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# LSIC Dust Mitigation Focus Group

## Monthly Meeting
## June 23, 2022


JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

**Dr. Jorge Núñez**
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**Space Exploration Sector**

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**APL LSIC Dust Mitigation Team:**

**Lindsey Tolis**
**Mark Perry**
**Richard Miller**
**Sarah Hasnain**

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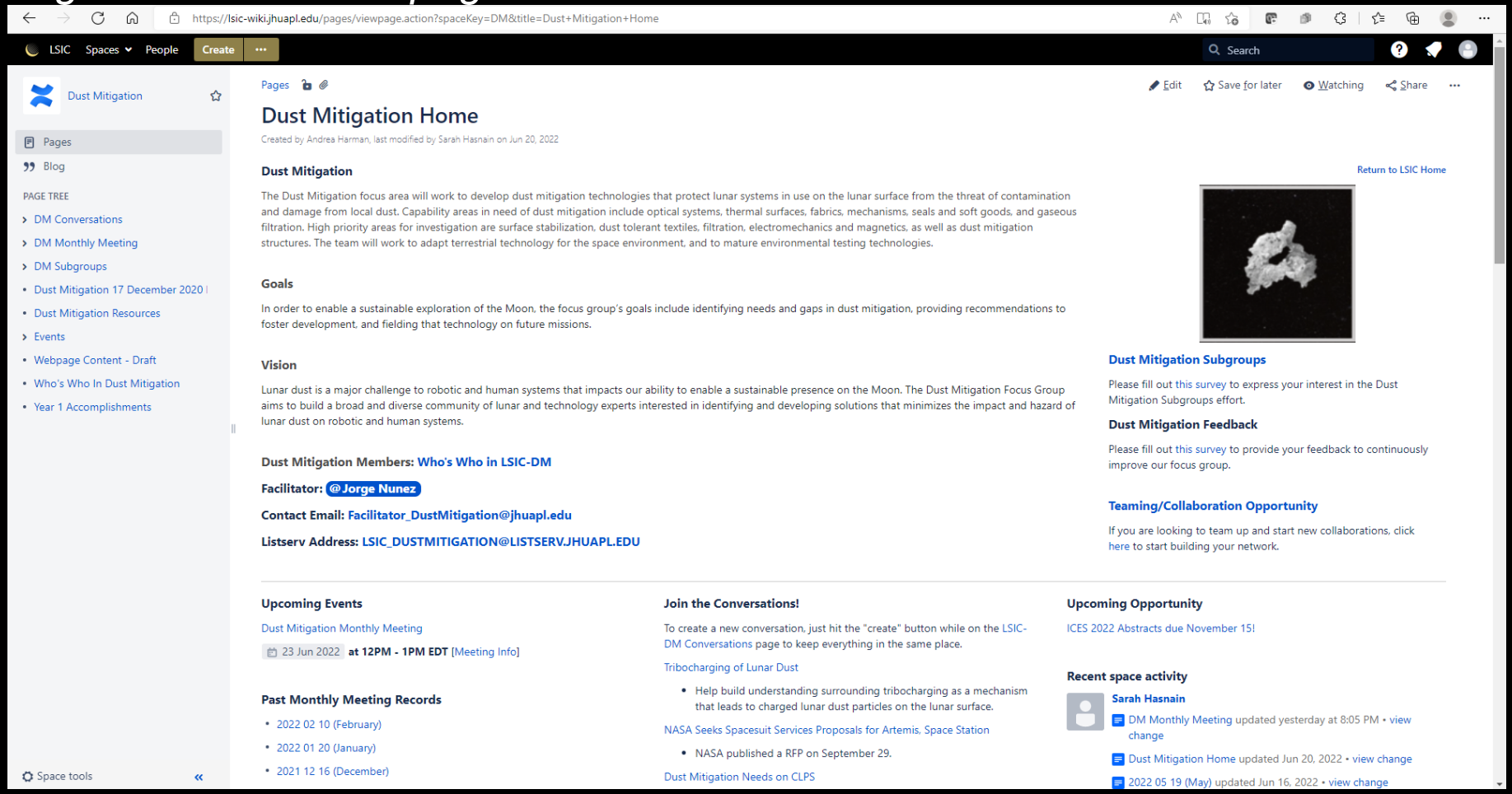
# Agenda

