

Dr. Alexander Sehlke

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Summary

Position and Focus: Planetary scientist at NASA Ames Research Center, specializing in the scientific exploration of the solar system through returned sample analyses, fieldwork, space flight hardware development, and NASA-led science exploration missions. Serving as Principal Investigator (PI) and Co-Investigator (Co-I) on multiple research awards funded by NASA's Science Mission Directorate (SMD).

Publications and Presentations: Author of 30 peer-reviewed papers in international scientific journals and over 100 scientific abstracts presented at prestigious international conferences such as the American Geophysical Union (AGU), Lunar and Planetary Science Conference (LPSC), Meteoritical Society (MetSoc), among others.

Conference Leadership: Science organization co-chair of an international conference, with experience in chairing, co-chairing, and moderating sessions at other international scientific conferences.

Peer Review and Panels: Peer reviewer for high-impact international scientific journals and participant in NASA review panels, serving roles such as Executive Secretary, External Reviewer, Panelist, and Panel Chief.

Teaching and Mentoring: Extensive experience in teaching and mentoring students at high school, undergraduate, and graduate levels.

Current Position

- Research Scientist at NASA Ames Research Center, contracting through the Bay Area Environmental Research Institute, Moffett Field, CA 94035

Education

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|-------------|---|---------------------|
| PhD | University of Missouri, Columbia MO , Geological Sciences
• Minor in College Science Teaching | Jan 2011 – Dec 2015 |
| Dipl | Leibniz Universitaet Hannover, Germany , Geosciences
• Minor in Material Sciences | Oct 2005 – Dec 2010 |

Professional Appointments

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|--|---|
| NASA Ames Research Center/ BAER Institute , Research Scientist
• <i>Apollo Lunar Sample Analysis</i> : Addressing outstanding questions in lunar science and preparing for the analyses of samples returned by NASA's Artemis missions.
• <i>Space-Flight Instrument Testing and Development</i> : Developing and testing instruments for human and robotic exploration missions.
• <i>NASA VIPER Mission</i> : Serving as Instrument Scientist for the Volatiles Investigating Polar Exploration Rover (VIPER) mission.
• <i>NASA Ames Vertical Gun Range</i> : Science PI overseeing the scientific direction of one of NASA's prestigious experimental facilities. | Moffett Field, CA, USA
Jan 2019 – present |
| NASA Ames Research Center/ USRA , Postdoctoral Researcher
• Planetary Analog Research: Volcanic Terrains on Earth as Analogs for the Moon and Mars | Moffett Field, CA, USA
Feb 2016 – Jan 2019 |

- Instrument Development for Human Space Exploration Missions

Awards and Honors

NASA Ames Honor Award

- Contractor Employee in 2020
- Partnership RESOURCE Research Program in 2020
- Team/Group BASALT Research Program in 2020
- Team/Group FINESSE Research Program in 2018

Publications

Cold Trap Prospecting on the Moon: Theory and Insights from Low Temperature Thermoluminescence of Lunar Regolith. 2024

A Sehlke, D Sears, and the ANGSA Science Team
Icarus, in review

Asteroid 2024 BX1 Returns Sample of a Wet Magma Ocean 2024

C Hamann, P Jenniskens, R Luther, A van den Neucker, A Greshake, and with ' **A Sehlke** ' among 92 other international co-authors'
Science, in review

Geomorphological evidence of near-surface ice at candidate landing sites in northern Amazonis Planitia, Mars 2024

E Luzzi, JL Heldmann, K Williams, G Nodjoumi, A Deutsch, **A Sehlke**
JGR Planets, in review

Thermoluminescence and Apollo 17 ANGSA lunar samples: NASA's fifty-year experiment and prospecting for cold traps 2024

DWG Sears, **A. Sehlke**, HH Schmitt, and the ANGSA Science Team
Journal of Geophysical Research: Planets, Volume 129(4), in press

Apollo Next Generation Sample Analysis (ANGSA): An Apollo Participating Scientist Program to Prepare the Lunar Sample Community for Artemis 2024

