

EMPLOYMENT

- **Planetary Astronomer & Archivist** at the [SETI Institute](#)
 - December 2023 - Present
 - Deputy Manager of the [Ring-Moon Systems \(RMS\) Node](#) of NASA's [Planetary Data System \(PDS\)](#)
 - Primary Manager: [Matt Tiscareno](#)

EDUCATION

- **Ph.D in Earth & Planetary Sciences** from [UC Santa Cruz](#)
 - September 2016 - November 2022
 - Primary Advisor: [Ian Garrick-Bethell](#)
- **B.S. in Physics** from [UC Santa Barbara](#)
 - September 2012 - June 2016
 - Graduated with Honors

RESEARCH EXPERIENCE

- **Lunar paleomagnetism at UC Santa Cruz**
 - March 2017 - November 2022
 - Working with [Ian Garrick-Bethell](#), I investigated the cause of lunar crustal magnetic anomalies associated with lunar swirls using gravity, reflectivity, and topography datasets.
 - Tools included Python and MATLAB, skills included mapping, finite difference methods, and image processing.
- **Orbital dynamics at UC Santa Cruz**
 - April 2018 - May 2019
 - Working with [Francis Nimmo](#), I investigated how the Moon's past magma ocean affected the evolution of the Earth-Moon system.
 - Tools included Python, skills included finite difference methods.
- **Seismic tomography at UC Santa Cruz**
 - September 2016 - March 2018
 - Working with [Thorne Lay](#), I studied earthquakes that could image large low shear velocity provinces in the deep mantle.
 - Tools included SAC (Seismic Analysis Code) and Python, and skills included signal processing.
- **Volcano seismology at UC Santa Barbara**
 - October 2015 - October 2017
 - Working with [Robin Matoza](#), I investigated the infrasonic component of eruption tremor by cross-correlating seismic and acoustic signals in volcanic eruption data.
 - Tools included Python and MATLAB, and skills included signal processing and spectral analysis.
- **Astrophysics at UC Santa Barbara**
 - October 2014 - July 2016
 - Working with [Benjamin Mazin](#), I investigated the low-period cutoff of irregular W Ursae Majoris contact binary star systems using Python-based analysis methods.
 - Tools included Python.
- **Astronomy instrumentation at Caltech ([LIGO Lab](#))**
 - Summer 2015
 - Working with [Rana Adhikari](#) and [Kate Dooley](#), I prototyped a tilt-free seismometer to be used in LIGO's seismic isolation systems.
 - Skills included optics laboratory work and machine shop work.
- **Condensed matter physics at Los Alamos National Laboratory (NMFLL)**
 - Summer 2014, Summer 2013
 - Working with [Scott Crooker](#), I investigated the effect of magnetic fields on the photoconductivity of organic photovoltaics and the electroluminescence of organic light-emitting diodes.
 - Tools included LABVIEW, and skills included optics laboratory work and machine shop work.
- **Nuclear chemistry at Los Alamos National Laboratory (AOT Division)**
 - June 2011 - September 2012
 - Working with [Gregory Dale](#) and [Michele Decroix](#), I developed a mathematical model to study the production of the medical radioisotope Mo-99.
 - Tools included Mathematica.

SKILLS

- **Programming languages**
 - Python including matplotlib, scipy, numpy, and scikit-image
 - MATLAB
- **Productivity tools**
 - Microsoft Office Suite
 - Adobe Illustrator
 - Procreate
 - LaTeX/Overleaf

HONORS & AWARDS

- March 2018: Career Development Award, Lunar & Planetary Institute
- April 2017: Honorable Mention, DOE Computational Sciences Graduate Fellowship
- Fall 2016: Regents Graduate Fellowship, US Santa Cruz
- Fall 2012 - Spring 2016: [Regents Scholarship](#), UC Santa Barbara
- May 2015 & June 2016: [Physics Circus Award](#), UC Santa Barbara Physics Department

