ALEXANDRA ROOSNOVO

CURRICULUM VITAE | roosnovo.com | roosnovo@umich.edu | 858.203.8319 | SUMMER 2025

EDUCATION

University of Michigan — Ann Arbor, MI
Climate and Space Sciences Pre-Candidate, PhD anticipated May 2030 — *2024-present*
- *NASA FINESST Fellow & Rackham Merit Fellow*
- **GPA** : 4.0 / 4.0

University of California, Los Angeles — Los Angeles, CA
B.S. in Astrophysics, minor in Atmospheric and Oceanic Sciences — *2018-2022*
- **GPA** : 3.61 / 4.0

RESEARCH INTERESTS

planetary magnetospheres, ionospheres, and moons;
magnetospheric plasma transport and loss mechanisms;
space mission design and development;
novel modes of scientific visualization to increase accessibility

RESEARCH EXPERIENCE

Graduate Student Research Assistant with Dr. Michael Liemohn — Ann Arbor, MI
University of Michigan Department of Climate and Space Sciences and Engineering — *August 2024 - present*
- Investigating interchange instability and structure of associated transport events at Saturn and Jupiter, including analysis of observed signatures of cold/hot plasma flow from Cassini and Juno missions
- Developing novel kinetic model for application to outer-planet inner magnetospheres, enabling probing of interchange instability dependence on particle distribution and composition

Post-Baccalaureate Researcher with Dr. Philip Fernandes and Dr. Ruth Skoug — Los Alamos, NM
Los Alamos National Laboratory, ISR-1 — *September 2022 - August 2024*
- Investigated ion composition and dynamics of Earth's inner magnetosphere, including dependence on pitch angle and adiabatic invariant mu, utilizing Van Allen Probes observations
- Carried out extensive processing of Van Allen Probes HOPE plasma spectrometer data, spanning extent of mission duration, to create new mu-resolved data set

Undergraduate Research Assistant with Dr. Vassilis Angelopoulos and Dr. Anton Arteymev — Los Angeles, CA
UCLA Department of Earth, Planetary, and Space Sciences (EPSS) — *April 2021 - September 2022*
- Investigated disparate modes of relativistic electron precipitation as driven by solar wind impacts
- Assisted in automation of phase delay corrections for ELFIN pitch angle data products
- Served as spacecraft operator for ELFIN CubeSat; planned routine science collections and downlinks

NSF-funded Undergraduate Research Assistant with Dr. Peter Chi — Los Angeles, CA
UCLA Surface Magnetic Assessment in Real Time (SMART) Project — *September 2020 - June 2022*
- Evaluated temperature-noise sensitivity of small magnetometer systems for civilian science use
- Validated ground based observations of geomagnetic events for systems within SMART network
- Served as Education and Public Outreach (EPO) Lead, coordinating science and career talks

ADDITIONAL EMPLOYMENT

Virtual Tutor in Math and ELA — Los Angeles, CA
360Academy, Starz Children Foundation — *August 2020 - June 2022*
- Created detailed lesson plans on a weekly basis, tailored to individual student learning modes
- Provided constructive feedback for students while guiding them one-on-one through classwork

Undergraduate Technician Assistant with Mr. Peter Yu — Los Angeles, CA
UCLA Department of Physics and Astronomy Electronics Shop — *August 2020 - June 2021*
- Assembled and repaired circuit boards and myriad electronic components
- Managed lab organization, orders and deliveries, and component storage

PUBLICATIONS

[5] **Roosnovo, A.**, Fernandes, P., Skoug, R., Henderson, M., Jordanova, V., Reeves, G., Funsten, H.O. "Dawn-dusk heavy-ion asymmetry in the inner magnetosphere dependence on adiabatic invariant mu and pitch angle." *In preparation.*

[4] Liemohn, M., Syposs, J., Azari, A., **Roosnovo, A.**, Hathaway, E. "Channel-like structure of interchange injections in Saturn's magnetosphere." *In preparation.*

[3] Tsai, E., et al. (including **Roosnovo, A.**) (2024). "Remote sensing of electron precipitation mechanisms enabled by ELFIN mission operations and ADCS." *Advances in Space Research.* https://doi.org/10.1016/j.asr.2024.07.008

