

Michelle S. Thompson

Curriculum Vitae

Purdue University
Department of Earth, Atmospheric, and Planetary Sciences
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West Lafayette, IN, 47907

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EDUCATION

- | | |
|------|--|
| 2016 | Ph.D. in Planetary Sciences, Lunar and Planetary Laboratory (LPL)
Minor in Geosciences
University of Arizona, Tucson, AZ |
| 2013 | M.Sc. in Planetary Sciences, LPL
University of Arizona, Tucson, AZ |
| 2011 | B.Sc. in Geological Engineering, first class honors
B.Sc. in Biology, with distinction
Queen's University, Kingston, Ontario, Canada |

RESEARCH INTERESTS

I am interested in understanding the alteration of planetary materials after their formation, specifically how airless surfaces across the solar system evolve. I study these phenomena using a combination of experimental techniques and returned sample analyses. I use advanced transmission electron microscopy methods, including experimental in situ techniques to answer my research questions. This work is directly applicable to samples already returned by the Apollo, Hayabusa, and Hayabusa2 missions, and is relevant for the upcoming return of samples from OSIRIS-REx and MMX.

EXPERIENCE

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| 2018 - Present | Assistant Professor of Planetary Sciences
Purdue University
Department of Earth, Atmospheric, and Planetary Sciences |
| 2016 - 2018 | NASA Postdoctoral Fellow
Astromaterials Research and Exploration Science
NASA Johnson Space Center |
| 2017 | NASA Jet Propulsion Laboratory (JPL)
Planetary Science Summer Seminar
Deputy PI: Centaur Reconnaissance Mission |
| 2011 - 2016 | Graduate Research Assistant/Associate
LPL, Department of Planetary Science
University of Arizona |

2014	Lloyd V. Berkner Space Policy Intern Space Studies Board National Academy of Sciences
2011 and 2009	Research Assistant Lunar and Planetary Institute NASA Johnson Space Center
2010 and 2008	Research Assistant Queen's University Royal Ontario Museum

HONORS AND AWARDS

2022	College of Science Award for Advancing Diversity
2020	NASA Early Career Fellowship
2019	Queen's University, <i>Excellence in Engineering</i> , Alumni Award
2018	Among the top 20 most downloaded papers for the <i>Meteoritics and Planetary Science</i> Journal between 2016 and 2017
2017	Canadian Space Agency Astronaut Candidate Finalist (top 32 of 3776)
2017	Microanalysis Society Postdoctoral Scholar Award
2016 - 2018	NASA Postdoctoral Fellowship
2016	Joseph Goldstein Scholar Award from the Microanalysis Society
2016	Geological Society of America Dwornik Student Paper Award Best Graduate Student Oral Presentation Lunar and Planetary Science Conference
2016	Lunar and Planetary Laboratory Outstanding Scholar Award
2014 - 2016	NASA Earth and Space Science Fellowship
2015	Wiley Award for Outstanding Student Presentation Meteoritical Society Meeting
2015	NASA Student Travel Award, Meteoritical Society Meeting
2015 and 2013	College of Science Galileo Scholarship, University of Arizona
2014	<i>Earth, Planets, and Space</i> Highlighted Paper of 2014
2014	Geological Society of America Dwornik Student Paper Award Honorable Mention for Graduate Student Oral Presentation Lunar and Planetary Science Conference
2014	Microanalysis Society Meeting Scholar Microscopy and Microanalysis Conference
2014	Lunar and Planetary Institute Career Development Award
2013	Best Graduate Student Talk Lunar and Planetary Laboratory Conference
2012 - 2015	Natural Sciences and Engineering Research Council of Canada Post-Graduate Scholarship – Doctoral Level
2011 - 2012	Natural Sciences and Engineering Research Council of Canada Post-Graduate Scholarship – Master's Level
2011	Mineralogical Association of Canada Student Award
2011	Book Prize for Student Leadership, Queen's University
2010	Best Poster Presentation, Rising Stars of Research Conference, University of British Columbia