TEACHING

- **The Dynamic Earth (EART 110C) at UC Santa Cruz**
 - Spring 2023 for Prof. Ian Garrick-Bethell — 75 students, two additional TA's
 - An upper-division laboratory class that focuses on physical processes including plate tectonics, structural deformation of rocks, and material and heat transport.
 - Duties included setting up and teaching two laboratories per week, holding office hours, and grading labs, homework sets, and exams.
- **Planetary Science (EART 160) at UC Santa Cruz**
 - Fall 2021 and 2020 for Prof. Ian Garrick-Bethell — 60 students, no additional TA's
 - An upper-division introduction to planetary science, including surfaces, atmospheres, and interiors of planets, satellites, and small bodies.
 - Duties included holding office hours and grading research papers, homework sets, and exams.
- **Introductory Computer Programming for Geoscientists (EART 119) at UC Santa Cruz**
 - Fall 2019 for Prof. Mathis Hain — 40 students, no additional TA's
 - An upper-division introduction to Python programming for Earth, environmental, and planetary scientists.
 - Duties included teaching teaching one section per week, holding office hours, and grading code submissions.
- **Introduction to Scientific Computing (EART/ASTRO 119) at UC Santa Cruz**
 - Spring 2018 for Dr. Aldo Batta Marquez — 40 students, one additional TA
 - An upper-division introduction to solving Earth science, physics, and astronomy problems using Python.
 - Duties included teaching one section per week, holding office hours, and grading code submissions.
- **California Hazards COSMOS at UC Santa Cruz**
 - Summer 2017 for Prof. Susan Schwartz — 30 students, two additional TA's
 - A summer class for advanced high school students that explores the principles of earthquake detection and how earthquakes affect life in California.
 - Duties included actively working with the students as they learned to code over their intensive four-week course.
- **Planetary Discovery (EART 8) at UC Santa Cruz**
 - Spring 2017 for Prof. Xi Zhang — 100 students, no additional TA's
 - A lower-division course designed to introduce students to planetary science.
 - Duties included teaching four sections per week, holding office hours, and grading homework sets and exams.

PUBLICATIONS

Note: My unmarried name is Megan R. Kelley, and my married name is Megan R. K. Seritan.

JOURNAL ARTICLES

- **Seritan, M. R. K.**, Garrick-Bethell, I. (2023). Volcanic thermal demagnetization of the Reiner Gamma magnetic anomaly. *Icarus*, 403, 115601. <https://doi.org/10.1016/j.icarus.2023.115601>
- Wakita, S., Johnson, B. C., Garrick-Bethell, I., **Kelley, M. R.**, Maxwell, R. E., Davison, T. M. (2021). Impactor material records the ancient lunar magnetic field in antipodal anomalies. *Nature Communications*, 12, 6543. <https://doi.org/10.1038/s41467-021-26860-1>
- **Kelley, M. R.** and Garrick-Bethell, I. (2020). Gravity constraints on the age and formation of the Moon's Reiner Gamma magnetic anomaly. *Icarus*, 338, 113465. <https://doi.org/10.1016/j.icarus.2019.113465>
- Garrick-Bethell, I. and **Kelley, M. R.** (2019). Reiner Gamma: A magnetized elliptical disk on the Moon. *Geophysical Research Letters*, 46, 5065-5074. <https://doi.org/10.1029/2019GL082427>
- Lee, J.-K., Maxwell, R. E., Jin, H., Baek, S.-M., Ghassemi, O., **Kelley, M. R.**, Lee, H., Kim, K.-H., Lee, S., Garrick-Bethell, I. (2019). A small lunar swirl and its implications for the formation of the Reiner Gamma magnetic anomaly. *Icarus*, 319, 869-884. <https://doi.org/10.1016/j.icarus.2018.09.015>
- Matoza, R. S., Fee, D., Green, D., Le Pichon, A., Vergoz, J., Haney, M. M., Mikesell, T. D., Franco, L., Valderrama, O. A., **Kelley, M. R.**, McKee, K., Ceranna, L. (2018). Local, regional, and remote seismo-acoustic observations of the April 2015 VEI 4 eruption of Calbuco volcano, Chile. *Journal of Geophysical Research: Solid Earth*, 123, 3814-3827. <https://doi.org/10.1002/2017JB015182>
- Crooker, S. A., Liu, F., **Kelley, M. R.**, Martinez, N. J. D., Nie, W., Mohite, A., Nayyar, I. H., Tretiak, S., Smith, D. L., Ruden, P. P. (2014). Spectrally resolved hyperfine interactions between polaron and nuclear spins in organic light emitting diodes: Magneto-electroluminescence studies. *Applied Physics Letters*, 105, 153304. <https://doi.org/10.1063/1.4898700>
- Liu, F., **Kelley, M. R.**, Crooker, S. A., Nie, W., Mohite, A. D., Ruden, P. P., Smith, D. L. (2014). Magneto-electroluminescence of organic heterostructures: Analytical theory and spectrally resolved measurements. *Physical Review B*, 90, 235314. <https://doi.org/10.1103/PhysRevB.90.235314>