CK Shearer, FM McCubbin, S Eckley, SB Simon, A Meshik, F McDonald, HH Schmitt, RA Zeigler, J Gross, J Mitchell, C Krysher, RV Morris, R Parai, BL Jolliff, JJ Gillis-Davis, K Joy, SK Bell, P Lucey, L Sun, Z Sharp, C Dukes, **A Sehlke**, A Mosie, J Allton, C Amick, JI Simon, TM Erickson, JJ Barnes, MD Dyar, K Burgess, N Petro, D Moriarty, NM Curran, JE Elsila, RA Colina-Ruiz, T Kroll, D Sokaras, HA Ishii, JP Bradley, D Sears, B Cohen, O Pravdivseva, MS Thompson, CR Neal, R Hanna, R Ketcham, K Welten, and the ANGSA Science Team
<https://doi.org/10.1007/s11214-024-01094-x> (Space Science Review, Volume 220:62)

Synthetic analogs for lava flows on the surface of Mercury: A mid-infrared study 2024

A Morlok, **A Sehlke**, AN Stojic, AG Whittington, I Weber, MP Reitze, Hiesinger H, Helbert J.
<https://doi.org/10.1016/J.ICARUS.2024.116078> (Icarus, Volume 415)

The Apollo 17 Regolith: Induced Thermoluminescence Evidence for Formation by a Single Event ~100 Million Years Ago and Possibly the Presence of Tycho Material 2024

A Sehlke, DWG Sears, and the ANGSA Science Team
<https://doi.org/10.1029/2023JE008083> (Journal of Geophysical Research: Planets, Volume 129(4))

- Average VNIR reflectance: A rapid, sample-free method to estimate glass content and crystallinity of fresh basaltic lava** 2022
E Rader, S Ackiss, **A Sehlke**, J Bishop, B Orrill, K Odegard, M Meier, A Doloughan
<https://doi.org/10.1016/j.icarus.2022.115084> (Icarus, Volume 383)
- Ejecta blocks around the Kings Bowl phreatomagmatic crater in Idaho: An indication of subsurface water amounts with implications for Mars** 2022
DWG Sears, **A Sehlke**, SS Hughes, S Kobs-Nawotniak
[10.1016/j.pss.2022.105564](https://doi.org/10.1016/j.pss.2022.105564) (Planetary and Space Science, Volume 222)
- Spontaneous reheating of crystallizing lava** 2021
AG Whittington, **A Sehlke**
[10.1130/g49148.1](https://doi.org/10.1130/g49148.1) (Geology, Volume 49 Issue 12)
- The impact and recovery of asteroid 2018 LA** 2021
P Jenniskens, M Gabbardirwe, QZ Yin, A Proyer, O Moses,
and with '**A Sehlke**' among 61 other international co-authors'
<https://doi.org/10.1111/maps.13653> (Meteoritics & Planetary Science, Volume 56, Issue 4)
- Induced thermoluminescence as a method for dating recent volcanism: The Blue Dragon flow, Idaho, USA and the factors affecting induced thermoluminescence** 2021
DWG Sears, **A Sehlke**, SS Hughes
<https://doi.org/10.1016/j.pss.2020.105129> (Planetary and Space Science, Volume 195)
- Basaltic fissure types on Earth: Suitable analogs to evaluate the origins of volcanic terrains on the Moon and Mars?** 2020
SS Hughes, WB Garry, **A Sehlke**, EH Christiansen, SE Kobs Nawotniak, DWG Sears,
RC Elphic, DS Lim, JL Heldmann
[10.1016/J.PSS.2020.105091](https://doi.org/10.1016/J.PSS.2020.105091) (Planetary and Space Science, Volume 193)
- Thermal properties of glassy and molten planetary candidate lavas** 2020
A Sehlke, AM Hofmeister, AG Whittington
<https://doi.org/10.1016/J.PSS.2020.105089> (Planetary and Space Science, Volume 193)
- Rheology of a KREEP Analog Magma: Experimental Results Applied to Dike Ascent through the Lunar Crust** 2020
A Sehlke, AG Whittington
<https://doi.org/10.1016/j.pss.2020.104941> (Planetary and Space Science, Volume 187)
- Microbial community distribution in variously altered basalts: Insights into astrobiology sample site selection** 2020
A Brady, E Gibbons, **A Sehlke**, C Renner, S Kobs Nawotniak, D Lim, G Slater
[10.1016/j.pss.2020.105107](https://doi.org/10.1016/j.pss.2020.105107) (Planetary and Space Science, Volume 194)
- The rheology of crystallizing basaltic lavas from Nyiragongo and Nyamuragira volcanoes, D.R.C.** 2020
A Morrison, AG Whittington, B Smets, M Kervyn, **A Sehlke**
<https://doi.org/10.30909/vol.03.01.0128> (Volcanica, Volume 3 Issue 1)
- A Low-Diversity Microbiota Inhabits Extreme Terrestrial Basaltic Terrains and Their Fumaroles: Implications for the Exploration of Mars** 2019

