



Lunar Surface Innovation

C O N S O R T I U M

LSIC Dust Mitigation Focus Group

Monthly Meeting

February 10, 2022



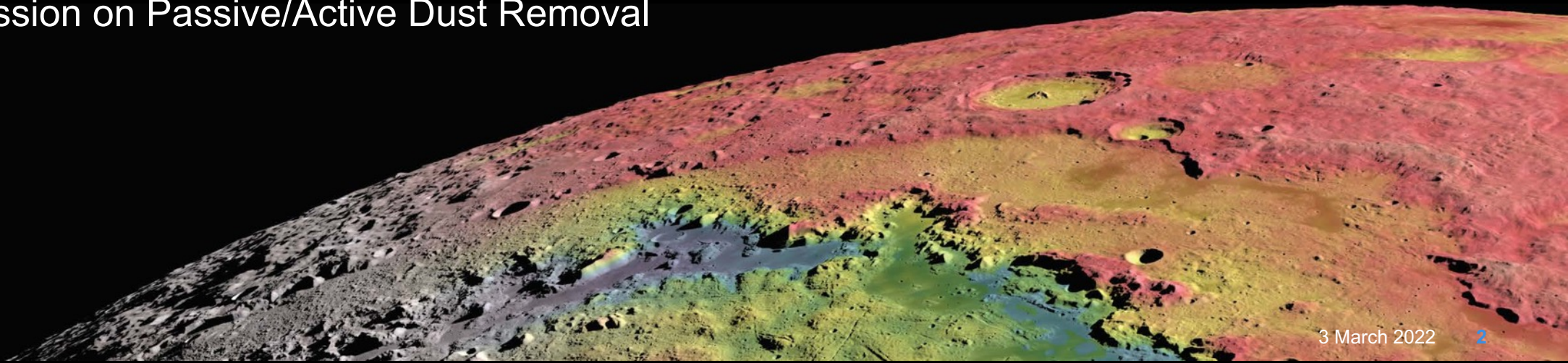
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Dr. Jorge Núñez
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Facilitator DustMitigation@jhuapl.edu