PEER-REVIEWED JOURNAL ARTICLES

- Clark, B. E., Sen, A., Zou, X.-D., DellaGuistina D. N., Sugita, S., Sakatanni, N., **Thompson, M. S.**, Trang, D., Tatsumi, E., Barucci, M. A., Barker, M., Campins, H., Morota, T., Lantz, C., Hendrix, A. R., Vilas, F., Keller, L. P., Hamilton, V. E., Kitazato, L., Sasaki, S., Matsuoka, Nakamura, T., Praet, A., Ferrone, S. M., Hiroi, T., Kaplan, H. H., Bottke, W. F., Li, J.-Y., LeCorre, L., Molaro, J., Ballouz, R.-L., Hergenrother, C. W., Rizk, B., Burke, K. N., Bennett, C. A., Golish, D. R., Howell, E. S., Becker, K., Ryan, A. J., Emery, J. P., Fornasiers, S., Deshapriya, J. D. P., Simon, A. A., Reuter, D. C., Lim, L. F., Poggiali, G., Michel, P., Delbo, M., Barnouin, O. S., Jawin, E. R., Pajola M., Riu, L., Okada, T., Brucato J. R., and Lauretta, D. S. 2022. Overview of the Search for Signs of Space Weathering on Low-Albedo Asteroid (101955) Bennu. *Icarus* (in review).
- Jaret, S. J., Rasbury, E. T., Reiners, P., Thompson, L. M., Hemming, S. R., **Thompson, M. S.**, and Spray, J. G. 2022. Extreme isotopic heterogeneity in impact melt rocks with implications for Mars. *Geology* (accepted).
- Noguchi, T., Matsumoto, T., Miyake, A., Igami, Y., Haruta, M., Saito, H., Hata, S., Seto, Y., Miyahara, M., Tomioka, N., Ishii, H.A., Bradley, J. P., Ohtaki, K., Dobrică, E., Leroux, H., Le Guillou, C., Jacob, D., Marinova, M., de la Peña, F., Langenhorst, F., Harries, D., Beck, P., Phan, T. H. V., Rebois, R., Abreu, N. M., Zega, T. J., M Zanetta, P.-M., **Thompson, M. S.**, Stroud, R., Burgess, K., Cymes, B. A., Bridges, J. C., Hicks, L., Lee, M. R., Daly, L., Bland, P. A., Zolensky, M. E., Frank, D. R., Martinez, J., Tsuchiyama, A., Yasutake, M., Matsuno, J., Okumura, S., Mitsukawa, I., Uesugi, K., Uesugi, M., Takeuchi, A., Sun, M., Enju, S., Takigawa, A., Michikami, T., Nakamura, T., Matsumoto, M., Nakauchi, Y., Abe, M., Arakawa, M., Fujii, A., Hayakawa, M., Hirata, N., Hirata, N., Honda, R., Honda, C., Hosoda, S., Iijima, Y., Ikeda, H., Ishiguro, M., Ishihara, Y., Iwata, T., Kawahara, K., Kikuchi, S., Kitazato, K., Matsumoto, K., Matsuoka, M., Mimasu, Y., Miura, A., Morota, T., Nakazawa, S., Namiki, N., Noda, H., Noguchi, R., Ogawa, N., Ogawa, K., Okada, T., Okamoto, C., Ono, G., Ozaki, M., Saiki, T., Sakatani, N., Sawada, H., Senshu, H., Shimaki, Y., Shirai, K., Sugita, S., Takei, Y., Takeuchi, H., Tanaka, S., Tatsumi, E., Terui, F., Tsukizaki, R., Wada, K., Yamada, M., Yamada, T., Yamamoto, Y., Yano, H., Yokota, Y., Yoshihara, K., Yoshikawa, M., Yoshikawa, K., Fukai, R., Furuya, S., Hatakeda, K., Hayashi, T., Hitomi, Y., Kumagi, K., Miyazaki, A., Nakato, A., Nishimura, M., Soejima, H., Suzuki, A., I., Usui, T., Yada, T., Yamamoto, D., Yogata, K., Yoshitake, M., Connolly, Jr., H. C., Lauretta, D.S., Yurimoto, H., Nagashima, K., Kawasaki, N., Sakamoto, N., Okazaki, R., Yabuta, H., Naraoka, H., Sakamoto, K., Tachibana, S., Watanabe, S., and Tsuda. 2022. Mineralogy and space weathering of fine fraction recovered from the asteroid 162173 Ryugu. *Nature Astronomy* (in review).
- Chaves, L. C. and **Thompson, M. S.** Space weathering signatures in sulfide and silicate minerals from asteroid Itokawa. *Earth, Planets, and Space* 74: 1 -14.
- Ernst, C. E., Chabot, N. L., Klima, R. L., Kubota, S., Rogers, G., Byrne, P. K., Huack II, S. A., Vander Kaaden, K. E., Vervack, R. J., Besse, S., Blewett, D. T., Denevi, B., Goossens, S., Indyk, S. J., Izenberg, N. R., Johnson, C. L., Jozwiak, L. M., Korth, H., McNutt, R. L., Murchie, S. L., Peplowski, P. N., Raines, J. M., Rampe, E. B., **Thompson, M. S.**, and Weider, S. Z. 2021. Science Goals and Mission Concept for a Landed Investigation of Mercury. *Planetary Science Journal* 3: 68.
- Daly, L., Lee, M. R., Hallis, L. J., Ishii, H. A., Bradley, John P., Bland, P. A., Saxey, D. W., Fougereuse, D., Rickard, W. A., Forman, L. V., Timms, N. E., Jourdan, F., Reddy, S. M., Salge, T., Quadir, Z., Christou, E. V., Cox, M. A., Aguiar, J. A., Hattar, K., Moterrosa, A., Keller, L. P., M Christoffersen,

