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RESEARCH INTERESTS	Camilla is a space plasma physicist working on moon-magnetosphere interaction at Europa. She develops and analyzes magnetohydrodynamic simulations of the plasma interaction between Europa and Jupiter's magnetosphere to study the generation and variation of Europa's ionospheric plasmas and the associated magnetic signatures.
EDUCATION	University of Michigan, Ann Arbor, MI Department of Climate and Space Sciences and Engineering, Sept. 2016 – Nov. 2022 • PhD in Climate and Space Sciences and Engineering • Certificate in Computational Discovery and Engineering • Advised by Professors Xianzhe Jia and James A. Slavin • Dissertation: <i>Europa's Plasma Interaction with Jupiter's Magnetosphere: Characterizing Variability of the Plasma Interaction with Multi-Fluid MHD Simulations</i>. doi:10.7302/3870 University of California Los Angeles, Los Angeles, CA Department of Physics and Astronomy, Sept. 2011 – June 2015 • Graduated with Bachelors of Science in Physics • Minor in Mathematics
EMPLOYMENT	NASA Postdoctoral Program Fellow, Jet Propulsion Laboratory (Feb. 2022 – Present) • Advised by Dr. Tom Nordheim • Affiliate of NASA's Europa Clipper Magnetometer Science Team. Science Undergraduate Laboratory Internships (SULI), Los Alamos National Laboratory • September 2015 – May 2016 • Advised by Dr. Mike Henderson. • Studied the relationship between geosynchronous injections and auroral streamers using auroral images from the POLAR mission and energetic particle fluxes from the LANL Geosynchronous satellites. • Developed code for the LANL SHIELDS project for modeling injections in the inner magnetosphere. Science and Engineering Student Internship (SESI), NASA Goddard Space Flight Center • June 2015 – September 2015 • Advised by Dr. Alex Gloer. • Studied the effects of soft electron precipitation on ionospheric outflow in the cusp region of the magnetosphere using the Polar Wind Outflow Model with Kinetic effects (KePWOM). Electron Losses and Fields Investigation (ELFIN), UCLA • July 2014 – June 2015 • ELFIN is a CubeSat developed by UCLA undergraduate students and staff to study the loss of relativistic electrons from the Earth's radiation belts. The satellite was launched in September 2018. • Developed physics simulations for the Attitude Determination and Control Subsystem. Undergraduate Work-Study with NASA's THEMIS mission, UCLA • November 2013 – June 2015 • Advised by Dr. Christine Gabrielse-Lin and Prof. Vassilis Angelopoulos. • Modeled substorm injections in the Earth's magnetosphere to understand particle transport in the inner magnetosphere, and the dynamics of particle acceleration in the magnetotail. • Compared THEMIS data with simulated energy flux spectrograms.

PUBLICATIONS

- [1] Nordheim, T. A., Regoli, L. H., **Harris, C. D. K.**, Paranicas, C., Hand, K. P., and Jia, X. (2022). Magnetospheric Ion Bombardment of Europa's Surface. *Planetary Science Journal*, 3:5. doi:[10.3847/PSJ/ac382a](https://doi.org/10.3847/PSJ/ac382a)
- [2] **Harris, C. D. K.**, Jia, X., Slavin, J. A., Toth, G., Huang, Z., and Rubin, M. (2021). Multi-fluid MHD simulations of Europa's plasma interaction under different magnetospheric conditions. *Journal of Geophysical Research: Space Physics*, 126. doi:[10.1029/2020JA028888](https://doi.org/10.1029/2020JA028888)
- [3] Azari, A. R., Biersteker, J. B., Dewey, R. M., Doran, G., Forsberg, E. J., **Harris, C. D. K.**, Kerner, H. R., Skinner, K. A., Smith, A. W., Amini, R., Cambioni, S., Da Poian, V., Garton, T. M., Himes, M. D., Millholland, S., and Ruhunusiri, S. (2020) Integrating Machine Learning for Planetary Science: Perspectives for the Next Decade. *Submitted to the NRC Planetary and Astrobiology Decadal Survey*. Full text available via the *decadal survey* and *arXiv*.
- [4] Gabrielse, C., Angelopoulos, V., **Harris, C.**, Artemyev, A., Kepko, L., and Runov, A. (2017). Extensive electron transport and energization via multiple, localized dipolarizing flux bundles. *Journal of Geophysical Research: Space Physics*, 122. doi:[10.1002/2017JA023981](https://doi.org/10.1002/2017JA023981)
- [5] Gabrielse, C., **Harris, C.**, Angelopoulos, V., Artemyev, A., and Runov, A. (2016). The role of localized inductive electric fields in electron injections around dipolarizing flux bundles. *Journal of Geophysical Research: Space Physics*, 121. doi:[10.1002/2016ja023061](https://doi.org/10.1002/2016ja023061)