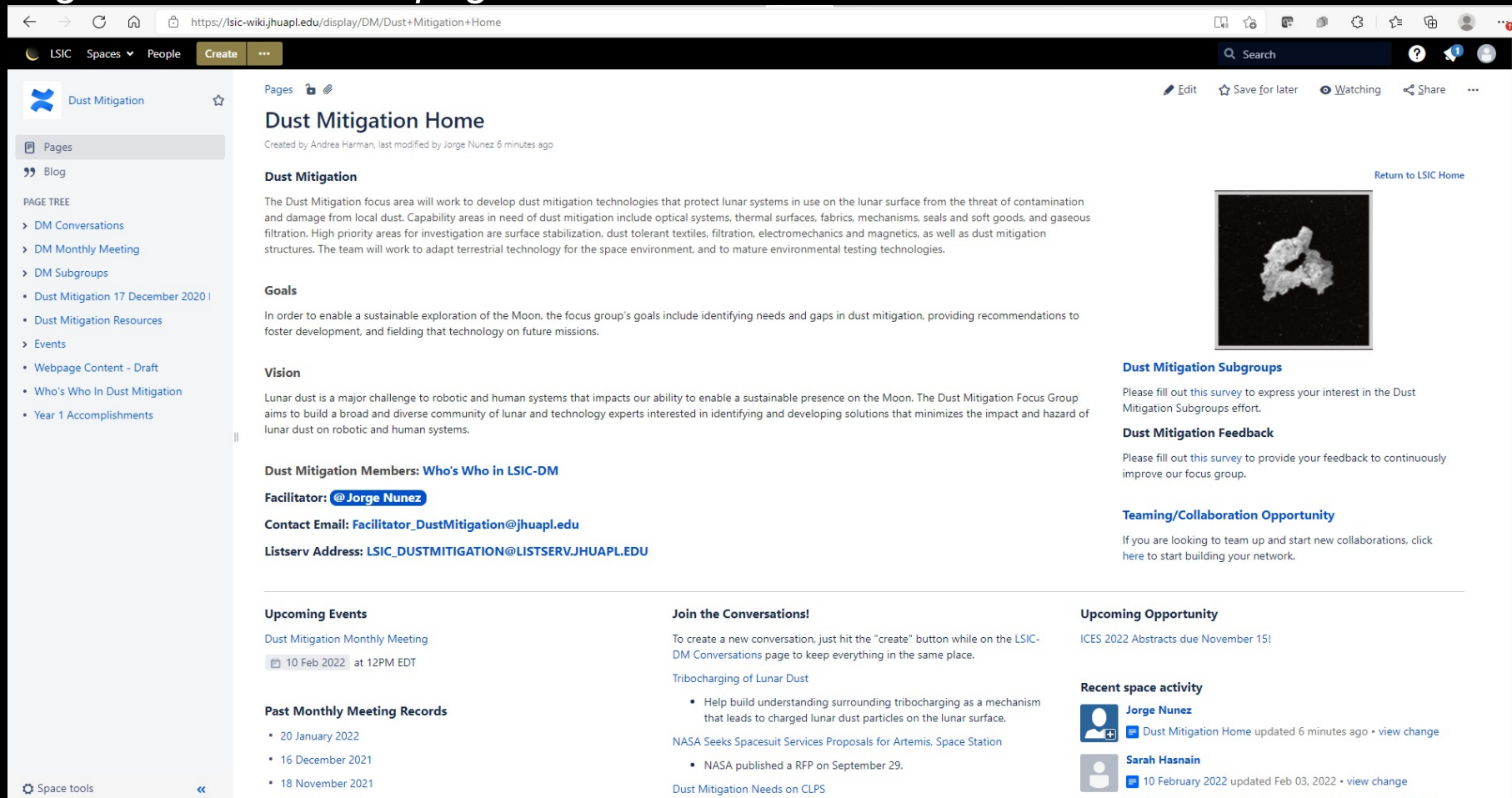
Agenda

- Welcome, LSIC and Focus Group Updates
- Upcoming Opportunities and Meetings
- Introduction to the new LSIC Modular Open Systems Approach (MOSA) Working Group (James Mastandrea, APL)
- Featured Presentations on Dust Removal:
 - Dr. Kristen John, NASA Johnson Space Center
 - Update on “DuSTI Outbrief: Dust Mitigation Characterization of Coatings and Pliable Cleaners”
 - Dr. Christopher Wohl, NASA Langley Research Center
 - “Updates from the LO-DuSST Team”
- Discussion on Passive/Active Dust Removal