- Welcome, LSIC and Focus Group Updates
- Upcoming Opportunities and Meetings
- LSIC Modular Open Systems Approach (MOSA) Working Group July Telecon Preview (Kristin Jaburek, APL)
- Featured Technology Presentations:
  - Ron Creel, Apollo LRV Engineer and LSIC Dust Mitigation "Isolation Technologies" Subgroup Lead
    - "Lunar Dust Protection for Apollo Rover Mechanisms"
  - Dr. Hunter Williams, Honeybee Robotics
    - "Lunar Dust Tolerant Electrical and Data Connector for Small to Large Payloads"
  - Dr. Justin Scheidler and Dr. Erica Montbach from NASA Glenn Research Center
    - "Motors for Dusty and Extremely Cold Environments"
- "Virtually in-person" strategizing session on how LSIC and NASA can best meet YOUR needs (Reeve Heinis, APL)

# LSIC Dust Mitigation Confluence Site

- Please contact Andrea Harman (ams573@alumni.psu.edu) to get set up with an account!
- *Dust Mitigation Discussion page and wiki*

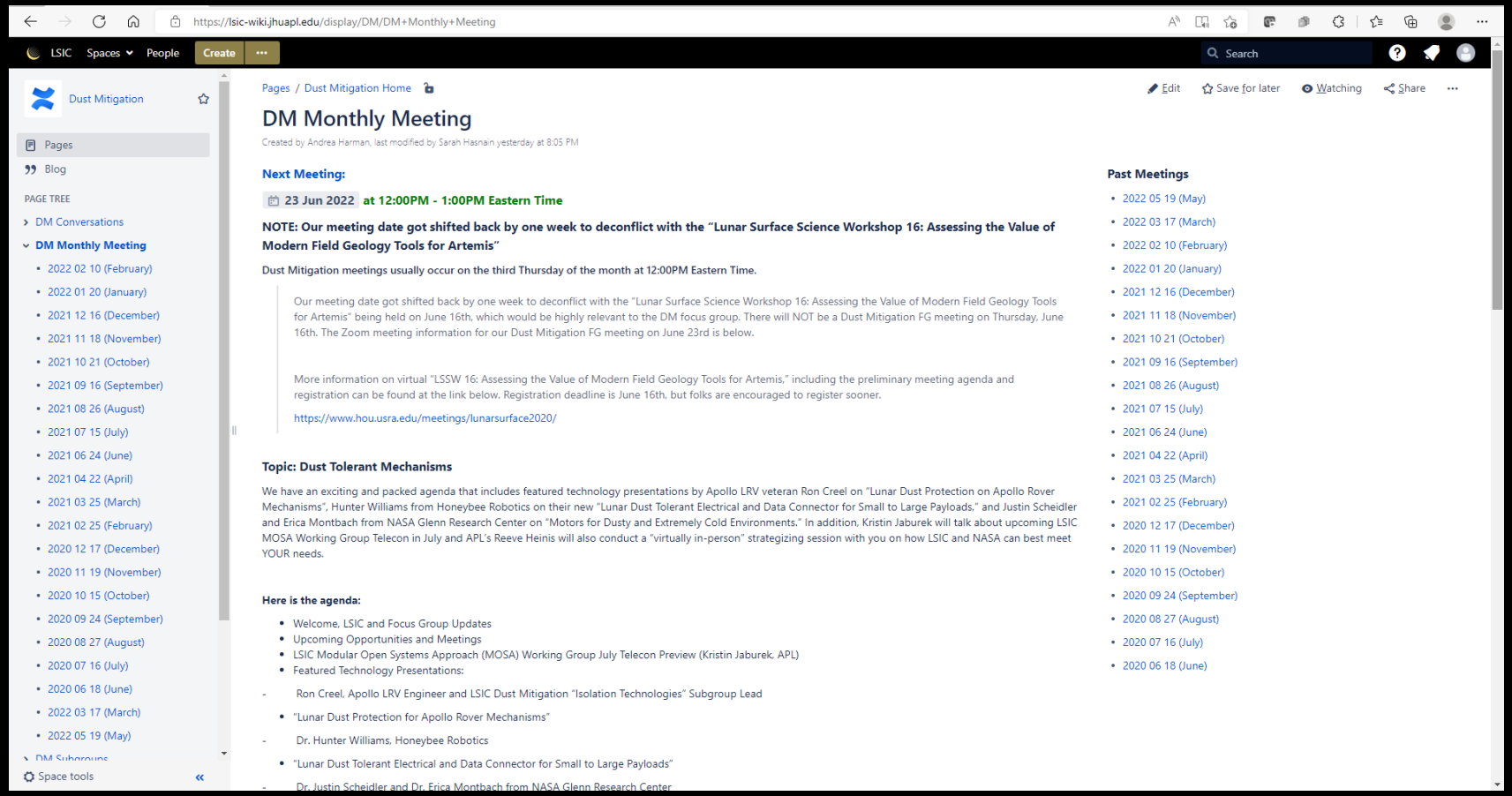



https://lsic-wiki.jhuapl.edu/display/DM/Dust+Mitigation+Home

# Join the Discussion on Confluence Site

- Please contact Andrea Harman (ams573@alumni.psu.edu) to get set up with an account!
- *Dust Mitigation Discussion page and wiki*

- 1. Sign-in to add a comment
- 2. Add comment at bottom of page
- 3. You can comment before, during, or after today's meeting




https://lsic-wiki.jhuapl.edu/x/GoAZ

# Updates and Communications

- Monthly LSIC newsletter – New edition came out early June 2022
  - http://lsic.jhuapl.edu/Resources/
- Mailing list
  - The listserv goes to all participants. Use with caution. But feel free to use!