CONFERENCE TALKS

- **Seritan, M. R. K.** and Garrick-Bethell, I. Magnetic field morphology related to topography and surface slopes at the Gerasimovich lunar magnetic anomaly. *American Geophysical Union Fall Meeting*, Chicago, Illinois and virtual, 14 December 2022.
- Garrick-Bethell, I. and **Seritan, M. R. K.** Laccolith model for lunar ring-moat dome structures. *Lunar and Planetary Science Conference*, Virtual, 19 March 2021.
- **Seritan, M. R. K.** and Garrick-Bethell, I. Modeling thermal demagnetization at the lunar swirl Reiner Gamma. *Lunar and Planetary Science Conference*, Virtual, 15 March 2021.
- **Kelley, M. R.** and Garrick-Bethell, I.** Constraining the source geometry and formation age of the Moon's Reiner Gamma lunar swirl. *American Geophysical Union Fall Meeting*, Washington, D. C., 10 December 2018.
- **Kelley, M. R.**, Garrick-Bethell, I., Goossens, S. J. Constraints on the formation age and evidence of thermal demagnetization of the Moon's Reiner Gamma magnetic anomaly. *NASA Exploration Science Forum*, NASA Ames Research Center, Mountain View, CA, 27 June 2018.
- **Kelley, M. R.**, Garrick-Bethell, I., Goossens, S. J. Constraints on the formation age and evidence of thermal demagnetization of the Moon's Reiner Gamma magnetic anomaly. *Lunar and Small Bodies Graduate Conference*, NASA Ames Research Center, Mountain View, CA, 25 June 2018.
- **Kelley, M. R.**, Garrick-Bethell, I., Goossens, S. J. Evidence for thermal demagnetization of the Moon's Reiner Gamma Magnetic Anomaly. *Lunar and Planetary Science Conference*, The Woodlands, TX, 23 March 2018.
- Matoza, R. S., Fee, D., Vergoz, J., Green, D. N., Le Pichon, A., Haney, M. M., **Kelley, M. R.**, McKee, K. F. Global and regional volcanic infrasound from the April 2015 eruption of Calbuco, Chile. *American Geophysical Union Fall Meeting*, San Francisco, CA, 12 December 2016.
- **Kelley, M. R.**, Dooley, K., Adhikari, R., Arai, K., Vass, S. Prototyping a tilt-free seismometer. *Caltech LIGO SURF Research Symposium*, Pasadena, CA, 20 August 2015.
- Crooker, S. A., **Kelley, M. R.**, Martinez, N. J. D., Nie, W., Mohite, A. D., Smith, D. L., Tretiak, S., Ruden, P. P. Hyperfine spin interactions between polarons and nuclei in light emitting diodes: Magneto-EL measurements. *American Physical Society March Meeting*, Denver, CO, 3-7 March 2014.

** indicates speaker when not the first author

CONFERENCE POSTERS

- **Seritan, M. R. K.**, Tiscareno, M. S., French, R. S., Showalter, M. R., Gordon, M. K., Chang, Y.-J., Stopp, D., Mace, M. J. T., Simpson, E. R. Capabilities, contents, and use cases of the Outer Planets Unified Search (OPUS) from the PDS RMS Node. *Bay Area Planetary Science Conference*, Mountain View, CA, 16 October 2024.
- **Seritan, M. R. K.**, Tiscareno, M. S.**, French, R. S., Showalter, M. R., Gordon, M. K., Chang, Y.-J., Stopp, D., Mace, M. J. T., Simpson, E. R. Capabilities, contents, and use cases of the Outer Planets Unified Search (OPUS) from the PDS RMS Node. *NASA Science Data Repositories Workshop*, Pasadena, CA, 25 September 2024.
- **Kelley, M. R.** and Garrick-Bethell, I. Testing the antipodal ejecta magnetization hypothesis. *Lunar and Planetary Science Conference*, The Woodlands, TX, 19 March 2019.
- **Kelley, M. R.** and Matoza, R. S. Investigation of infrasound and seismic signals from explosive volcanic eruptions. *Undergraduate Research and Creative Activities Colloquium*, Santa Barbara, CA, 17 May 2016.
- **Kelley, M. R.**, Dooley, K., Adhikari, R., Arai, K., Vass, S. Prototyping a tilt-free seismometer. *Conference for Undergraduate Women in Physics*, San Diego, CA, 16 January 2016.