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*

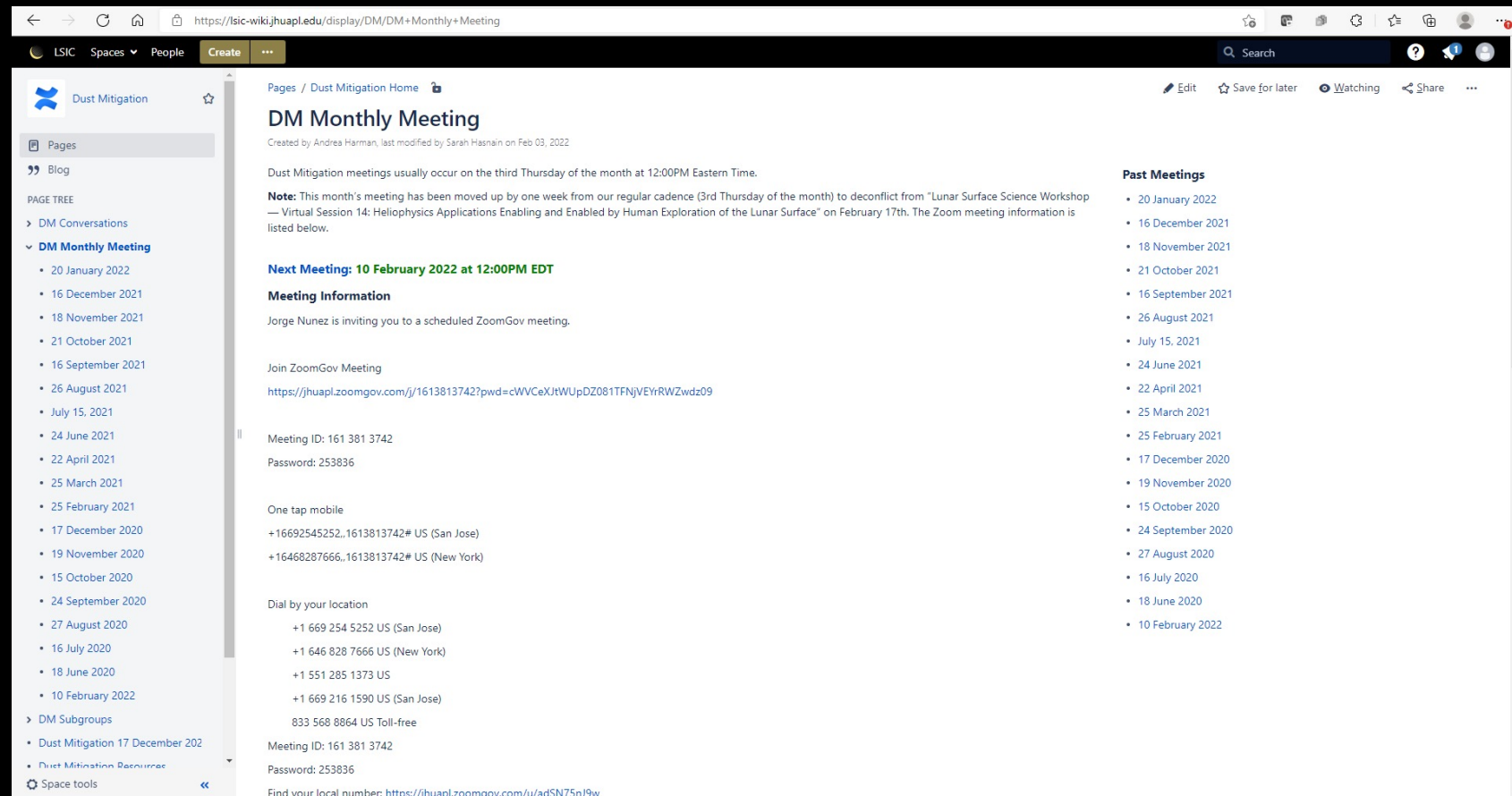


The screenshot shows the 'Dust Mitigation Home' page on the LSIC Wiki. The page is titled 'Dust Mitigation Home' and was created by Andrea Harman, last modified by Jorge Nunez 6 minutes ago. The main content includes a description of the Dust Mitigation focus area, which aims to develop technologies to protect lunar systems from dust. It lists goals and a vision for sustainable lunar exploration. The page also lists members, a facilitator (@Jorge Nunez), contact email, and listserv address. There are sections for upcoming events, past meeting records, and a 'Join the Conversations!' section with links to NASA RFPs. A sidebar on the left contains a page tree with links to conversations, meetings, subgroups, and resources. A right sidebar features a survey for Dust Mitigation Subgroups, a feedback survey, and a teaming/collaboration opportunity. Recent space activity is also listed at the bottom right.

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



The screenshot shows a Confluence page titled "DM Monthly Meeting" under the "Dust Mitigation" space. The page content includes:

- DM Monthly Meeting** (Created by Andrea Harman, last modified by Sarah Hasnain on Feb 03, 2022)
- Dust Mitigation meetings usually occur on the third Thursday of the month at 12:00PM Eastern Time.
- Note:** This month's meeting has been moved up by one week from our regular cadence (3rd Thursday of the month) to deconflict from "Lunar Surface Science Workshop — Virtual Session 14: Heliophysics Applications Enabling and Enabled by Human Exploration of the Lunar Surface" on February 17th. The Zoom meeting information is listed below.
- Next Meeting: 10 February 2022 at 12:00PM EDT**
- Meeting Information**: Jorge Nunez is inviting you to a scheduled ZoomGov meeting.
- Join ZoomGov Meeting**: <https://jhuapl.zoomgov.com/j/1613813742?pwd=cWVCeXJtWUpkZ081TFNjVEYrRWZwdz09>
- Meeting ID:** 161 381 3742
Password: 253836
- One tap mobile**:
 - +16692545252,,1613813742# US (San Jose)
 - +16468287666,,1613813742# US (New York)
- Dial by your location**:
 - +1 669 254 5252 US (San Jose)
 - +1 646 828 7666 US (New York)
 - +1 551 285 1373 US
 - +1 669 216 1590 US (San Jose)
 - 833 568 8864 US Toll-free
- Meeting ID:** 161 381 3742
Password: 253836
- Find your local number:** <https://jhuapl.zoomgov.com/u/adSN75nJ9w>
- Past Meetings**:
 - 20 January 2022
 - 16 December 2021
 - 18 November 2021
 - 21 October 2021
 - 16 September 2021
 - 26 August 2021
 - July 15, 2021
 - 24 June 2021
 - 22 April 2021
 - 25 March 2021
 - 25 February 2021
 - 17 December 2020
 - 19 November 2020
 - 15 October 2020
 - 24 September 2020
 - 27 August 2020
 - 16 July 2020
 - 18 June 2020
 - 10 February 2022