- C Cockell, J Harrison, A Stevens, S Payler, S Hughes, S Kobs Nawotniak, A Brady, R Elphic, C Haberle, **A Sehlke**, K Beaton, A Abercromby, P Schwendner, J Wadsworth, H Landenmark, R Cane, A Dickinson, N Nicholson, L Perera, D Lim
[10.1089/ast.2018.1870](https://doi.org/10.1089/ast.2018.1870) (Astrobiology, Volume 19 Issue 3)
- Opportunities and Challenges of Promoting Scientific Dialog throughout Execution of Future Science-Driven Extravehicular Activity** 2019
 SE Kobs Nawotniak, MJ Miller, AH Stevens, JJ Marquez, SJ Payler, AL Brady, SS Hughes, CW Haberle, **A Sehlke**, KH Beaton, SP Chappell, RC Elphic, DSS Lim
[10.1089/ast.2018.1901](https://doi.org/10.1089/ast.2018.1901) (Astrobiology, Volume 19 Issue 3)
- The BASALT Research Program: Designing and Developing Mission Elements in Support of Human Scientific Exploration of Mars** 2019
 D Lim, A Abercromby, S Kobs Nawotniak, D Lees, M Miller, A Brady, Z Mirmalek, **A Sehlke**, S Payler, A Stevens, C Haberle, K Beaton, S Chappell, S Hughes, C Cockell, R Elphic, M Downs, JL Heldmann
[10.1089/ast.2018.1869](https://doi.org/10.1089/ast.2018.1869) (Astrobiology, Volume 19 Issue 3)
- Basaltic Terrains in Idaho and Hawai'i as Planetary Analogs for Mars Geology and Astrobiology** 2019
 S Hughes, C Haberle, S Kobs Nawotniak, **A Sehlke**, W Garry, R Elphic, S Payler, A Stevens, C Cockell, A Brady, JL Heldmann, D Lim
[10.1089/ast.2018.1847](https://doi.org/10.1089/ast.2018.1847) (Astrobiology, Volume 19 Issue 3)
- Strategic Planning Insights for Future Science-Driven Extravehicular Activity on Mars** 2019
 A Brady, S Kobs Nawotniak, S Hughes, S Payler, A Stevens, C Cockell, R Elphic, **A Sehlke**, C Haberle, G Slater, D Lim
[10.1089/ast.2018.1850](https://doi.org/10.1089/ast.2018.1850) (Astrobiology, Volume 19 Issue 3)
- Requirements for Portable Instrument Suites during Human Scientific Exploration of Mars** 2019
A Sehlke, Z Mirmalek, D Burt, CW Haberle, D Santiago-Materese, SE Kobs Nawotniak, SS Hughes, WB Garry, N Bramall, AJ Brown, JL Heldmann, DSS Lim
[10.1089/ast.2018.1841](https://doi.org/10.1089/ast.2018.1841) (Astrobiology, Volume 19 Issue 3)
- Induced thermoluminescence as a method for dating recent volcanism: Hawaii County, Hawaii, USA** 2018
 DWG Sears, H Sears, **A Sehlke**, SS Hughes
[10.1016/j.jvolgeores.2017.09.022](https://doi.org/10.1016/j.jvolgeores.2017.09.022) (Journal of Volcanology and Geothermal Research, Volume 349)
- X-ray computed tomography of extraterrestrial rocks eradicates their natural radiation record and the information it contains** 2018
 DWG Sears, **A Sehlke**, JM Friedrich, ML Rivers, DS Ebel
[10.1111/maps.13183](https://doi.org/10.1111/maps.13183) (N/A, Volume 53 Issue 12)
- Induced thermoluminescence as a method for dating recent volcanism: Eastern Snake River Plain, Idaho, USA** 2017
 DWG Sears, H Sears, **A Sehlke**, S Hughes
[10.1002/2016JB013596](https://doi.org/10.1002/2016JB013596) (Journal of Geophysical Research: Solid Earth, Volume 122 Issue 2)
- Transport properties of glassy and molten lavas as a function of temperature and composition** 2016