TALKS

- [6] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G., Huang, Z., and Rubin, M. (August 2021). *Multi-fluid MHD Simulations of Europa's Plasma Interaction under Different Magnetospheric Conditions*. Space Sciences Lab Space Physics Seminar; Berkeley, CA and Online; Invited.
- [7] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G., Huang, Z. and Rubin, M. (December 2020). *Multi-fluid MHD Modeling of Europa's Plasma Interaction*. American Geophysical Union Fall Meeting; Online.
- [8] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G., Huang, Z. and Rubin, M. (November 2020). *Multi-fluid MHD Modeling of Europa's Plasma Interaction*. [ESA Outer Planet Moon Magnetosphere Interaction Workshop](#); Online.
- [9] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G., Huang, Z. and Rubin, M. (October 2020). *Multi-fluid MHD Modeling of Europa's Plasma Interaction*. Europa Clipper Radiation Focus Group Meeting; Online; Invited.
- [10] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G. and Rubin, M. (October 2019). *Multi-fluid MHD Modeling of Europa's Plasma Interaction: Effects of Asymmetric Density in the Neutral Atmosphere*. Michigan Space Grant Consortium Fall Conference; Ann Arbor, MI.
- [11] Harris, C. D. K. (June 2019). *Numerical Modeling: PIC, MHD, Hybrid*. Geospace Environment Modeling (GEM) Workshop Student Day; Santa Fe, NM.
- [12] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G. and Rubin, M. (July 2018). *Quantifying the access of Jupiter's magnetospheric plasma to Europa's surface through a multi-fluid MHD model*. Committee on Space Research Scientific Assembly; Pasadena, CA.
- [13] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G. and Rubin, M. (July 2018). *Quantifying the access of Jupiter's magnetospheric plasma to Europa's surface through a multi-fluid MHD model*. Magnetospheres of the Outer Planets Conference; Boulder, CO.
- [14] Harris, C. D. K., Jia, X., Slavin, J. A., Rubin, M. and Toth, G. (Dec 2017). *Multi-fluid MHD simulations of Europa's interaction with Jupiter's magnetosphere*. American Geophysical Union Fall Meeting; New Orleans, LA.

- [15] Harris, C. D. K. (June 2017). *Magnetotail Dipolarization and its effects on the Inner Magnetosphere*. Geospace Environment Modeling Workshop Student Day; Portsmouth, VA.
- [16] Harris, C. D. K. and Glocer, A. (July 2015). *The Role of Suprathermal Electron Precipitation in Ionospheric Outflow*. SESI Presentation Session; Greenbelt, MD.
- [17] Harris, C. D. K., Gabrielse, C. and Angelopoulos, V. (April 2015). *Electron Transport and Acceleration During an Injection Event in the Earth's Magnetosphere*. Earth and Planetary Sciences Student Research Symposium; Los Angeles, CA.
- [18] Harris, C. D. K., Gabrielse, C. and Angelopoulos, V. (December 2014). *Equatorial Electron Acceleration and Transport Towards the Inner Magnetosphere Modeled with Superposed Transient Electric and Magnetic Fields*. THEMIS-ARTEMIS Post-AGU Meeting; San Francisco, CA.
- [19] Harris, C. D. K., Jia, X., and Slavin, J. A. (December 2021). *Effects of Europa's atmospheric asymmetries on its plasma interaction: Insights from the Galileo E15 flyby*. American Geophysical Union Fall Meeting; New Orleans, LA and Online.
- [20] Harris, C. D. K., Jia, X., and Slavin, J. A. (July 2021). *Effects of Europa's atmospheric asymmetries on its plasma interaction: Insights from the Galileo E15 flyby*. Magnetospheres of the Outer Planets Conference; Online.
- [21] Harris, C. D. K., McCuen, B., and Mukhopadhyay, A. (April 2021). *No Fear, Your Peers are Here! Peer Mentoring in CLaSP*. Michigan Geophysical Union Student Research Symposium; Ann Arbor, MI. doi:10.7302/879. *Poster is available on my website*.
- [22] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G. and Rubin, M. (December 2019). *Multi-fluid MHD Modeling of Europa's Plasma Interaction: Effects of Asymmetric Density in the Neutral Atmosphere*. American Geophysical Union Fall Meeting; San Francisco, CA.
- [23] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G. and Rubin, M. (June 2019). *Multifluid MHD simulations of Europa's Plasma Interaction with Jupiter's Magnetosphere*. Magnetospheres of the Outer Planets Conference; Sendai, Japan. Also presented at the 2019 GEM Workshop; Santa Fe, NM.
- [24] Harris, C. D. K., Jia, X., Slavin, J. A., Toth, G. and Rubin, M. (September 2018). *The Role of Jupiter's Magnetospheric Plasma in Europa's Plasma Interaction*. 13th International School/Symposium for Space Simulations; Los Angeles, CA. Also presented at the 2018 American Geophysical Union Fall Meeting; Washington, DC.
- [25] Harris, C. D. K., Jia, X., Slavin, J. A., Rubin, M. and Toth, G. (Nov 2017). *Multi-fluid MHD simulations of Europa's interaction with Jupiter's magnetosphere*. Engineering Graduate Symposium; Ann Arbor, MI.
- [26] Harris, C. D. K., Jia, X., Rubin, M., Tóth, G. and Slavin, J. (June 2017). *Multi-fluid MHD modeling of Europa's variable interaction with Jupiter's magnetosphere*. Magnetospheres of the Outer Planets Conference; Uppsala, Sweden.
- [27] Harris, C. D. K. and Jia, X. (April 2017). *Multi-fluid MHD modeling of Europa's variable interaction with Jupiter's magnetosphere*. Michigan Geophysical Union Student Research Symposium; Ann Arbor, MI.
- [28] Harris, C. D. K. and Glocer, A. (July 2015). *The Role of Suprathermal Electron Precipitation in Ionospheric Outflow*. Goddard Space Flight Center Intern Poster Session; Greenbelt, MD.