Updates and Communications

- Monthly LSIC newsletter – New edition came out early February 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

LSIC Activities

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

- LSIC Dust Mitigation Focus Group Meeting (02/10) – Today!
 - Topic: Active Dust Mitigation
- LSIC Regolith to Rebar: ISRU - E&C Metal Workshop (02/23)
 - Registration required
 - <https://lsic.jhuapl.edu/Events/Agenda/index.php?id=177>
- LSIC Dust Mitigation Focus Group Meeting (03/17)
 - Topic: Space Suits/Fabrics
- LSIC Spring Meeting (05/04-05/05)
 - Abstract deadline March 4

Other Recent and Upcoming Dust Mitigation Related Workshop and Meetings

- SBIR/STTR: Dissecting the Solicitations Webinar (01/20) – Can view recording & slides
 - <https://sbir.nasa.gov/dissectingthesolicitations2022>
- LSSW Virtual Session 13: Inclusive Lunar Exploration (01/26-01/27)
 - <https://www.hou.usra.edu/meetings/lunarsurface2020/>
- LSSW Virtual Session 14: Heliophysics Applications Enabling and Enabled by Human Exploration of the Lunar Surface (02/17)
 - “What are the electrodynamic conditions on the lunar surface and their relationship to exploration hazards such as dust and electrostatic discharge?”
 - <https://www.hou.usra.edu/meetings/lunarsurface2020/>

LSIC Spring Meeting

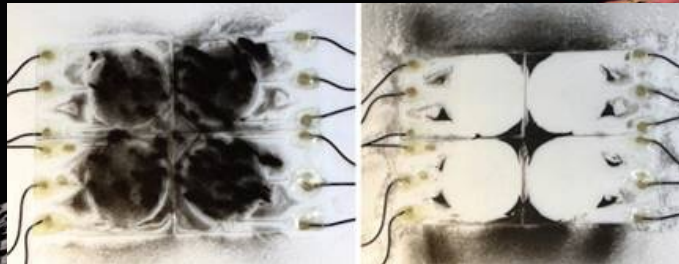
- Dates: May 4-5, 2022
- Venue: Virtual and In-Person, Johns Hopkins Applied Physics Laboratory, Laurel, MD
- The LSIC 2022 Spring Meeting will concentrate on understanding NASA's plans and technology investments relevant to building a sustained presence on the lunar surface. The meeting will include invited speakers, panels, posters, and breakout discussions.

Call for Abstracts

- We invite abstracts from the community describing technical capabilities within the six LSIC focus areas, as well as those that identify lunar surface technology needs and assess the readiness of relative systems
- Other topics of interest include defining the parameters and constraints of the architecture required to support a sustained presence on the lunar surface, as well as economic and policy considerations.
- Abstract Submission Deadline: March 4, 2022
- Registration Deadline: April 6, 2022 (for in-person); April 25, 2022 (for virtual attendance)
- Spring Meeting Website: <https://lsic.jhuapl.edu/Events/Agenda/index.php?id=200>

Dust Mitigation FG Updates

- 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/1FAIpQLScB6iT2fgPqj2zIaP0s-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>



NASA SBIR & STTR Solicitations 2022

- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)
- *Open to U.S. small businesses*
 - *May collaborate with universities and industry partners*
- Phase I: Up to **\$150 K** for 6 Mo (up from **\$125K**)
- Phase II: Up to \$750 K for 24 Mo
- **Focus Area 24: “Dust Mitigation and Extreme Lunar Environment Mitigation Technologies”**
- **Phase I Solicitation Closes March 9, 2022**
- **Phase II Solicitations Due by last day of Phase I contract**
- **Phase I Selections expected May 25, 2022**
- <https://sbir.nasa.gov/solicit-detail/79614>



