  - Discuss infrastructural needs for the use of metals.
  - Discuss feasibility of metal-specific manufacturing processes on lunar surface.
  - Develop concepts for how to integrate the two sides, including identifying possible roles for NASA.
  - Identify gaps and challenges in metal construction on lunar surface.
  - Discuss economic feasibility of metallic yields and any desired associated additional processing, including areas ripe for improvement.
- Registration required. For more information and registration go to https://lsic.jhuapl.edu/Events/Agenda/index.php?id=177

Over-arching goal is to develop a common and realistic mutual understanding of what is possible for metal ISRU in the near-term (next 5-10 years).

Today's Agenda

- Brief survey to improve our focus group meetings and other activities.
  - Your feedback will be very helpful.

- Dr. Mark Hilburger (NASA Langley, E&C Lead), *Top Priority Needs for Excavation, Construction and Outfitting area.*

- Dr. Corky Clinton (Marshall Space Flight Center, NASA), *Overview of NASA's MMPACT project and Demonstration & Qualification Missions Concepts*
  - MMPACT: Moon-to-Mars Planetary Autonomous Construction Technology
  - Overview of MMPACT
  - Preliminary plans for demonstration and qualification missions

Backup

LSII System Integrator - APL

A key tenet of LSII is to implement a multitude of novel collaborations across industry, academia, and government in order to successfully develop the transformative capabilities for lunar surface exploration.

Origin of the APL Task

- NASA was investigating using a University Affiliated Research Center (UARC) to bring efficiencies to development
- LSII initiated a tasked APL, to assess system integration role for the Lunar Surface Innovation Initiative
- APL established a Lunar Surface Consortium with academia and industry representatives, as well as NASA experts, that span a broad range of capabilities to execute timely studies, tasks, and/or acquisitions

The Consortium will assist NASA in

- Identifying lunar surface technology needs and assessing the readiness of relative systems and components
- Making recommendations for a cohesive, executable strategy for development and deployment of the technologies required for successful lunar surface exploration
- Providing a central resource for gathering information, analytical integration of lunar surface technology demonstration interfaces, and sharing of results