- A Hofmeister, **A Sehlke**, G Avar, A Bollasina, G Robert, AG Whittington
[10.1016/j.jvolgeores.2016.08.015](https://doi.org/10.1016/j.jvolgeores.2016.08.015) (Journal of Volcanology and Geothermal Research, Volume 327)
- The viscosity of planetary tholeiitic melts: A configurational entropy model** 2016
A Sehlke, AG Whittington
[10.1016/j.gca.2016.07.027](https://doi.org/10.1016/j.gca.2016.07.027) (Geochimica et Cosmochimica Acta, Volume 191)
- Field and experimental constraints on the rheology of arc basaltic lavas: the January 2014 Eruption of Pacaya (Guatemala)** 2016
A Soldati, **A Sehlke**, G Chigna, AG Whittington
[10.1007/s00445-016-1031-6](https://doi.org/10.1007/s00445-016-1031-6) (Bulletin of Volcanology, Volume 78 Issue 6)
- Rheology of lava flows on Mercury: An analog experimental study** 2015
A Sehlke, AG Whittington
[10.1002/2015JE004792](https://doi.org/10.1002/2015JE004792) (Journal of Geophysical Research E: Planets, Volume 120 Issue 11)
- Thermal diffusivity of Fe-rich pyroxene glasses and their melts** 2014
A Hofmeister, **A Sehlke**, AG Whittington
[10.1016/j.chemgeo.2014.06.018](https://doi.org/10.1016/j.chemgeo.2014.06.018) (Chemical Geology, Volume)
- Textural and rheological evolution of basalt flowing down a lava channel** 2014
B Robert, AJ Harris, L Gurioli, E Médard, **A Sehlke**, AG Whittington
[10.1007/s00445-014-0824-8](https://doi.org/10.1007/s00445-014-0824-8) (Bulletin of Volcanology, Volume 76 Issue 6)
- Pahoehoe to a'a' transition of Hawaiian lavas: An experimental study** 2014
A Sehlke, AG Whittington, B Robert, AJ Harris, L Gurioli, E Médard
[10.1007/s00445-014-0876-9](https://doi.org/10.1007/s00445-014-0876-9) (Bulletin of Volcanology, Volume 76 Issue 11)

First-Author Abstracts and Presentations

- Glimmerings in the Cold and Dark: Thermoluminescence of Lunar Regolith at Cryogenic Temperatures for Cold Trap Prospecting** 2024
A Sehlke, DWG Sears
NASA Exploration Science Forum held at Washington University in St. Louis, MO, USA
- Update on the Near Infrared Volatiles Spectrometer System (NIRVSS) Instrument on the Volatiles Investigating Polar Exploration Rover (VIPER) Mission: Calibration and Surface Operations** 2024
A Sehlke, A Colaprete, K Ennico-Smith, S Gyalay, E Noe Dobrea, TL Roush, JE Benton, R Bielawski, M Chin, J Connally, A Cook, L Ellingson, JB Forcione, DT Hoang, V Jha, A Rademacher, F Renema, EJ Talle, B White, C Youngquist, T Colaprete, and the VIPER Science Team
NASA Exploration Science Forum held at Washington University in St. Louis, MO, USA
- The Apollo 17 Regolith: Induced Thermoluminescence Evidence for Formation by a Single Event 100 Million Years Ago and Possibly the Presence of Tycho Material** 2024
A Sehlke, DWG Sears, ANGSA Science Team
55th Lunar and Planetary Science Conference, Abstract Nr. 2536
- Lunar Regolith Thermoluminescence Glow Curve Fitting to Extract Its Most Important Kinetic Parameters.** 2023