National Aeronautics and Space Administration



NASA SBIR PROGRAM SOLICITATION 2022

Join our diverse community of pioneers who are researching and developing technologies to change the world

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NASA SBIR & STTR Solicitations 2022

- **Focus Area 24: Dust Mitigation and Extreme Lunar Environment Mitigation Technologies**
 - 4 Sub-topic areas (1 new sub-topic added)
- **1. Active and Passive Dust Mitigation Surfaces (Z13.01)**
 - Lead Center: KSC
 - Participating Center(s): JSC, LaRC
- **2. Mechanisms for Extreme Environments (Z13.02)**
 - Lead Center: KSC
 - Participating Center(s): GRC, JSC, LaRC
- **3. Technologies for Spacesuits in Extreme Surface Environments (Z13.03)**
 - Lead Center: JSC
- **4. Lunar Dust Filtration and Monitoring (Z13.04)**
 - Lead Center: GRC
 - Participating Center(s): JSC, KSC
- <https://sbir.nasa.gov/solicit-detail/79614>



LSIC | MOSA Working Group

- **LSIC Modular Open System Approach (MOSA) Working Group**

- Goal:

- Document community feedback on recommended lunar MOSA activities
 - Compile existing efforts and identify overlap
 - List systems that could benefit from MOSA
 - Perform system decompositions to find critical interfaces & what requirements are needed to ensure interoperability

- Plan

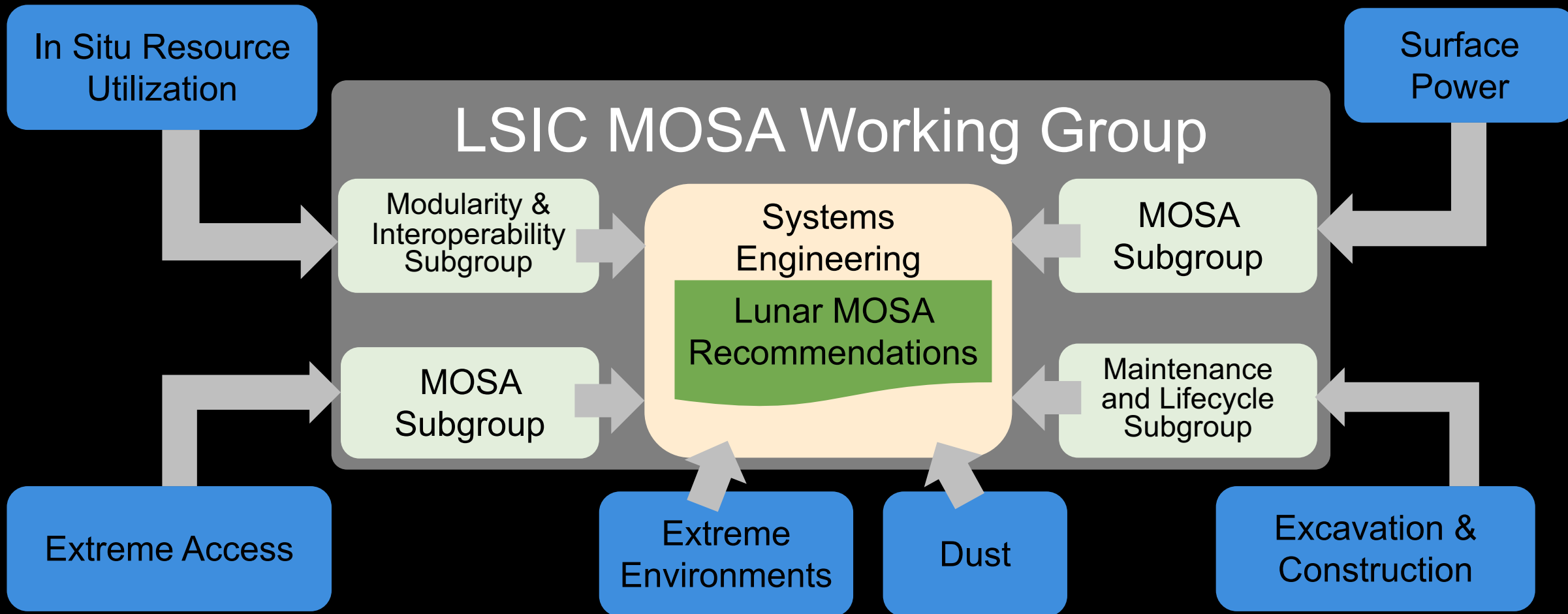
- Each LSIC focus group is participating and has a POC
- Cross focus group participation is encouraged