  - Please make sure to add LSIC_DUSTMITIGATION@LISTSERV.JHUAPL.EDU to safe senders list.
  - If we need smaller, focused lists we can set those up
- Updates to the webpage - http://lsic.jhuapl.edu/Focus-Areas/Dust-Mitigation.php
  - Notes, slides, recordings from telecons posted here
- Wiki is ready!
  - Confluence is free to you and available to all registered LSIC members
  - To request an account, please email Andrea Harman: ams573@alumni.psu.edu
- Lightning Talks at monthly focus group meetings
  - Anyone can volunteer to give a featured talk (~15 mins)
  - Email me if you want to sign up: Facilitator_DustMitigation@jhuapl.edu

**Follow the Code of Conduct for all Focus Group communications**

http://lsic.jhuapl.edu/Resources/files/Code%20of%20Conduct_05222020.pdf

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# Space Technology Funding Opportunities

## Current Tech Development Opportunities

- Space Technology Announcement of Collaboration Opportunity (ACO) »
  - Mini proposals due: 03/31/2022; Final proposals due: 07/28/2022
- Announcement of Collaboration Opportunity (ACO) Synopsis »
- Early Stage Innovations Solicitation »
  - NOI's Due 5/25/2022; Due 06/23/2022
- NASA Innovative Advanced Concepts (NIAC) 2023 Phase I Call for Proposals »
  - Step A proposals due: 07/01/2022
- Announcement for Partnership Proposals (AFPP) to Advance Tipping Point Technologies »
  - Mini proposals due: 03/31/2022; Final proposals due: 07/28/2022

## Future Solicitation and Opportunities

- Space Technology Research Institutes (STRI) Solicitation »
  - Mandatory preliminary proposals due: 08/03/2022