- R., Dukes, C. A., Loeffler, M. J., and **Thompson, M. S.** 2021. Solar contributions to Earth's oceans. *Nature Astronomy* 5(12): 1275-1285.
- Kaplan, H. H., Simon, A. A., Hamilton, V. E., **Thompson, M. S.**, Sandford, S. A., Barucci, M. A., Cloutis, E. A., Brucato, J., Reuter, D. C., Glavin, D. P. and Clark, B. E. 2021. Composition of organics on asteroid (101955) Bennu. *Astronomy & Astrophysics* 653: L1.
- Laczniaik, D. L., **Thompson, M. S.**, Dukes, C. A., Morris, R. V., Clemett, S. J., Keller, L. P., and Christoffersen, R. 2021. Characterizing the spectral, microstructural, and chemical effects of solar wind irradiation on the Murchison carbonaceous chondrite through coordinated analyses. *Icarus* 364: 114479.
- Trang, D., **Thompson, M. S.**, and 17 co-authors. 2021. The Role of Hydrated Minerals and Space Weathering Products in the Bluening of Carbonaceous Asteroids. *Planetary Science Journal* 2: 68.
- Thompson, M. S.**, Clemett, S. J., Morris, R. V., Loeffler, M. J., Trang, D., Keller, L. P., Christoffersen, R., and Agresti D. G. 2020. The Effect of Progressive Space Weathering on the Spectral, Chemical, and Microstructural Properties of Organic and Inorganic Components of Carbonaceous Chondrites. *Icarus*: 113775.
- Prince, B. S., Magnuson, M. P., Chaves, L. C., **Thompson, M. S.**, and Loeffler, M. J. 2019. Space Weathering of FeS Induced via Pulsed Laser Irradiation. *Journal of Geophysical Research – Planets* 125: e2019JE006242.
- Vander Kaaden, K. E., McCubbin, F. M., Byrne, P. K., Chabot, N. L., Ernst, C. M., Johnson, C. L., and **Thompson, M. S.** 2019. Revolutionizing our Understanding of the Solar System via Sample Return from Mercury. *Space Science Reviews* 215: 49.
- Hyde, B. C., Tait, K. T., Moser, D. E., Rumble II, D., and **Thompson, M. S.** 2020. Impact Accretion of Achondritic Material: A Preserved Example in the L Chondrite Breccia Northwest Africa 869. *Meteoritics and Planetary Science* 55: 20-35.
- Thompson, M.S.**, Keller, L.P., Christoffersen, R., Loeffler, M.J., Morris, R.V., and Rahman, Z. 2019. Spectral and chemical effects of simulated space weathering of the Murchison CM2 carbonaceous chondrite. *Icarus* 319: 499-511.
- Howell, S. M., Chou, L, **Thompson, M. S.**, *et al.* 2018. Camilla: A Centaur reconnaissance and impact mission concept. *Planetary and Space Science* 164: 184-193.
- Thompson, M. S.**, Zega, T. J., and Howe, J. Y. 2017. In situ experimental formation and growth of Fe nanoparticles and vesicles in lunar soil. *Meteoritics and Planetary Science* 52: 413-427 (Cover).
- Thompson, M. S.**, Zega, T. J., Becerra, P., Keane, J. T., and Byrne, S. 2016. The Oxidation State of Nanophase Fe Particles in Lunar Soil: Implications for Space Weathering. *Meteoritics and Planetary Science* 51: 1082-1095.
- Bolser, D., Zega, T. J., Asaduzzaman, A., Bringuier, S., Simon, S., Grossman, L., **Thompson, M. S.**, and Domanik K. J. 2016. Microstructural analysis of Wark-Lovering Rims in the Allende and Axtell

