

EDUCATION

- 2017 Ph.D., Aerospace Engineering, University of Texas at Austin.
Dissertation title: DSMC Simulations of Volatile Transport in a Transient Lunar Atmosphere and Ice Deposition in Cold Traps After a Comet Impact.
- 2013 M.S., Aerospace Engineering, University of Texas at Austin.
Focus areas: Aerothermodynamics & Fluid Mechanics, Molecular Gas Dynamics, Planetary Science, Scientific Computing, Science Education.
- 2010 B.Eng., Aerospace Engineering, Nanyang Technological University, Singapore.
Exchange student at Technische Universiteit Delft, the Netherlands, Spring 2009.

RESEARCH & TEACHING POSITIONS

- 2020 to date Staff Scientist, Johns Hopkins University Applied Physics Laboratory.
- 2017 – 2020 Postdoctoral Fellow, Johns Hopkins University Applied Physics Laboratory.
- 2010 – 2017 Graduate Research Assistant, University of Texas at Austin.
- 2015 – 2016 Instructor, University of Texas at Austin.
Independently taught and managed an upper-division course (*Compressible Flow*) with 50–70 students, for two semesters. Overall instructor ratings of 4.8/5.0 (Spring 2015) and 4.9/5.0 (Spring 2016) in end-of-semester student evaluations.
- 2013 – 2016 Teaching Assistant, University of Texas at Austin.
Propulsion (Fall 2014/15/16; Instructor: Dr. Philip L. Varghese; 40–70 students).
Viscous Flow (Fall 2015; Instructor: Dr. Laxminarayan L. Raja; 21 students).
Compressible Flow (Fall 2013; Instructor: Dr. Thomas M. Kiehne; 66 students).

CURRENT RESEARCH ACTIVITIES**Research Activities Supporting Science and Lunar Exploration (RASSLE)**

Role: Co-Investigator, September 2023 – August 2028.
Principal Investigator: Dr. Dana M. Hurley, JHU Applied Physics Laboratory.
Sponsor: NASA/Solar System Exploration Research Virtual Institute (SSERVI).

Polarization throughout the Solar System: Multi-Branch Laboratory Investigations

Role: Co-Investigator, October 2023 – September 2027.
Principal Investigator: Dr. Lizeth Magaña, JHU Applied Physics Laboratory.
Sponsor: NASA/Solar System Workings Program.

Modeling the Delivery of Mercury's Polar Ice by a Comet Impact

Role: Principal Investigator, April 2019 – March 2025.
Sponsor: NASA/Solar System Workings Program.

Lunar Environment and Dynamics for Exploration Research (LEADER)

Role: Co-Investigator, November 2019 – October 2024.

Principal Investigator: Dr. Rosemary M. Killen, NASA Goddard Space Flight Center.

Sponsor: NASA/Solar System Exploration Research Virtual Institute (SSERVI).

Interdisciplinary Consortium for Evaluating Volatile Origins (ICE Five-O)

Role: Co-Investigator, November 2019 – October 2024.

Principal Investigator: Dr. Jeffrey J. Gillis-Davis, Washington University in St. Louis.

Sponsor: NASA/Solar System Exploration Research Virtual Institute (SSERVI).

PAST RESEARCH ACTIVITIES

Lab Studies of the Photometric and Polarization Behavior of Planetary Regolith Analogs

Role: Co-Investigator, September 2018 – December 2022.

Principal Investigator: Dr. David T. Blewett, JHU Applied Physics Laboratory.

Sponsor: NASA/Planetary Science Division.

Optical Studies of Icy Regolith Analogs

Role: Co-Investigator, August 2020 – July 2021.

Principal Investigator: Dr. David T. Blewett, JHU Applied Physics Laboratory.

Sponsor: NASA/Solar System Workings Program.

Dynamic Response of Environment of Asteroids, the Moon & Moons of Mars (DREAM2)

Role: Postdoctoral Researcher, June 2017 – March 2019.

Principal Investigator: Dr. William M. Farrell, NASA Goddard Space Flight Center.

Sponsor: NASA/Solar System Exploration Research Virtual Institute (SSERVI).

SPACE MISSION & INSTRUMENT INVOLVEMENT

Volatiles Investigating Polar Exploration Rover (VIPER) Mission

Role: Co-Investigator, January 2022 – present.

Project Scientist: Dr. Anthony Colaprete, NASA Ames Research Center.