# LSIC Activities

*Recent and Upcoming LSIC Meetings and Workshops (https://lsic.jhuapl.edu/Events/)*

- LSIC MOSA Working Group Meeting (07/13)
  - See preview in next slide
- LSIC Dust Mitigation Focus Group Meeting (07/21)
  - Topic: Dust Sensing and Filtration
- Low Temperature Sub-kW Power and Energy Storage for the Lunar Surface (07/28)
  - Abstracts due 07/08; Selections 07/13
  - https://lsic.jhuapl.edu/Events/Agenda/index.php?id=214

*Other Recent and Upcoming Dust Mitigation Related Workshop and Meetings*

- LSSW 17: Defining a Coordinated Lunar Resource Evaluation Campaign (06/27)
  - https://www.hou.usra.edu/meetings/lunarsurface2020/
- AIAA ASCEND Conference (10/24-26)
  - https://www.ascend.events/

# Get Involved

- Sign-up to Receive LSIC and Dust Mitigation FG Updates:
  - Fill out the LSIC Survey and indicate interest in Dust Mitigation to receive news and event invitations:
  - https://lsic.jhuapl.edu/News/Sign-Up.php
- Help us improve the Dust Mitigation Focus Group!
  - Feedback survey: https://docs.google.com/forms/d/e/1FAIpQLSdjuTIK_TLMnCM4_aSMLAzLS762qtzbgmcOd2fgizlCsab6KQ/viewform
- Join one of the Dust Mitigation Subgroups!
  - Dust Mitigation Subgroup Membership/Leaders survey: https://docs.google.com/forms/d/e/1FAIpQLScB6iT2fgPqj2zlaP0s-rwWQDQ04TPfgVyiC5zn0AQPAT5CZA/viewform
- Interested in Teaming/Collaborating with Others?
  - Add yourself to our Who's Who page: https://lsic-wiki.jhuapl.edu/display/DM/Who%27s+Who+In+Dust+Mitigation
- Looking for info on lunar dust or dust mitigation resources?
  - Checkout our resources page on the Dust Mitigation Wiki page on Confluence: https://lsic-wiki.jhuapl.edu/x/94Rf

# LSIC | LSIC MOSA Working Group July Telecon

**MOSA Monthly Telecon: July 13th 11:00 ET**

**Speaker**: Dr. Brian Weeden, Executive Director of CONFERS & Director of Program Planning for the Secure World Foundation

**Topic**: Overview of the Consortium for Execution of Rendezvous and Servicing Operations (CONFERS)

**Abstract:**

- CONFERS was initiated in October 2017 by the Defense Advanced Research Projects Agency (DARPA) under the US Department of Defense to:
  - Advocate and promote on-orbit satellite servicing, including but not limited to maintenance, repair, assembly, manufacturing, and inspection
  - Develop industry-led standards that contribute to a sustainable, safe, and diverse space economy
  - Engage with governments on policy and oversight of satellite servicing activities
- This presentation will include discussion on background, organization structure, approach to standards, etc.