CV3 chondrites: Implications for high-temperature nebular processes. *Meteoritics and Planetary Science* 51: 743-756.

Thompson, M. S., Christoffersen, R., Zega, T. J., and Keller, L. P. 2014. Microchemical and structural evidence for space weathering in soils from asteroid Itokawa. *Earth, Planets and Space* 66: 89.

PEER-REVIEWED BOOK CHAPTERS

Denevi, B. W., Noble, S.K., **Thompson, M. S.**, Blewett, D. T., Christoffersen, R., Garrick-Bethell, I., Gillis-Davis, J.J., Glotch, T. D., Greenhagen, B. T., Hendrix, A. R., Hurley, D. M., Keller, L. P., Kramer, G. Y., and Trang, D. 2023. Space Weathering and Exosphere–Surface Interactions. *New Views of the Moon 2*. Reviews in Mineralogy and Geochemistry (in review).

Schrader, D. L., Davidson, J. McCor, T. J., **Thompson, M. S.**, and Zega, T. J. 2023. Sulfides in Asteroids, Meteorites, and Comets. Chapter in *The Role of Sulfur in Planetary Processes: from Cores to Atmospheres* (in review).

Vander Kaaden, K. E., McCubbin, F. M., Byrne, P. K., Chabot, N. L., Ernst, C. M., Johnson, C. L., and **Thompson, M. S.** 2020. Revolutionizing our Understanding of the Solar System via Sample Return from Mercury. Chapter in *Role of Sample Return in Addressing Major Questions in Planetary Sciences*.

MISSION INVOLVEMENT

2021 – Present NASA OSIRIS-REx
Contact Pad Working Group, Deputy Lead
Mineralogy and Petrology Working Group Member
Sample Analysis Data Archiving Working Group Member

2019 – Present JAXA Hayabusa2 Mission Science Team
Fine-Grained Mineralogy and Petrology Working Group

2019 – 2021 Mercury Lander, Science Team Member, Planetary Mission Concept Study

INVITED TALKS

University of Nevada Las Vegas, 2022

American Vacuum Society Conference, Plenary Speaker, 2022

American Astronomical Society Division of Planetary Sciences Conference, Plenary Speaker, 2022