Sponsor: NASA/Lunar Discovery and Exploration Program.

PROSPECT Ion Trap Mass Spectrometer (PITMS) Instrument

Role: Co-Investigator, December 2021 – present.

Principal Investigator: Dr. Barbara Cohen, NASA Goddard Space Flight Center.

Sponsor: NASA/Lunar Discovery and Exploration Program.

Lunar Reconnaissance Orbiter (LRO) Mission

Role: Science Team Member (Diviner, Mini-RF), June 2017 – present.

Project Scientist: Dr. Noah E. Petro, NASA Goddard Space Flight Center.

Sponsor: NASA/Lunar Precursor Robotic Program.

SELECTED AWARDS & HONORS

APL Space Exploration Sector ‘Jedi Among Us’ Award, 2023.

Award Citation: “For extraordinary mentorship, working tirelessly as a voice for the APL community, inspiring future leaders to build a more inclusive and equitable society.”

NASA SSERVI Susan Mahan Niebur Early Career Award, 2021.
NASA Robert H. Goddard Exceptional Achievement for Science, Team Award to DREAM2
Center for Space Environments, 2019.
Warren A. and Alice L. Meyer Endowed Scholarship in Engineering, 2016.
M. J. Thompson Endowed Presidential Graduate Scholarship for Aerospace Engineering, 2015.
George J. Heuer, Jr. Ph.D. Endowed Graduate Fellowship, 2013.
Third Place, NASA Lunar Science Institute Student Poster Competition, 2011.

SELECTED PROFESSIONAL SERVICE

SSERVI Volatiles Focus Group Lead, 2018 – present.
Science and Instrumentation Branch Representative, APL Space Exploration Sector Diversity
Advisory Team, 2024 – present.
Chair, Virtual Organizing Committee, Division for Planetary Sciences (DPS) Meeting, 2024.
Member, LEAG Science Goals Subcommittee, 2023 – present.
Co-Organizer, DPS Women in Planetary Science Discussion Hour, 2023.
Program Committee, Lunar and Planetary Science Conference, 2022.
Interim Co-Chair, Cross-AG* Inclusion, Diversity, Equity and Accessibility Working Group,
2022. *AG = *NASA Planetary Science Analysis Group*
Co-Chair, NASA Lunar Surface Science Workshop Session 13: Inclusive Lunar Exploration,
2022.
Science Organizing Committee Co-Chair, Joint NASA Exploration Science Forum and European
Lunar Symposium, 2021.
Session Co-Chair (Lunar Volatiles Through Remote Sensing, Modeling and Experiments), Lunar
and Planetary Science Conference, 2021.
Reviewer, National Academies of Sciences, Engineering, and Medicine, Committee on Planetary
Protection: Planetary Protection for the Study of Lunar Volatiles, 2021.
Mentor Judge, SACNAS (Society for Advancement of Chicanos/Hispanics and Native
Americans) Conference, 2020.
Co-Chair, NASA Lunar Surface Science Workshop Session 2: Volatiles, 2020.
Science Organizing Committee, NASA Exploration Science Forum (NESF), 2018, 2020.
Co-Organizer, Lunar and Small Bodies Graduate Conference, 2014.
Reviewer, *Acta Astronautica*; *Advances in Space Research*; *Annals of Geophysics*; *Astrophysical
Journal*; *Astrophysical Journal Letters*; *Earth, Moon, and Planets*; *Earth and Planetary
Science Letters*; *Geophysical Research Letters*; *Icarus*; *Journal of Geophysical Research:
Planets*; *Journal of Geophysical Research: Space Physics*; *Nature Astronomy*; *Physics of
Fluids*; *Philosophical Transactions of the Royal Society A*; *Planetary Science Journal*;
Science Advances.
Panelist/External Reviewer, NASA Science Mission Directorate Research & Analysis Programs.
Judge, American Geophysical Union Outstanding Student Paper Award, Geological Society of
America Dwornik Student Award, SSERVI NESF Student Poster Competition, Lunar and
Planetary Institute Exploration of the Moon and Asteroids by Secondary Students Program.

SELECTED PROFESSIONAL DEVELOPMENT ACTIVITIES

Workshop on EDIA for Leaders in Planetary Science, 2023.
Planetary ReaCH Culturally Inclusive Planetary Engagement Workshop, 2022.