- A Sehlke**, DWG Sears, ANGSA Science Team
54th Lunar and Planetary Science Conference, Abstract Nr. 1870
- New Model to Calculate Lava Viscosity During Disequilibrium Crystallization for a Wide Range in Cooling and Strain Rates** 2023
A Sehlke, AWG Whittington
54th Lunar and Planetary Science Conference, Abstract Nr. 2677
- Thermal Histories of Lunar Cold Traps: Prospecting for Volatiles by Thermoluminescence.** 2022
A Sehlke, DWG Sears
Lunar Polar Volatiles Conference, LPI Contrib. Nr. 5024
- A Fifty-Year Experiment, the Natural TL Kinetics of Apollo 17 Regolith, and Prospecting for Water and Other Volatiles on the Moon** 2022
A Sehlke, DWG Sears, ANGSA Science Team
53rd Lunar and Planetary Science Conference, LPI Contrib. Nr. 2030
- THEIA — A Thermal History Exploration Instrument for Artemis** 2022
A Sehlke, DWG Sears, JL Heldmann
Annual Meeting of the Lunar Exploration Analysis Group, Abstract Nr. 5005
- In-Situ Thermoluminescence Measurements on the Moon Using THEIA - Thermal History Exploration Instrument for Artemis** 2022
A Sehlke, DWG Sears, JL Heldmann
NASA Exploration Science Forum held at the University of Colorado, Boulder CO, USA
- Five Decades of Thermoluminescence Studies on Lunar Samples: First Results of NASA's Unique 46-Year Experiment and Implications for Resource Prospecting on the Moon** 2022
A Sehlke, DWG Sears, ANGSA Science Team
53rd Lunar and Planetary Science Conference, Abstract Nr. 1267
- High-Temperature Rheology Measurements on Planetary Analog Magmas and Lavas** 2022
A Sehlke, DWG Sears, ANGSA Science Team
53rd Lunar and Planetary Science Conference, Abstract Nr. 1171
- Lava Surface Roughness and Morphologies: A New Remote-Sensing Method To Estimate Physical Properties of Lava Flows on Earth, the Moon and Mars** 2021
A Sehlke, J Leija, SE Kobs Nawotniak
Workshop on Terrestrial Analogs for Planetary Exploration
- Natural Thermoluminescence of Lunar Samples: Review and Update** 2021
A Sehlke, DWG Sears, ANGSA Science Team
52nd Lunar and Planetary Science Conference, Abstract Nr. 2548
- A luminescence-based Instrument to Explore the History and Nature of the Lunar Surface** 2020
A Sehlke, DWG Sears
American Geophysical Union 2020 Fall Meeting. Abstract Nr. V013-0006
- Looking Backwards to Look Forward: A Fifty-Year Experiment in the Kinetics of Thermoluminescence of Lunar Samples and the Apollo Next Generation Sample Analysis Program (ANGSA)** 2020

A Sehlke, DWG Sears, ANGSA Science Team

51st Lunar and Planetary Science Conference, Abstract Nr. 1148

Thermal Properties of Glassy and Molten Planetary Candidate Lavas.

2019

A Sehlke, AM Hofmeister, AG Whittington

American Geophysical Union Annual Fall Meeting

Requirements for portable instrument suites during human scientific exploration of Mars

2018

A Sehlke, Z Mirmalek, D Burt, CW Haberle, D Santiago-Materese, SE Kobs Nawotniak, SS Hughes, WB Garry, N Bramall, AJ Brown, JL Heldmann, DSS Lim

NASA Exploration Science Forum held at NASA Ames Research Center, Moffett Field CA, USA

Invited Talks, Lectures and Presentations

Requirements for Handheld VNIR and XRF Instruments during Human Exploration Missions.