University of California Santa Cruz, 2021

Michigan State University, 2022

The Smithsonian, 2021

Birck Nanotechnology Center, Purdue University, 2021

Northern Arizona University, 2021

London Museum of Natural History, 2021

Fordham University, 2021

Auburn University, 2020

Arizona State University Center for Meteorite Studies, 2020

Indiana University – Purdue University Indianapolis, 2020
 Washington University at St. Louis, 2019
 University of Chicago, 2018
 NASA Education Downlink Event for the International Space Station, Queen’s University, 2018
 Microscopy and Microanalysis Conference, Hitachi, 2016
 In-situ Heating in Aberration-Corrected STEM Workshop, Georgia Tech, 2016
 Microscopy and Microanalysis Conference, 2015
 Naval Research Laboratory, Washington D.C., 2014
 Carnegie Institution, Washington D.C., 2014
 Japanese Aerospace Exploration Agency (JAXA) Hayabusa Symposium, 2013

MEMBERSHIPS AND SERVICE

At Purdue:

2023	Faculty Oversight Committee, Electron Microscopy Core Facilities
2022 - 2023	Search Committee for Igneous Petrologist
2021 - 2022	Electron Microscopy Task Force convened by the Purdue Executive Vice President for Research and Partnerships
2020 - Present	College of Science Advancing Diversity Committee
2020 - Present	EAPS Ombudsperson
2020 - Present	EAPS Code of Conduct Committee
2018 - Present	EAPS Diversity Committee Chair
2019 - 2020	Laboratory Safety Committee
2018 - 2020	Faculty Adviser of EAPS Women in Science Program,
2018 - 2020	Graduate Committee
2018 - 2019	Search Committee for Planetary Physics and Planetary Atmospheres

In the Community:

2023 - 2026	Secretary, Extraterrestrial Materials Analysis Group
2023 - 2025	Membership Committee, Meteoritical Society
2022	Co-Chair, Microscopy and Microanalysis Conference
2021 - 2022	Convener, Workshop on Mercury Space Surface Interactions Workshop
2020 - 2022	Antarctic Meteorite Allocation Panel
2020 - 2022	Strategic Planning Committee for the Microscopy and Microanalysis Conference
2020 - 2022	Extraterrestrial Materials Analysis Group, Meteorite Subcommittee Member
2018, 2022	Convener, Instructor of NASA Small Particle Sample Handling Workshop
2021	Science Organizing Committee, Meteoritical Society Conference
2021	Travel Awards Committee, Meteoritical Society Conference
2021	Session Convener, Microscopy and Microanalysis Conference
2021	Session Convener, Goldschmidt Conference
2020	Coordinator for NASA Planetary Science Division Early Career Round Table Discussion with NASA Associate Administrator Dr. Thomas Zurbuchen
2019 - Present	Director (elected), Microanalysis Society (MAS) of America
2019 - 2020	Curation and Analysis Planning Team for Extraterrestrial Materials (CAPTEM) Meteorite Working Group (MWG) Member (disbanded)
2019	Lunar and Planetary Science Conference (LPSC) Program Committee
	Lead for Space Weathering, Contributor to Mission and Instrument Concepts
2018 - 2020	Diversity Committee (Chair), Department of Earth, Atmospheric and

2018 - 2020	Planetary Sciences, Purdue University Graduate Committee, Department of Earth, Atmospheric and Planetary Sciences, Purdue University
2017, 2019	Geological Society of America Dwornik Award Judge
2017, 2019	LPSC Session Chair
2018	Session Convener, Session Chair, Geological Society of America Conference
2018, 2020	Session Convener, Session Chair, Microscopy and Microanalysis Conference
2017	Secretary for the Supporting Women at NASA (SWAN) group
2016 - Present	Panel Chief, Panel Member NASA Review Panels
2015 - Present	Manuscript Reviewer: Icarus, Journal of Geophysical Research – Planets, Nature Astronomy, PNAS, Geochimica et Cosmochimica Acta, Meteoritics and Planetary Science, Nature Communications, Geophysical Research Letters, Earth, Planets and Space
2015	Organizing Committee for the Workshop on Space Weathering of Airless Bodies
2014	Organizer: Sharing the Adventure with the Student: Exploring the Intersections of NASA Space Science and Education: A Workshop run by the National Academy of Sciences
2015 - Present	Member of the Microanalysis Society of America
2014 - Present	Member of the Meteoritical Society
2012 - Present	Member of the Microscopy Society of America