Asian Americans and Pacific Islanders in Geosciences (AAPIiG) Mentoring Pod (Mentor), 2022.
Inclusive Astronomy 2 Conference and Making Inclusive Workplaces Workshop, 2019.
Planetary Scientist Engagement Institute (SSERVI/JHU-APL/LPI), 2019.
Johns Hopkins University Teaching Institute, 2018.
Step UP! Bystander Intervention Training, 2018.
Inclusive Classrooms Leadership Certificate Seminar (University of Texas at Austin), 2016.

SELECTED PUBLIC ENGAGEMENT ACTIVITIES

Guest Speaker, West Valley Astronomy Club, AZ, 2024.
Guest Speaker, Hanover Hills Elementary School, MD, 2023.
Guest Speaker, North County High School, MD, 2022, 2023.
Skype a Scientist (Classroom Conversations with Elementary/Middle Schools in IL, MD, NY, OR, PA, TX, United States and Canada), 2020-21; and Skype a Scientist Live, 2022.
Community Scientist Visits with Howard County Public Schools (Grades 2–4), MD, 2021.
Guest Speaker, Girl Scout Camp Ilchester, Ellicott City, MD, 2019.
Guest Speaker, Astronomy on Tap South Bay, San Jose, CA, 2019.
Thermal Infrared Remote Sensing Demo, APL Family Day, 2019; APL Girl Power Stem Expo, 2018, 2019; Joint Base Andrews Air Show, 2017.
Volunteer, Introduce a Girl to Engineering Day/Explore UT, 2012, 2014, 2016.
Guest Speaker, Williams Elementary School Career Fair, Austin, TX, 2015.
Guest Speaker, Grade 5 Science Class, Williams Elementary School, Austin, TX, 2014.
Media Engagement, *The Atlantic*; *The Gender Security Project*; *La Presse*; *Mashable*; *Nature*; *New Scientist*; *Science*; *Science News*; *Scientific American*; *Space.com*; *Spacepod*; *Quanta Magazine*; *Vox.com*; *Wired*.

INVITED PRESENTATIONS & WORKSHOP PARTICIPATION

Guest Lecturer (Scientific Computing), Olin College, November 2023.
Invited Presentation, NASA SMD American Indian/Alaska Native Working Group, May 2023.
Invited Presentation, NASA Office of Technology, Policy and Strategy Workshop on the Ethical and Societal Implications of Artemis and Moon to Mars, April 2023.
Seminar, Center for Astrophysical Sciences, Johns Hopkins University, April 2023.
Colloquium, Department of Geology, University of Maryland College Park, September 2022.
Invited Speaker, Planetary Lunch, University of California Santa Cruz, February 2022.
Invited Participant, Indigenous & Anticolonial Views of Human Activity in Space Series, Space Enabled Research Group, MIT Media Lab, August, October, and December 2021.
Guest Lecturer (Exploration of the Moon and Asteroids by Secondary Students Program), Lunar and Planetary Institute, September 2021 and 2022.
Invited Speaker, Planetary Science and Astrobiology Seminar, Georgia Tech, September 2021.
Seminar, Department of Physics, Providence Women's College (Calicut, India), July 2021.
Guest Lecturer (What's Up With Mercury?), Arizona State University, February 2021.
Invited Speaker, Mini-Moon Seminar Series, Taiwan Space Union and National Central University, Taiwan, December 2020 and February 2021.
Invited Presentation, Future In-Space Operations Telecon, January 2021.
Guest Lecturer (Topics in Astrophysics: Mercury), Mount Holyoke College, November 2020.
Invited Presentation, Panel on Mercury and the Moon, Planetary Science and Astrobiology

Decadal Survey, November 2020.
Invited Speaker, Guy F. Atkinson Distinguished Lecture Series, Department of Geology & Geophysics, University of Utah, October 2020.
Invited Presentation, National Academies Committee on Planetary Protection, September 2020.
Division 35 Technical Seminar, Jet Propulsion Laboratory, September 2020.
Modeling and Simulation Seminar, Johns Hopkins Applied Physics Laboratory, September 2020.
Seminar, Space Technology and Application Research Lab, Auburn University, September 2020.
Seminar, Earth and Planets Laboratory, Carnegie Institution for Science, April 2020.
Seminar, Department of Physics & Astronomy, San Jose State University, February 2020.
Seminar, Solar System Exploration Division, NASA Goddard Spaceflight Center, January 2020.
Guest Lecturer (Topics in Astrophysics: The Moon), Mount Holyoke College, December 2019.
Seminar, Department of Aeronautics & Astronautics, Stanford University, April 2019.
Invited Speaker, American Geophysical Union Fall Meeting, December 2018.
Invited Speaker, Panelist, Lunar Polar Volatiles, August 2018.
Invited Participant, SSERVI Lunar Water Workshop, November 2016.
Invited Speaker, Brown-Vernadsky Microsymposium, March 2016.