**Zoom Link for July 13th 11:00 ET:**
https://jhuapl.zoomgov.com/j/1606031882?pwd=UzhjWmRTWnVsb3l1ak9FekhQK3JkUT09

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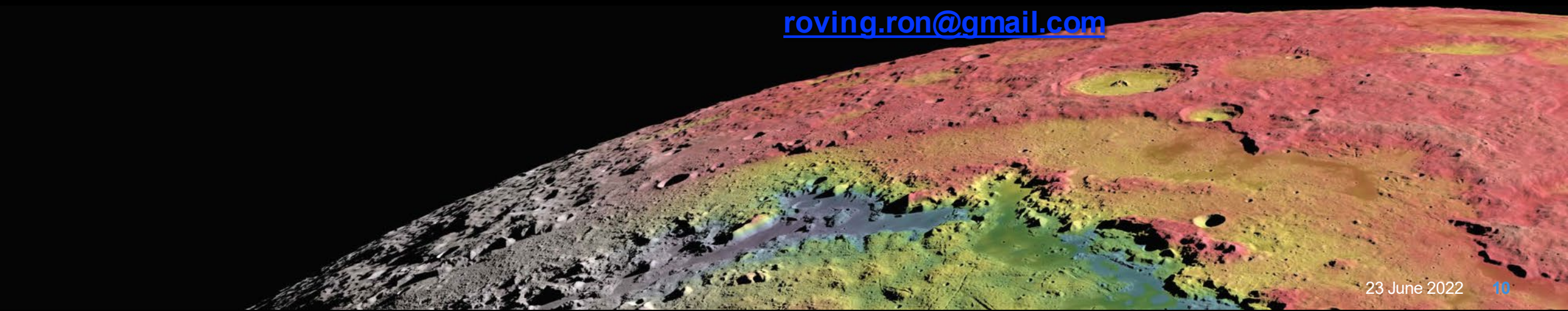
# Today's Technology Presentation (1 of 3)
# "Lunar Dust Protection for Apollo Rover Mechanisms"


**Ron Creel**

**Apollo LRV Engineer**

**LSIC Dust Mitigation "Isolation Technologies" Subgroup Lead**

roving.ron@gmail.com

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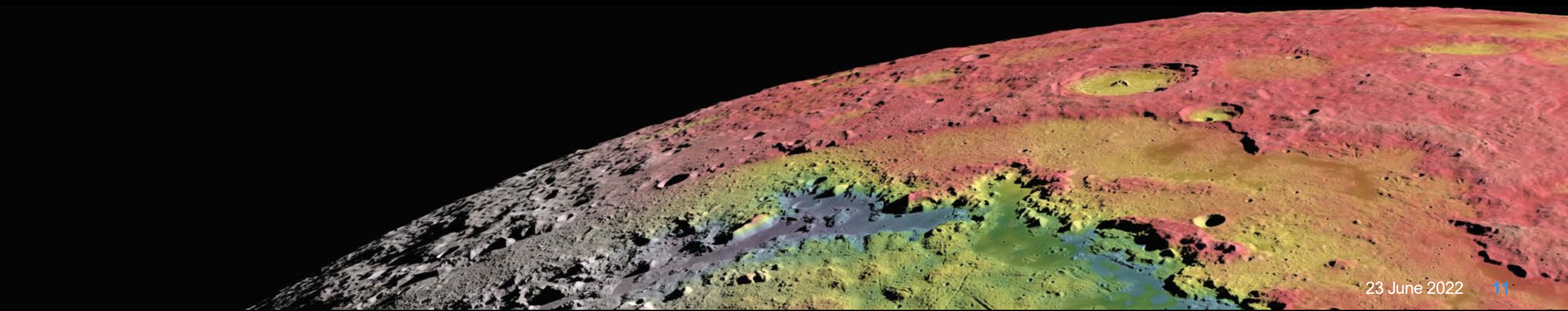
# Today's Technology Presentation (2 of 3)
# "Lunar Dust Tolerant Electrical and Data Connector for Small to Large Payloads"