PROFESSIONAL DEVELOPMENT

2020	Safe Zone and Trans Inclusion Training <i>Trained to be a better ally for the LGBTQ+ community. Coordinated by the Purdue LGBTQ+ Center.</i>
2018	Course and Curriculum Based Undergraduate Research Workshop Participant, Geological Society of America Meeting <i>Designing and implementing research opportunities for undergraduate students in core course curricula</i>
2018	National Center for Faculty Diversity and Development Faculty Success Program <i>Participated in weekly meetings and skills-based workshops to improve faculty skills including time management, mentoring, strategic planning</i>

TEACHING

2019, 2021, 2022	Instructor for EAPS 243: Earth Materials I (Mineralogy), Purdue University Developed and taught lectures and labs for 40+ undergraduate majors on topics including systematic mineral classification, optical microscopy, etc.
2021	Instructor for Planetary Science Capstone Course, Purdue University Developed and taught lectures for 16 Senior Planetary Science Majors on the historical perspective of lunar exploration through modern day planetary science missions. Facilitated students proposing their own missions.

2020	Instructor for Geo- and Cosmochemistry, Purdue University Developed and taught 15 undergraduate and graduate students on the principles of geochemical and cosmochemical evolution of the solar system.
2020, 2023	Instructor for EAPS 591: Laboratory Analysis of Earth and Planetary Materials, Purdue University Developed and taught lectures for ~20 undergraduate and graduate students on analytical laboratory techniques.
2019	Instructor for EAPS 591: Planetary Materials, Purdue University Developed and taught lectures for 35 undergraduate and graduate students on topics including mineralogy, crystallography, cosmochemistry, etc.
2018, 2022	Instructor for the Small Particle Handling Workshop, Lunar and Planetary Institute and Johnson Space Center, Purdue University Instructed participants from around the world on small particle and handling techniques in collaboration with NASA and the Lunar and Planetary Institute.
2013	Teaching Assistant for PTYS 170A1: Evolution of a Habitable World, LPL Presented lectures, led students through in-class activities, graded coursework and tutored students during office hours and review sessions.
2012	Teaching Assistant for PTYS 214: Astrobiology: A Planetary Perspective, LPL Presented guest lectures, provided review sessions, graded coursework, and designed and implemented in-class activities for students.
2009 - 2011	Teaching Assistant for GEOL 232: Mineralogy, Queen's University Prepared and taught lab sessions on optical mineralogy, basic crystallography, graded coursework and tutored students during office hours.
2008	Teaching Assistant for APSC 151: The Earth's Physical Environment, Queen's University Prepared and taught lab sessions on basic geological engineering concepts, graded coursework.

MENTORSHIP

PhD Students Advised:

2022 - Present	Lisette Melendez
2020 - Present	Alexander Kling Awards: Meteoritical Society Travel Grant Recipient, Microanalysis Society Goldstein Scholarship
2019 - Present	James McFadden Awards: Indiana Space Grant Consortium Recipient, Lunar and Planetary Institute Career Development Award, Henry J. Melosh Travel Award, Microscopy and Microanalysis Conference Student Award

2018 - Present Laura Chaves
Awards: NASA FINESST fellowship, Amelia Earhart Scholarship, LPI Career Development Award, Meteoritical Society Travel Awards, Top 100 Most Influential Latinas (Bloomberg)

2018 - Present Dara Laczniak
Awards: NASA FINESST fellowship, Amelia Earhart Scholarship, LPI Career Development Award, McKay award from the Meteoritical Society, Wiley Award from the Meteoritical Society, Microscopy Society of America Student Scholar, Goldstein Scholar from the Microanalysis Society, Castaing Award from the Microanalysis Society, Purdue EAP Outstanding Graduate Student, Krockover Award for Contributions to Education and Public Outreach