PEER-REVIEWED PUBLICATIONS

- Poppe, A. R., **Prem, P.**, Fatemi, S. and Killen, R. M., Hybrid Plasma Simulations of the Solar Wind Interaction with an Anthropogenic Lunar Exosphere. *Advances in Space Research*, 2024. [<https://doi.org/10.1016/j.asr.2024.05.048>]
- Bourget, A., **Prem, P.**, Blewett, D., Daly, M. G., and Smith, I. B., Optical Polarization Studies of Latex Beads in Aqueous Solution: An Analog for Radar Scattering in Icy Regolith. *Planetary and Space Science*, 2024. [<https://doi.org/10.1016/j.pss.2024.105891>]
- Farrell, W. M., **Prem, P.**, Hurley, D. M., Tucker, O. J. and Killen, R. M., Possible Anthropogenic Contributions to the LAMP-observed Surficial Icy Regolith within Lunar Polar Craters: A Comparison of Apollo and Starship Landings. *Planetary Science Journal*, 2024. [<https://doi.org/10.3847/PSJ/ad37f5>]
- Magaña, L. O., **Prem, P.**, Deutsch, A. N., Martin, A. C., Meyer, H. M., Fassett, C. I., Barker, M. K., Stickle, A., Byron, B. D., Mandt, K. E. and Retherford, K. D., Surface Roughness at the Moon's South Pole: The Influence of Condensed Volatiles on Surface Roughness at the Moon's South Pole. *Planetary Science Journal*, 2024. [<https://doi.org/10.3847/PSJ/ad18da>]
- Leblanc, F., Sarantos, M., Domingue, D., Milillo, A., Savin, D. W., **Prem, P.**, Benkhoff, J., Zender, J., Galli, A., Murakami, G., Sasaki, S., Thompson, M., and Raines, J., How Does the Thermal Environment Affect the Exosphere/Surface Interface at Mercury? *Planetary Science Journal*, 2023. [<https://doi.org/10.3847/PSJ/ad07da>]
- Hurley, D. M., Siegler, M. A., Cahill, J. T., Colaprete, A., Costello, E., Deutsch, A. N., Elphic, R. C., Fa, W., Grava, C., Hayne, P. O., Heldmann, J., Hendrix, A. R., Jordan, A. P., Killen, R. M., Klima, R. L., Kramer, G., Li, S., Liu, Y., Lucey, P. G., Mazarico, E., Pendleton, Y., Poston, M., **Prem, P.**, Retherford, K. D., and Schaible, M., Surface Volatiles on the Moon. *Reviews in Mineralogy and Geochemistry*, 2023.

[\[https://doi.org/10.2138/rmg.2023.89.18\]](https://doi.org/10.2138/rmg.2023.89.18)

Teolis, B., Sarantos, M., Schorghofer, N., Jones, B., Grava, C., Mura, A., **Prem, P.**, Greenhagen, B., Capria, M.T., Cremonese, G., Lucchetti, A., and Galluzzi, V., Surface Exospheric Interactions. *Space Science Reviews*, 2023.

[\[https://doi.org/10.1007/s11214-023-00951-5\]](https://doi.org/10.1007/s11214-023-00951-5)

Prem, P., Greenhagen, B. T., Donaldson Hanna, K. L., Shirley, K. A., and Glotch, T. D., Modeling Thermal Emission under Lunar Surface Environmental Conditions. *Planetary Science Journal*, 2022.

[\[https://doi.org/10.3847/PSJ/ac7ced\]](https://doi.org/10.3847/PSJ/ac7ced)

Steckloff, J. K., Goldstein, D., Trafton, L., Varghese, P., and **Prem, P.**, Exosphere-Mediated Migration of Volatile Species on Airless Bodies Across the Solar System. *Icarus*, 2022.