**Dr. Hunter Williams**

**Honeybee Robotics**

HJWilliams@honeybeerobotics.com

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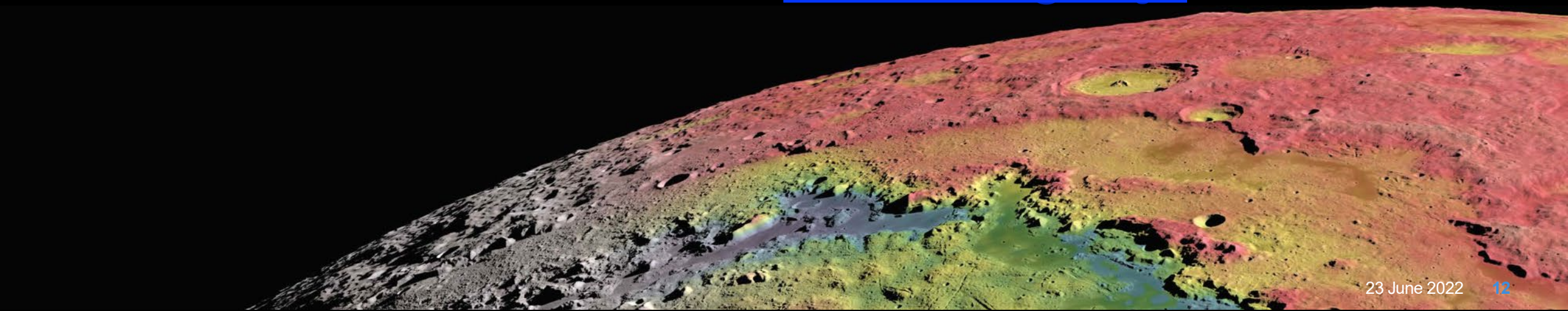
# Today's Technology Presentation (3 of 3)
# "Motors for Dusty and Extremely Cold Environments"


Dr. Justin Scheidler & Dr. Erica Montbach

NASA Glenn Research Center

justin.j.scheidler@nasa.gov

erica.n.montbach@nasa.gov

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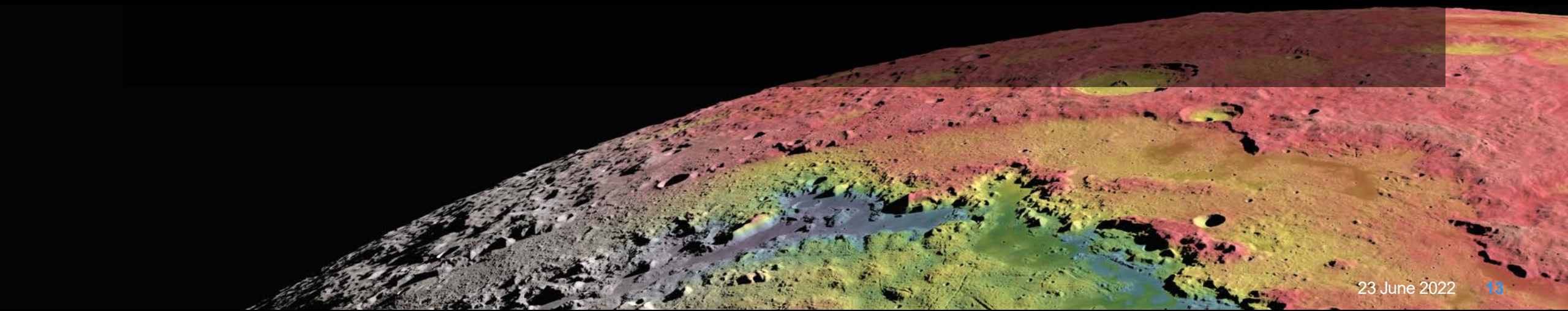
# Dust Tolerant Mechanisms Discussion

- What gaps exist in our understanding of lunar dust and dust tolerant mechanisms, and what data do we still need?
- What plans are in place to ensure we get the data we need to close those gaps?
- Do upcoming CLPS missions help get the data we need?
- Are there priority technology areas in dust tolerant mechanisms that are in need of investment?
- Are in-flight demonstrations needed?



# LSIC Strategizing Session

LSIC is soliciting feedback on how we are doing. This feedback will be used by this focus group and LSIC overall to make sure we are providing the best use of effort. This feedback will be shared at the leadership level and every other level of LSIC for improvements to be made. Sample questions will be asked such as:

- What do you like about LSIC?
- What is LSIC close to being super-helpful with, but doesn't quite work for me?
- How does NASA roadmaps help your work?
- What technical details do you want from NASA to help in your work? Please be as specific as possible
- What funding plans/details would you want from NASA to help you in your work?
- Which of the 7 wonders do you want to build on the Moon?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