Post-Docs Advised:

2022 - Present Dr. Nicolas Bott

Undergraduate Students Advised:

2022 - Present Daniel Garcia
2022 - Present Kasidi Lowry
2021 - Present Victor Mosqueda
2021 - 2022 Brody Conner
2020 - 2021 Maizey Benner
2020 Amina Patterson
2019 Phoebe Kinzelman
2018 - 2019 Madison McGlaun

Student Committees:

2021 - Present Melissa Cashion, PhD Program
2021 - Present Hunter Vannier, PhD program
2021 - Present Tai-Jan (Ted) Huang, PhD program (Materials Science)
2021 - Present Moshammat Mijjum, PhD program
2020 - Present Disha Ohkai, PhD program
2019 - Present Amanda Rudolph, PhD program
2019 - Present Brad Garczynski, PhD program
2019 - 2021 Jennifer Pouplin, PhD program
2021 Marie Henderson, PhD
2018 Sheridan Ackiss, PhD
2018 Kevin Graves, PhD

CURRENT AND FORMER SUPPORT

NASA Solar System Workings Program, 2023

Title: *An Experimental Investigation of Space Weathering Processes on the Surface of Mercury*

PI: Michelle Thompson

Value: \$1,317,913

NASA Laboratory Analysis of Returned Samples Program, 2022

Title: *Carbon Tracers of Geologic Activity in Samples from Asteroid Bennu: Origins and Relationship of Carbonate and Organic Phases*

PI: Kelly Miller

Role: Co-I

Value: \$71,783

Participation in NASA OSIRIS-REx Mission, 2021-2024

PI: Dante Lauretta

Role: Co-I

Value: \$210,488

NASA Solar System Workings Program, 2022

Title: *Space Weathering of Carbonaceous Asteroid Analogs: Separating Laboratory Curiosities from Systematic Trends*

PI: Mark Loeffler

Role: Co-I

Value: \$174,054

NASA Laboratory Analysis of Returned Samples Planetary Major Equipment Program, 2021

Title: *Development of a Next-Generation Scanning-Transmission Electron Microscope and Associated Techniques: Preparing for the Coordinated Analysis of OSIRIS-REx, Hayabusa2, and MMX Samples*

PI: Lindsay Keller

Role: Co-I

NASA Future Investigators in NASA Earth, Space Science, and Technology, 2021

Title: *Investigating space weathering of carbon-rich asteroidal regolith through experimental simulations and returned sample analysis*

PI: Michelle Thompson

Future Investigator: Dara Lacznia

Value: \$135,000

NASA Future Investigators in NASA Earth, Space Science, and Technology, 2020

Title: *Investigating the Role of Sulfides and Fe-Oxides in the Space Weathering of Asteroidal Regoliths*

PI: Michelle Thompson

Future Investigator: Laura Chaves

Value: \$135,000

NASA Solar System Workings Program, 2020

Title: *Investigating the Role of Sulfides and Fe-Oxide Minerals in the Space Weathering of Asteroidal Regoliths*

PI: Michelle Thompson

Value: \$466,381

NASA Early Career Fellowship, 2020

Title: *Laboratory studies of the Evolution of Airless Planetary Surfaces (LEAPS)*

PI: Michelle Thompson

Value: \$99,917

NASA Solar System Workings Program, 2019

Title: *Quantifying Solar Wind-Derived Water in Space Weathered Lunar Soils*

PI: Michelle Thompson

Value: \$599,015

Purdue Instructional Equipment Grant Program, 2019

Title: *Enabling Active Learning Across the Curriculum with a Tabletop Scanning Electron Microscope*

PI: Michelle Thompson

Value: \$135,000

NASA Planetary Mission Concept Studies, 2019

Title: *Mercury Lander*

PI: Carolyn Ernst

Role: Collaborator

Value: \$1,436

NASA Laboratory Analysis of Returned Samples Program, 2019

Title: *Combining Novel Experimental Techniques with Returned Sample Analyses to Better Understand the Space Weathering of Planetary Surfaces*