[\[https://doi.org/10.1016/j.icarus.2022.115092\]](https://doi.org/10.1016/j.icarus.2022.115092)

Farrell, W. M., **Prem, P.**, Tucker, O. J., Hurley, D. M., Cohen, B. A., and Benna, M., A Lingering Local Exosphere Created by a Gas Plume of a Lunar Lander. *Icarus*, 2022.

[\[https://doi.org/10.1016/j.icarus.2021.114857\]](https://doi.org/10.1016/j.icarus.2021.114857)

Williams, J. P., Greenhagen, B. T., Bennett, K. A., Paige, D. A., Kumari, N., Ahrens, C. J., Rubanenko, L., Powell, T. M., **Prem, P.**, Blewett, D. T., Russell, P. S., Hayne, P. O., and Sullivan, M. T., Temperatures of the Lacus Mortis region of the Moon. *Earth and Space Science*, 2021.

[\[https://doi.org/10.1029/2021EA001966\]](https://doi.org/10.1029/2021EA001966)

Lucey, P. G., Petro, N., Hurley, D., Farrell, W., **Prem, P.**, Costello, E., Cable, M., Barker, M., Benna, M., Dyar, D., Fisher, E., Green, R. O., Hayne, P. O., Hibbitts, K., Honniball, C., Li, S., Malaret, E., Mandt, K., Mazarico, E., McCanta, M., and Orlando, T., Volatile Interactions with the Lunar Surface. *Geochemistry (Invited Review)*, 2021.

[\[https://doi.org/10.1016/j.chemer.2021.125858\]](https://doi.org/10.1016/j.chemer.2021.125858)

Schörghofer, N., Benna, M., Berezhnoy, A. A., Greenhagen, B., Jones, B. M., Li, S., Orlando, T. M., **Prem, P.**, Tucker, O. J., and Wöhler, C., Water Group Exospheres and Surface Interactions on the Moon, Mercury, and Ceres. *Space Science Reviews*, 2021.

[\[https://doi.org/10.1007/s11214-021-00846-3\]](https://doi.org/10.1007/s11214-021-00846-3)

Prem, P., Hurley, D. M., Goldstein, D. B., and Varghese, P. L., The Evolution of a Spacecraft-Generated Lunar Exosphere. *Journal of Geophysical Research: Planets*, 2020.

[\[https://pubmed.ncbi.nlm.nih.gov/33959468/\]](https://pubmed.ncbi.nlm.nih.gov/33959468/)

Prem, P., Goldstein, D. B., Varghese, P. L., and Trafton, L. M., Coupled DSMC–Monte Carlo Radiative Transfer Modeling of Gas Dynamics in a Transient Impact-Generated Lunar Atmosphere. *Icarus*, 2019.

[\[https://doi.org/10.1016/j.icarus.2019.02.036\]](https://doi.org/10.1016/j.icarus.2019.02.036)

Prem, P., Goldstein, D. B., Varghese, P. L., and Trafton, L. M., The Influence of Surface Roughness on Volatile Transport on the Moon. *Icarus*, 2018.

[\[https://doi.org/10.1016/j.icarus.2017.07.010\]](https://doi.org/10.1016/j.icarus.2017.07.010)

Prem, P., Artemieva, N. A., Goldstein, D. B., Varghese, P. L., and Trafton, L. M., Transport of Water in a Transient Impact-Generated Lunar Atmosphere. *Icarus*, 2015.

[\[https://doi.org/10.1016/j.icarus.2014.10.017\]](https://doi.org/10.1016/j.icarus.2014.10.017)