POSTERS

- [29] Harris, C. D. K., Gabrielse, C. and Angelopoulos, V. (January 2015). *Equatorial Electron Acceleration and Transport Towards the Inner Magnetosphere Modeled with Superposed Transient Electric and Magnetic Fields*. APS Conference for Undergraduate Women in Physics; Santa Cruz, CA.
- [30] Harris, C. D. K., Gabrielse, C. and Angelopoulos, V. (December 2014). *Equatorial Electron Acceleration and Transport Towards the Inner Magnetosphere Modeled with Superposed Transient Electric and Magnetic Fields*. American Geophysical Union Fall Meeting; San Francisco, CA.
- [31] Harris, C. D. K., Gabrielse, C. and Angelopoulos, V. (May 2014). *Electron Acceleration and Transport Towards the Inner Magnetosphere Modeled with Superposed Transient Electric Fields*. UCLA Science Poster Day; Los Angeles, CA.

ACADEMIC &
PROFESSIONAL
SERVICE

AGU 2021

- Session Co-chair for SM51C: Moon-Plasma Interactions Throughout the Solar System

Michigan Geophysical Union 2021

- Student Organizing Committee Chair, December 2020 – April 2021
- Facilitated meetings of the organizing committee, liaised with department administration, managed and advised members of the organizing committee.
- MGU is traditionally an in-person poster session. I led the committee as we transformed the meeting to a totally new online format and introduced live talks and recorded presentations to the meeting for the first time.
- The MGU 2021 Abstract Book is available online at doi:[10.7302/879](https://doi.org/10.7302/879).

UM CLaSP Graduate-Undergraduate Student Organization

- Professional Development Chair, September 2018 – May 2019
- I helped organize a fellowship application workshop and flash talks events. I met with the department and the university career center to plan industrial visits and job fairs. I made a budget to facilitate these events.

UM CLaSP Graduate Peer Mentorship Program

- Organizer, March – April 2017 and Co-Organizer, Sep. – Dec. 2017, 2018
- I established an annual Peer Mentorship Program for CLaSP graduate students. The goals of the program are to seed peer and near-peer mentoring relationships within the department to streamline first-year students' entry to the program, and to help senior students form professional goals. Enthusiastic, positive feedback indicates that the program succeeded.
- I organized the pilot program in Spring 2017. I co-organized the subsequent two programs in the Fall of 2017 and 2018, then handed the program off to my junior co-organizer.
- My duties included advertising the program, surveying participants, matching mentor-mentee pairs, fielding participant questions, interfacing with the department to secure funding and with the university's event services to purchase meal tickets, distributing tickets to mentors, distributing post-surveys to participants, and reporting back to the department on the results. I also created documents to state the goals, timeline, and budget of the program, and to record what happened for subsequent organizers.

UM CLaSP PhD Student Handbook Development Committee

- Chair, January – April 2017
- I led a committee to outline and research a new handbook for CLaSP graduate students. I scheduled meetings, organized the agenda, and interfaced with department administrators when the time came to hand off the outline.
- The new student handbook collects qualifying exam procedures, program policies, course requirements, and facilities information that had previously been scattered across the department website.

AWARDS &
SCHOOLS
ATTENDED

12th APS Conference for Undergraduate Women in Physics at UCLA

- Proposal and Planning Committee, April – June 2015

UCLA Women in Physical Sciences

- Publicity Officer, September 2014 – June 2015

UCLA Society of Physics Students

- Vice President, September 2013 – June 2015

NASA Postdoctoral Program Fellowship, 2021

Michigan Space Grant Fellowship, 2019

Keck Institute for Space Studies: Tidal Heating - Lessons from Io and The Jovian System

- Attended October 2018

13th International School/Symposium for Space Simulations (ISSS-13)

- Poster Session Silver Prize, September 2018

Engineering Graduate Symposium

- ACS-SPS Poster Session First Prize, November 2017

UCAR Heliophysics Summer School

- Attended August 2017

Rackham Merit Fellowship, 2016

12th International School/Symposium for Space Simulations (ISSS-12)

- Attended July 2015

California Space Grant Scholarship, 2014, 2015

10th APS Conference for Undergraduate Women in Physics at UCSC

- Poster Session First Prize, January 2015