2022

Lunar Petrology and Landed Instrument Interchange Workshop

NASA Jet Propulsion Laboratory, Pasadena CA, USA

Exploration of our Solar System: Earth-based Science Investigations in Preparation for NASAs Moon to Mars Campaign. Graduate Student Seminar.

2021

Graduate Student Seminar (virtual)

Department of Geological Science, University of Texas at San Antonio, USA

Rheological and Thermal Evolution of Magmatic Systems: Insights into the Volcanic Past of our Solar System.

2020

Speaker Seminar Series

Department of Earth and Planetary Sciences, University of California - Santa Cruz CA, USA

Rheological and Thermal Evolution of Magmatic Systems: Insights into the Volcanic Past in our Solar System

2019

Keynote at GeoMünster Conference

Münster, Germany

Anatomy of the Blue Dragon: Changes in Lava Flow Morphology and Physical Properties Observed in an Open Channel Lava Flow as a Planetary Analogue.

2017

Geological Society of America Annual Meeting

Seattle WA, USA

Designing Future Human Spaceflight

2017

Keynote at Sensors Expo 2017

San Jose CA, USA

Straight outta morphologies: Understanding the magmatic history of lava terrains on Earth and other rocky worlds in our Solar System

2017

Speaker Seminar Series

Department of Geological Sciences, San Jose State University, San Jose CA, USA

The morphological transition from pāhoehoe to āā of basaltic lavas: Combining field studies and experimental work to interpret the volcanic past on Earth and other planets and moons.

2017

Interviews and Mentions in Media

The Secrets of Moondust

July 2019

written by Marina Koren (The Atlantic Staff Writer)

[The Atlantic](#) 

NASA's lassoing of moon's potential for future use starts with a trove of rocks

Mar 2019

written by Peter Fimrite (Science and Environment Reporter)

[San Francisco Chronicle \(Front Page, continued on pg. A8\)](#) 

Research Awards and Funding

The Ames Vertical Gun Range

Oct 2024 – Sept 2028

- NASA ROSES Planetary Science Enabling Facilities Program \$1,567,144
- PI: Chuck Cornelison, Science PI: Alexander Sehlke

1-Year Funded Extension, Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.

Apr 2022 – Mar 2023

- NASA ROSES Science Mission Directorate Single-Source - By invitation only (2022), \$113,000
- PI: Alexander Sehlke, Co-I: Derek WG Sears

1-Year Funded Extension, Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.

Apr 2021 – Mar 2022

- NASA ROSES Apollo Next Generation Sample Analysis (ANGSA) Program, \$103,359
- PI: Alexander Sehlke, Co-I: Derek WG Sears

THEIA: Thermal History Exploration Instrument for Artemis

Oct 2020 – Sept 2021

- NASA Ames Research Center Innovation Funds, \$41,000
- PI: Jennifer Heldmann, Co-Is: Alexander Sehlke, Derek WG Sears

Resources for Exploration & Science of OUR Cosmic Environment (RESOURCE)

Feb 2020 – Jan 2025

- NASA Solar System Exploration Virtual Research Institute (SSERVI), \$7,452,467
- PI: Jennifer Heldmann, Deputy PIs: Alexander Sehlke, Matthew Deans, Co-Is: 16 across academia, federal agencies and private sector

Thermoluminescence Studies on Frozen Apollo 17 Samples: Temperature Estimates of Shaded and Illuminated Lunar Surfaces.