OTHER PUBLICATIONS

- Tavares, F., Vidaurri, M., Denton, A., Grier, JA, Harvey, A., Milazzo, M., Olson, H., **Prem, P.**, Scalice, D., and Venkatesan, A., A Call for Indigenous Partnership in the Return to the Moon. *Nature Astronomy*, 2024.
[\[https://doi.org/10.1038/s41550-024-02251-6\]](https://doi.org/10.1038/s41550-024-02251-6)
- Crawford, I. A., **Prem, P.**, Pieters, C., and Anand, M., Managing Activities at the Lunar Poles for Science. *Space Research Today*, 2022.
[\[https://doi.org/10.1016/j.srt.2022.11.013\]](https://doi.org/10.1016/j.srt.2022.11.013)
- Bennett, K. A., and **Prem, P.**, Inclusive Lunar Exploration (Workshop Report), 2022.
[\[https://doi.org/10.5281/zenodo.6780356\]](https://doi.org/10.5281/zenodo.6780356)
- Rivera-Valentín, E., Lynch, K., and contributors (including **Prem, P.**), A Consensus Report on Recommendations from the 2022 Advancing IDEA in Planetary Science Conference, 2022.
[\[https://doi.org/10.5281/zenodo.6656887\]](https://doi.org/10.5281/zenodo.6656887)
- Venkatesan, A., Lowenthal, J., **Prem, P.**, and Vidaurri, M., The Impact of Satellite Constellations on Space as an Ancestral Global Commons. *Nature Astronomy (Invited Perspective)*, 2020.
[\[https://doi.org/10.1038/s41550-020-01238-3\]](https://doi.org/10.1038/s41550-020-01238-3)
- Prem, P.**, and 40 co-authors, Lunar Volatiles and Solar System Science. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.f62324b8\]](https://doi.org/10.3847/25c2cfef.f62324b8)
- Hurley, D. M., and 51 co-authors (including **Prem, P.**), Mission to Characterize Volatiles in Old, Cold, Permanently Shadowed Regions on the Moon. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.f3dc6df2\]](https://doi.org/10.3847/25c2cfef.f3dc6df2)
- Lucey, P. G., and 18 co-authors (including **Prem, P.**), Lunar Volatiles Orbiters. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.900b62df\]](https://doi.org/10.3847/25c2cfef.900b62df)
- Richey, C. R., and 9 co-authors (including **Prem, P.**), A Call to Planetary2023 Panels to Implement Actionable Recommendations from Recent National IDEA Studies. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.cf08661f\]](https://doi.org/10.3847/25c2cfef.cf08661f)
- Richey, C. R., and 5 co-authors (including **Prem, P.**), Lessons Learned on IDEA from the Astro2020 Decadal Survey. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.29038986\]](https://doi.org/10.3847/25c2cfef.29038986)
- Tavares, F. J., and 11 co-authors (including **Prem, P.**), Ethical Exploration and the Role of Planetary Protection in Disrupting Colonial Practices. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.cdc2f798\]](https://doi.org/10.3847/25c2cfef.cdc2f798)
- Watkins, R. N., and 13 co-authors (including **Prem, P.**), Understanding and Mitigating Plume Effects During Powered Descents on the Moon and Mars. Planetary Science and Astrobiology Decadal Survey 2023-2032 (White Paper), 2020.
[\[https://doi.org/10.3847/25c2cfef.f9243994\]](https://doi.org/10.3847/25c2cfef.f9243994)

Prem, P., Hibbitts, C. A., Hurley, D. M., and Goldstein, D. B., Science from an Active Volatile Release Experiment. Artemis III Science Definition Team (White Paper), 2020. [<https://www.lpi.usra.edu/announcements/artemis/whitepapers/2055.pdf>]

Runyon, K., and 10 co-authors (including **Prem, P.**), Uniquely Multidisciplinary Investigations at Amundsen Crater for Artemis III. Artemis III Science Definition Team (White Paper), 2020. [<https://www.lpi.usra.edu/announcements/artemis/whitepapers/2068.pdf>]

CONFERENCE PRESENTATIONS

LEAD AUTHOR:

Prem P., Ernst C. M., Chabot N. L., Goldstein D. B., and Hurley D. M., Modeling the Deposition of Mercury's Polar Water Ice. *American Astronomical Society/Division for Planetary Sciences Annual Meeting*, 2023.

Prem, P., Benna, M., and Sarantos, M., A Rim-Side View of Cold-Trapped Volatiles Released by Micrometeoroid Impacts. *NASA Exploration Science Forum*, 2023.

Prem P., Ernst C. M., Chabot N. L., Goldstein D. B., and Hurley D. M., Modeling an Impact Origin for Mercury's Polar Water Ice Deposits. *American Geophysical Union Fall Meeting*, 2022.

Prem, P., and Bennett, K. A., Inclusive Lunar Exploration (**invited**). *Lunar Exploration Analysis Group Meeting*, 2022.

Prem, P., Patterson, G. W., Jozwiak, L. M., Cahill, J. T. S., Stickle, A. M., and Blewett, D. T., Understanding the Radar Polarimetric Properties of Icy Regolith at the Moon's Poles. *Advancement of POLarimetric Observations*, 2022.

