Lunar Surface Innovation
CONSORTIUM

Extreme Environments Focus Group September Meeting

September 14, 2022

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Today's Agenda

- LSIC Updates
- MOSA Update
- Designing for the Extremes Workshop Review
- Data Buys
- Agenda through December 2022
- Featured Presentations (Dr. Lubos Brieda)
  - "Attachment and transport of charged lunar regolith simulant grains interacting with spacesuit sample."
- Q&A

LSIC Updates

Lunar Community Meetings

- LSIC Fall Meeting November 2-3 (University of Texas, El Paso/Hybrid)
  - Theme: Excavation and Construction
  - Abstracts Due: September 16
  - https://lsic.jhuapl.edu/Events/Agenda/index.php?id=350

- AIAA ASCEND 2022
  - Call for Content Deadline: March 31, 2022
  - Event Date: October 24-26, 2022 (hybrid)
  - https://www.ascend.events/2022

- International Astronautical Congress
  - Event Date: September 18 – 22, 2022 in Paris, France
  - https://www.iafastro.org/events/iac/iac-2022/technical-programme/

LSIC Updates

Funding Opportunities

- Phase 2 Break the Ice Challenge
  - https://breaktheicechallenge.com
  - Register by September 30, 2022

- Space Technology Research Institutes (STRI) Solicitation
  - University-led, sustained, multidisciplinary space technology research focused in strategic areas for transformative impact to future NASA exploration and science
  - Accelerating Additive Manufacturing Certification with Model-Based Tools
  - Quantum Technologies for Remote Sensing
  - 5 years, up to $15M
  - Invited Full Proposals Due 03 November 2022
  - https://nspires.nasaprs.com/external/solicitations/summary!init.do?solId=%7b000FAF75-9F37-814C-AC23-A21022A96037%7d&path=open

- Please visit LSIC website for full list
  - http://lsic.jhuapl.edu/Resources/Funding-Opportunities.php

LSIC | Joint MOSA & Surface Power September Telecon

Joint MOSA & Surface Power Telecon: Sept 22nd 11:00 ET

Speakers: Nicolas Carbone & David Sadey, NASA Power Systems Engineers for Gateway L2

Topic: International Space Power System Interoperability Standards (ISPSIS) Overview

Abstract:

- The International Deep Space Interoperability Standards are a collection of collaboratively prepared regulations geared towards the earliest phases of spacecraft design and exploration planning. Signees include NASA, ESA, CSA, JAXA and Roscosmos.
- The presentation will provide an overview of the ISPSIS agreement. These electrical power quality standards exist to provide "commonality, reliability, interchangeability, and interoperability" for space electrical systems.
- Following the presentation, the speakers will participate in a question-and-answer session

Zoom Link for Sept 22nd 11:00 ET:

https://jhuapl.zoomgov.com/j/1617206812?pwd=ZWhlaW5XRURsRmxJcWd4b1ZoeFFwUT09

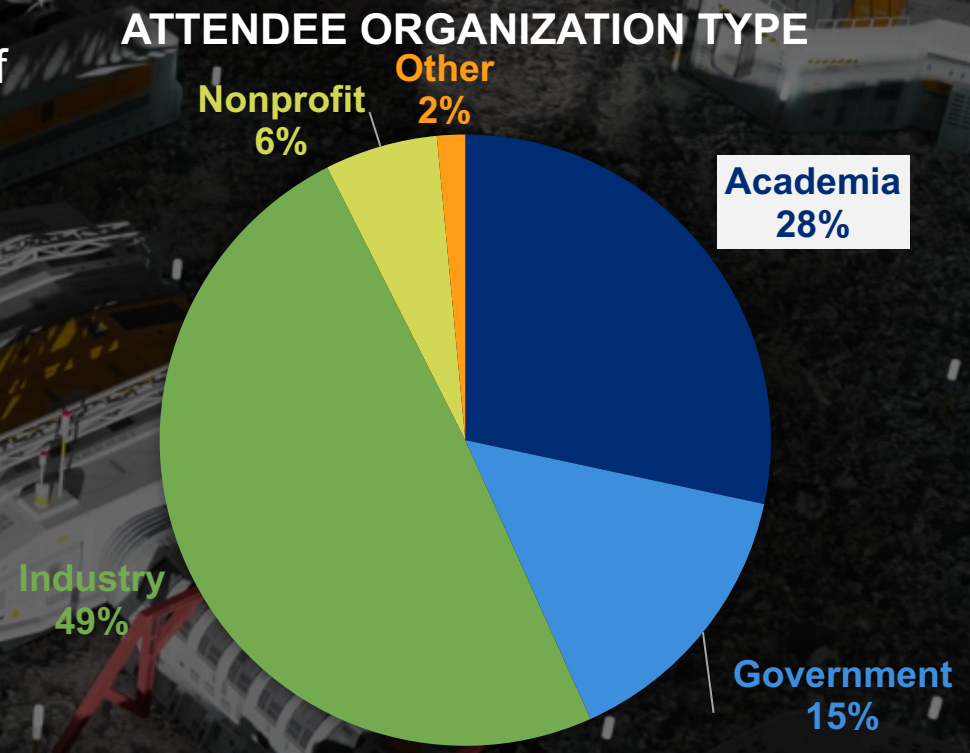
Lunar Surface Innovation CONSORTIUM

Designing for the Extremes

A Joint Workshop between Extreme Access and Extreme Environments

Virtual workshop on August 5, 2022
129 participants, 249 registered attendees

Many environmental factors contribute to the engineering and testing of necessary hardware to successfully access and maneuver polar ISRU sites. This interactive workshop consisted of an overview of the Robotics Lunar Surface Operations 2 (RLSO2) study, an Environmental Effects panel with Q&A , a panel with Q&A on technology needed to access these sites, and breakout sessions.



Top Themes from Discussions

- There are many open questions around material properties and performance at cryogenic temperatures and how those affect engineering design.
- Knowledge of surface properties on the Moon (in polar regions) is vital for design and test. Geotechnical properties for lunar regolith affected by gravity can’t easily be measured on Earth.
- In situ testing is needed to validate the simulation tools and provide an avenue to accurate terrestrial based testing.

LSII | Data Buy General thoughts/questions

- Are there any Data privacy, Intellectual Property or Distribution Concerns
- Are these data global or regional in nature?
- Is there a different financial value for different data qualities, e.g. spatial or spectral resolution?
- What does this data set enable?
- How do you put a value on a data set (financial or otherwise)?
- What is the value of this data set to your LSIC/STMD/ESDMD, etc. mission?
- If you are a potential provider, what level of funding, if successful, is required for you to consider acquiring these data?
- Is the data you want a one-time acquisition? Every landing?
- Do you need it only for a particular region

LSII | Data Buy New Data Sets

- What data would enhance your ability to plan lunar surface operations?

- Data sets that require a dedicated instrument to be flown
  - E.g. New topography, or mineral map data sets
  - Could be either an orbital of surface data set

  - Monitoring Data for Situational Awareness
    - Rover locations and movement
    - Charging operations
    - Search and Rescue for lost rovers
    - Comm quality/performance

LSII | Our Survey Says…..

https://forms.gle/tuhzwAUaQLDivQ2D7

Agenda through December 2022

- October 11, 2022
  - Subgroup Leads Review
  - Speaker: Subgroup Leads
- November 2022
  - Cancel due to LSIC Fall Meeting
- December 13, 2022
  - Kick off for 2023 path forward!!!

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