Apr 2019 – Mar 2022

- NASA ROSES Apollo Next Generation Sample Analysis (ANGSA) Program, \$348,050
- PI: Alexander Sehlke, Co-I: Derek WG Sears

Fast and/or Furious? Nature and Emplacement History of Lavas Erupted on Mars

May 2019 – Apr 2022

- NASA ROSES Solar System Workings (SSW) Program, \$490,705
- PI: Alexander Sehlke, Co-I: Alan G Whittington

IceCrystal: Portable instrument protocol to delineate ancient ice and water on Mars using microcrystallinity of volcanic products

Oct 2018 – Sept 2021

- NASA ROSES Planetary Science and Technology from Analog Research (PSTAR)

Program, \$874,012

- PI: Erika Rader, Co-Is: Alexander Sehlke, Janice Bishop

NASA Postdoctoral Fellowship 3rd-Year Extension

Feb 2018 – Jan 2019

- NASA ROSES Postdoctoral Program (NPP), \$86,866
- PI: Alexander Sehlke, Co-Is: Jennifer Heldmann, Darlene SS Lim

NASA Orbit to Core Research Grant

July 2018 – June 2019

- NASA Ames Research Center Funds, \$2,800
- PI: Alexander Sehlke

NASA Postdoctoral Fellowship

Feb 2016 – Jan 2018

- NASA ROSES Postdoctoral Program (NPP), \$149,248
- PI: Alexander Sehlke, Co-Is: Jennifer Heldmann, Darlene SS Lim

Teaching Experience

University of Missouri - Columbia MO, USA

2011 – 2015

- 2015 Course Instructor - The Moon. Undergraduate
- 2015 Teaching Assistant - Regional Geology Field Course. Undergraduate
- 2014 Teaching Assistant/Lab Experiments - Igneous Petrology. Graduate
- 2013 Teaching Assistant - Mineralogy. Undergraduate
- 2012 Teaching Assistant - Mineralogy. Undergraduate
- 2011 Teaching Assistant - Mineralogy. Undergraduate

Mentoring Experience

NASA Internship mentoring at NASA Ames Research Center

- Summer 2024 (virtual), Arjun Prem, Summit Tahoma Highschool, San Jose CA, USA
- Summer 2024, Jordan Baden, Undergraduate at University of California, Santa Cruz CA, USA
- Summer 2023, Adriana Ariza Pardo, Graduate at UT San Antonio TX, USA
- Spring 2021, Iyare Oseghae. Undergraduate at UT San Antonio TX, USA
- Fall 2020 (virtual), Brianna Orrill, Undergraduate at Arizona State University AZ, USA
- Fall 2020 (virtual), Javier Leija, Undergraduate at Sam Houston University TX, USA
- Summer 2018, Caleb Renner, Undergraduate at Idaho State University ID, USA
- Spring 2017, David Burt, Undergraduate at Whitman College WA, USA

Technology and Inventions

THEIA - Thermal History Exploration Instrument for Artemis: Instrument prototype to enable thermoluminescence measurements on the lunar surface via robotic or human exploration missions. Technology Readiness Level (TRL) is 4. Invention is submitted to NASA's *New Technology Reporting (NTR) System*, with e-NTR Number 1684365045.

Community Service

Peer Review Assignments: Manuscripts

2015 – present

- International scientific journals, such as * Journal Geothermal Research, Frontiers in Earth Science, Journal of Volcanology and Geophysical Research, Earth and Planetary Science Letters, Icarus, American Ceramic Society

Peer Review Assignments: NASA Research Proposals	2016 – present
<ul style="list-style-type: none"> • Several NASA Research Opportunities in Space and Earth Science (ROSES) program proposals, once or twice per fiscal year. Served as Executive Secretary, Panelist, and Panel Chair. 	
ExMASS (Exploration of the Moon and Asteroids by Secondary Students) Science Advisor	Oct 2023 – July 2024
<ul style="list-style-type: none"> • Logos Charter School, Medford OR, USA - virtual 	
ExMASS (Exploration of the Moon and Asteroids by Secondary Students) Science Advisor	Oct 2022 – July 2023
<ul style="list-style-type: none"> • Logos Charter School, Medford OR, USA - virtual 	
Silicon Valley Comic Con, San Jose CA, USA	July 2019
<ul style="list-style-type: none"> • Panel Discussion on <i>The Artemis Generation: NASA's Journey Forward to the Moon</i>. 	
Fremont Peak Observatory, San Juan Bautista CA, USA	Aug 2017
<ul style="list-style-type: none"> • Volcanism on terrestrial planets and moons across our solar system 	