Prem, P., Patterson, G. W., Jozwiak, L. M., Cahill, J. T. S., and Stickle, A. M., Reconsidering the Radar Scattering Characteristics of Icy Regolith in Lunar Permanently Shadowed Regions. *NASA Exploration Science Forum*, 2022.

Prem, P., Becoming Asian American: Personal Reflections and Messages for My Planetary Science Community. *Advancing IDEA in Planetary Science*, 2022.

Prem, P., Greenhagen, B. T., Donaldson Hanna, K. L., Shirley, K. A., and Glotch, T. D., Modeling Thermal Emission from the Anisothermal Lunar Regolith. *Lunar and Planetary Science Conference*, 2022.

Prem, P., Near-Surface Thermal Gradients on Mercury, *Mercury's Surface Response to the Interplanetary Environment*, 2022.

Prem, P., and Greenhagen, B. T., Modeling the Influence of Epiregolith Thermal Gradients on Airless Body Emission Spectra. *Rock, Dust and Ice Workshop*, 2021.

Prem, P., Blewett, D. T., Patterson, G. W., Virkki, A. K., Cahill, J. T., and Bhiravarasu, S. S., Modeling the Polarization Properties of Icy Regolith Analogs at Optical and Radar Wavelengths. *Lunar and Planetary Science Conference*, 2021.

Prem P., Ernst C. M., Chabot N. L., McFarland E. L., Goldstein D. B., and Hurley D. M., Simulating the Delivery of Water to Mercury's Poles by a Hokusai-like Impact. *Mercury*

Exploration Assessment Group Meeting, 2021.

- Prem P.**, Hurley D. M., Goldstein, D. B., Varghese, P. L., and Hibbitts, C. A., Towards Understanding the Impact of Exploration on the Lunar Environment. *Lunar Surface Science Workshop Session 4: Planetary Protection and PSR Classification*, 2020.
- Prem P.**, Hurley D. M., Benna, M., and Orlando, T. M., Lunar Volatiles Science at the Lander Scale. *NASA Exploration Science Forum*, 2020.
- Prem, P.**, Patterson, G. W., Virkki, A. K., Bhiravarasu, S. S., Blewett, D. T., and Cahill, J. T., Modeling the Polarimetric Response of Ice and Regolith in Bistatic Radar Observations of the Lunar Poles. *Lunar and Planetary Science Conference*, 2020.
- Prem, P.**, Hurley, D. M., McFarland, E. L., Chabot, N. L., Ernst, C. M., and Goldstein, D., B., Modeling the Transport, Loss and Deposition of Water on Mercury. *American Geophysical Union Fall Meeting*, 2019.
- Prem, P.**, Hurley, D. M., Modeling the Response of the Lunar Exosphere to the Release of Spacecraft Exhaust Volatiles. *NASA Exploration Science Forum*, 2019.
- Prem, P.**, Greenhagen, B. T., Yasanayake, C. N., and Donaldson Hanna, K. L., Modeling Near-Surface Temperature Gradients and Thermal Emission from the Lunar Regolith. *Lunar and Planetary Science Conference*, 2019.
- Prem, P.**, Hurley, D. M., Goldstein, D. B., Varghese, P. L., Grava, C., and Retherford, K. D., Water Vapor, Where Goest Thou? (**invited**). *American Geophysical Union Fall Meeting*, 2018.
- Prem, P.**, Hurley, D. M., and Patterson, G. W., Perspectives on Modeling the Transport of Volatiles and Their Distribution at the Lunar Poles (**invited**). *Lunar Polar Volatiles*, 2018.
- Prem, P.**, Greenhagen, B. T., Arnold, J. A., Donaldson Hanna, K. L., Bowles, N. E., Ito, G., and Glotch, T. D., Modeling the Influence of Near-Surface Temperature Gradients on Thermal Emission from Airless Bodies. *NASA Exploration Science Forum*, 2018.
- Prem, P.**, Hurley, D. M., Goldstein, D. B., and Varghese, P. L., Modeling the Propagation of Spacecraft Exhaust Plume Volatiles on the Moon. *NASA Exploration Science Forum*, 2018.
- Prem, P.**, and Patterson, G. W., Modeling the Potential Radar Scattering Characteristics of Water Ice at the Lunar Poles. *Lunar and Planetary Science Conference*, 2018.
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