PI: Michelle Thompson

Value: \$348,662

NASA Apollo Next Generation Sample Analysis Program, 2019

Title: *Consortium for the Advanced Analysis of Apollo Samples*

PI: Charles Shearer

Role: Co-I

Value: \$190,148

NASA Solar System Workings Program, 2018

Title: *An Experimental Investigation of Space Weathering Processes of Regoliths on Primitive Carbonaceous Asteroids*

PI: Michelle Thompson

Value: \$636,818

NASA Postdoctoral Program Fellowship, 2016

Title: *Understanding Space Weathering of Carbonaceous Asteroids: Analysis of Experimental Analog Samples in Preparation for Results from Dawn at Ceres, and the OSIRIS-REx and Hayabusa2 Sample Return Missions*

PI: Michelle Thompson

PENDING SUPPORT

NASA Solar System Exploration Research Virtual Institute

Title: *Research Activities Supporting Science and Lunar Exploration (RASSLE)*

PI: Dana Hurley

Role: Co-I

Value: \$519,937

NASA Solar System Exploration Research Virtual Institute

Title: *SAMPLE: Sample Analysis of Materials in Preparation for Lunar Exploration*

PI: Steve Elardo

Role: Co-I

Value: \$574,496

NASA Apollo Next Generation Sample Analysis 2 Program

Title: *Investigating KREEP through studies of pristine lavas, plutonic rocks and impact materials from the Moon*

PI: Clive Neal

Role: Co-I

Value: \$320,070

SELECTED SAMPLE PROPOSALS

Hayabusa2 Sample Proposal, Japanese Aerospace Exploration Agency (JAXA)

Understanding Space Weathering of Samples from Asteroid Ryugu

PI: Michelle Thompson, 2 particles awarded

Lunar Sample Proposal, NASA

Quantifying Water in Space Weathered Lunar Soils

PI: Michelle Thompson, 3 lunar soils awarded

Hayabusa Sample Proposal, Japanese Aerospace Exploration Agency (JAXA)

Understanding the Microstructural and Chemical Signatures of Space Weathering in Sulfide Minerals

PI: Michelle Thompson, 5 particles awarded

PUBLIC OUTREACH

2019 - 2022	Volunteer Speaker on Topics in Space Exploration for 120 high school students at Cobourg Collegiate Institute
2022	Coordinator for 8-week Public Outreach Program serving 100 kids weekly, Boys and Girls Club of Lafayette
2019	Speaker for Purdue Undergraduate Research Program
2017 - 2019	Volunteer for Letters to a Pre-Scientist Program which serves low-income elementary school children
2012 - Present	Volunteer Speaker for Careers in Science, low-income and rural schools in the US and Canada
2017	Volunteer Speaker for Careers in the Geosciences, University of Toronto
2016	Volunteer Speaker for Space Drafts: Public Lecture Series
2015	Volunteer for the Art of Planetary Science Event, LPL
2015	Volunteer for Bennuval: An Evening of Space, Art, and Music
2012 - 2015	Presentation on Careers for Women in Science Flandrau Science Center, AZ, and CDCI West High School, ON, Canada
2014	Presentation on Careers in Science for at-risk youth in Tucson
2013	Coordinator for the Starlight Science Cinema with the College of Science at UA
2012 - Present	OSIRIS-REx Mission Ambassador
2012	Volunteer for Science Downtown Student Enrichment Activities
2011	Founder: Geology Help Center for Undergrad Tutoring, Queen's University

MEDIA AND PUBLIC ARTICLES

"NASA Mission that could Save Humanity" ABC News

URL: <https://abcnews.go.com/US/video/nasa-mission-save-humanity-90348356>

"Analysis of Returned Samples from Asteroid Itokawa Shows that Sulfides and Silicates Respond Differently to Space Weathering" Lunar and Planetary Institute, Planetary News

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