- Points of Contact

- Lead/Coordinator: James Mastandrea
- Systems Engineer: Kristin Jaburek
- Dust Mitigation: Jorge Núñez
- Excavation & Construction: Claudia Knez
- In Situ Resource Utilization : Jodi Berdis
- Surface Power: Samantha Andrade
- Extreme Environment: Jamie Porter
- Extreme Access: Angela Stickle

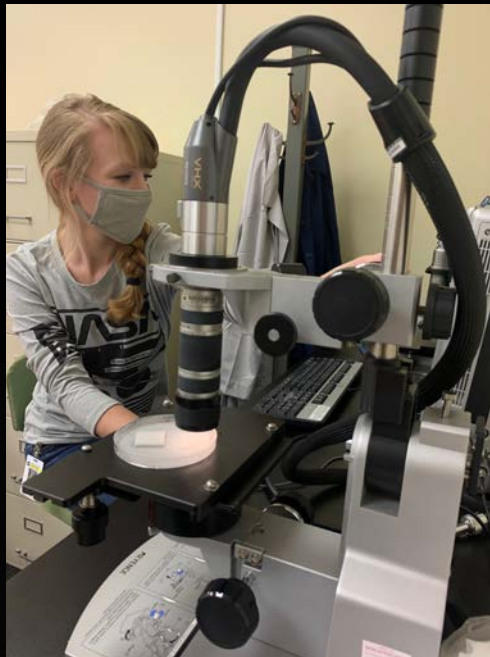


LSIC | MOSA Working Group



Today's Presentation – 1 of 2

Update on “DuSTI Outbrief: Dust Mitigation Characterization of Coatings and Pliable Cleaners”



Dr. Kristen John

**Technical Integration Manager - Lunar
Dust Mitigation**

**NASA Space Technology Mission
Directorate**

kristen.k.john@nasa.gov

Today's Presentation – 2 of 2

“Updates from the LO-DuSST Team”



Dr. Christopher Wohl

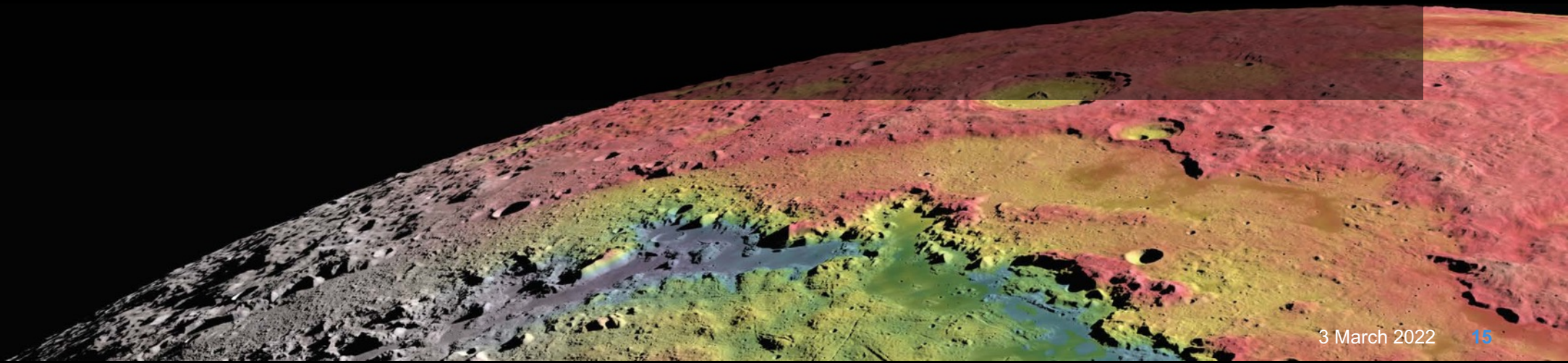
**Assistant Branch Head / Senior Research
Surface Scientist**

NASA Langley Research Center

c.j.wohl@nasa.gov

Passive/Active Dust Mitigation Discussion

- What gaps exist in our understanding of lunar dust and passive/active dust mitigation, 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 passive/active dust mitigation that are in need of investment?
- Are in-flight demonstrations needed?





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