[2] **Roosnovo, A.**, Artemyev, A., Zhang, XJ., Angelopoulos, V., Ma, Q., Grimmich, N., Plaschke, F., Fischer, D., Werner M. (2024) "Relativistic electron precipitation events driven by solar wind impact on the Earth's magnetosphere." *Journal of Geophysical Research: Space Physics, 129*, e2023JA032257. https://doi.org/10.1029/ 2023JA032257

[1] Angelopoulos, V., Zhang, XJ., Artemyev, A., et al. (including **Roosnovo, A.**) (2023) "Energetic Electron Precipitation Driven by Electromagnetic Ion Cyclotron Waves from ELFIN's Low Altitude Perspective." *Space Science Reviews 219*, 37. https://doi.org/10.1007/s11214-023-00984-w

PRESENTATIONS

- **"Moon-Origin Plasma Variations Associated with Interchange Flow Events in the Gas-Giant Magnetospheres"** (Poster). Michigan Geophysical Union (MGU) Spring Symposium. Ann Arbor, MI. April 4, 2025
- **"Characterization of a Duskside Heavy-ion Dominant Region In Earth's Inner Magnetosphere: A Van Allen Probes Hope Survey"** (Talk). LANL ISR-1 Seminar. Los Alamos, NM. July 30, 2024
- **"Inner magnetosphere ion composition as a function of mu and pitch angle as observed by Van Allen Probes HOPE"** (Talk). AGU Fall Meeting. San Francisco, CA. SM43A-05. December 14, 2023
- **"Electron Precipitation as Driven by IP Shock Impact on the Earth's Magnetosphere"** (Talk). THEMIS/ARTEM-IS Post-AGU SWT Meeting. Chicago, IL. December 17, 2022
- **"Electron Precipitation as Driven by Interplanetary Shock Impact on the Earth's Magnetosphere"** (Poster). AGU Fall Meeting. Chicago, IL. SM52D-1436. December 16, 2022
- **"On Using MEMS Magnetometers for Ground-based Space Weather Observations"** (Poster). AGU Fall Meeting. New Orleans, LA. SA35F-1955. December 17, 2021

LEADERSHIP

Volunteer and Outreach Co-Director — Ann Arbor, MI
Graduate and Undergraduate Student Organization (GUStO) - UM CLaSP — *2020 - 2022*

- Organize opportunities for CLaSP students to engage with Ann Arbor and broader community

Board Member; Social Media Coordinator and Graphic Designer — Los Angeles, CA
Women+ in the Physical Sciences - UCLA — *2020 - 2022*

- Organized W+PS events by contacting and coordinating with professors and other professionals
- Designed flyers for W+PS events and infographics for student resources; maintained W+PS website

Education and Public Outreach Lead — Los Angeles, CA
SMART Magnetometer Project - UCLA — *2020 - 2022*

- Organized educational events on space science and SMART career talks
- Maintained the SMART Project website and social media platform

SERVICE AND OUTREACH

Executive Secretary - NASA ROSES Heliophysics Guest Investigator Open (HGIO23) — *October 2023*
Panelist - UCLA EPSS Alumni Space Careers Panel — *April 2023*
Public Star-show Host - UCLA Planetarium — *May 2022*

AFFILIATIONS

American Astronomical Society — *2020 - present*
American Geophysical Union — *2020 - present*
Aurorasaurus Early Career Group — *2021 - present*
UCLA Astronomical Society — *2019 - 2022*
UCLA Women+ in the Physical Sciences — *2018 - 2022*

AWARDS AND HONORS

NASA Planetary Science Division FINESST Fellowship	*2025*
GEM Student Poster Award for Global System Modeling	*2025*
Michigan Institute for Plasma Science and Engineering (MIPSE) Fellowship	*2025*
University of Michigan Rackham Merit Fellowship	*2024*
Finalist - National Merit Scholarship	*2018*
UC Santa Barbara Regents Scholarship	*2018*
San Diego State University Merit Scholarship	*2018*
California Seal of Biliteracy	*2018*

LANGUAGES

Programming

Python, MatLab, IDL / SPEDAS (high proficiency), C, C++ (limited working proficiency)

Spoken

English (native), Spanish (high proficiency), Italian, Estonian (limited working proficiency)