

Work Experience

- Sep. 2025 - **Assistant Professor**, *Department of Electrical and Computer Engineering*, University of Massachusetts Lowell, Lowell, MA.
Present
- Teach EECE 3600 Electromagnetics I.
- Research Center: Lowell Center for Space Science and Technology (LoCSST).
- Oct. 2023 - **NASA Jack Eddy Postdoctoral Researcher**, *University Corporation for Atmospheric Research*,
Aug. 2025 Boulder, CO.
- Investigate the particle contributions originated from Moon and Earth to Earth's geospace system by combining numerical modeling efforts with the ARTEMIS-THEMIS (lunar mission) observational data.
- Joint position as a visiting scholar at the Space Science Lab, University of California, Berkeley, to collaborate with the leading researchers in planetary science.

Education

- Jan. 2020 - **University of Illinois at Urbana-Champaign**, *Urbana, IL*.
Aug. 2023 Ph.D., Electrical and Computer Engineering
Thesis: *Transport and Energization of Heavy Ions in Earth's High Latitude Ionosphere*
Advisor: Raluca Ilie
- Aug. 2017 - **University of Illinois at Urbana-Champaign**, *Urbana, IL*.
Dec. 2019 Master of Science, Electrical and Computer Engineering
Thesis: *Determine the Role of Neglected Heavy Ions N^+ in the Earth's Inner Magnetosphere*
Advisor: Raluca Ilie
- Sep. 2013 - **National Taiwan University**, *Taipei, Taiwan*.
May. 2017 B.S., Electrical Engineering

Research Experience

- May. 2022 - **Early Career Scientist Member**, *International Team #528: Heavy Element*, International Space
Jul. 2023 Science Institution (ISSI), Bern, Switzerland.
- Address the problem of the Earth's atmospheric loss of heavy elements from the behavior of the ionosphere-magnetosphere system in response to geomagnetic activities.
- Collaborate with 10 experts from space science, planetary science, atmospheric science, as well as paleomagnetism from 10 institutions.
- Aug. 2017 - **Graduate Research Assistant**, *University of Illinois at Urbana-Champaign*, Urbana, IL.
Sep. 2023 - Developed **Seven Ion Polar Wind Outflow Model (7iPWOM)**, the first polar wind model to describe the outflow of nitrogen and molecular ions along the magnetic field lines in the polar cap area. This work demonstrated the key role the heavy ions play in the overall ionospheric outflow.
- Further developed the **Hot Electron Ion Drift Integrator Model (HEIDI)**, to include an additional ions species, which makes HEIDI the first and only ring current model to track the evolution and dynamics of all relevant ring current ions species.

Awards

- Apr. 2023 **NASA Jack Eddy Postdoc Fellowship**, *University Corporation for Atmospheric Research*, NASA.
This prestigious fellowship is to train the next generation of heliophysics researchers and is only awarded to 5 recipients in the year 2023.
- Apr. 2023 **Paul D. Coleman Outstanding Research Award**, *University of Illinois at Urbana-Champaign*.
Presented to a doctoral student who has demonstrated excellence in research in electromagnetics or physical and quantum electronics.
- Oct. 2021 **EECS Rising Stars**, *MIT*.
An intensive workshop for graduate students and postdocs who are interested in pursuing academic careers in electrical engineering and computer science.
- May. 2021 **Future Investigators in NASA Earth and Space Science and Technology (FINESST) fellowship**, *Heliophysics division*, NASA.
This fellowship provides research grants to graduate students who are designing and performing research projects relevant to the interests of the NASA Science Mission Directorate.

- Apr. 2021 **Mavis Future Faculty Fellows (MF3) for the 2021-2022 academic year**, *The Grainger College of Engineering, University of Illinois at Urbana-Champaign*.
Selected as one of MF3 Fellows, which attend the courses to facilitate the training of future academic careers.
- Dec. 2020, **Outstanding Student Presentation Award (OSPA)**, *American Geophysical Union (AGU)*.
Dec. 2019 This award recognizes top 2-5% students at a meeting attended by more than 25,000 researchers from more than 100 countries.
- Jun. 2018 **Best Student Presentation Award**, *2018 Geospace Environment Modeling (GEM) Workshop*, Santa Fe, New Mexico.
This award is given to top 5% students among 100 student attendees each year.

Leadership & Service

- Jan. 2024 - **Organizer**, *Center for Integrative Planetary Science (CIPS)*, UC Berkeley.
May 2025 Organize activities within the CIPS, such as planning seminars and inviting speakers.
- Jan. 2023 - **Student Representative**, *AGU SPA*.
Jan. 2024 Form and lead the AGU Student Advisory Committee to address the needs of students who participated in the AGU conference.
- Mar. 2022 - **Principal Investigator**, *HUG Initiative*, Institute for Inclusion, Diversity, Equity and Access,
Sep. 2023 University of Illinois at Urbana-Champaign, Urbana, IL.
Led the research team across the Engineering College to conduct the survey study and hold the panel discussion and workshop.
- Jul. 2020 - **Student Representative**, *NSF Geospace Environment Modeling (GEM) Program*.
Jun. 2022 Organize any related student activities, including the "student day" (1-day student-led workshop within the main workshop) lectures and student poster competition, and form the GEM Student Advisory Committee.
- Sept. 2019 - **Lab Coordinator**, *Electromagnetics (EM) VR Lab of University of Illinois at Urbana-Champaign*,
Jan. 2021 Urbana, IL.
Led the software archiving efforts and worked with ~ 20 software developers for the Virtual Reality project to establish best practices for software development.
- 2023 - Present **Session Chair**, *AGU, AOGS*.
Lead and organize the oral and poster sessions of "Circulation of Heavy Ions and Their Role in Regulating Plasma Dynamics."
- 2023 - Present **Journal Reviewer**, *Journal of Geophysical Research: Space Physics, Geophysical Research Letters*.
- 2023 - Present **Panel Reviewer**, *NSF and NASA Panels*.

Selected Publications

- **M-Y. Lin**, A. R. Poppe, (2025). "Metallic Ions Near the Moon: Impact of Solar Activity and Lunar Position", *Journal of Geophysics Research Space Physics*, <https://doi.org/10.1029/2024JA033566>.
- **M-Y. Lin**, R. Ilie, A. Glocer, (2025). "Limits on the efficacy of wave-particle interaction on the energization and transport of atomic and molecular heavy ionospheric ions", *Journal of Geophysics Research Space Physics*, <https://doi.org/10.1029/2024JA033523>.
- **M-Y. Lin**, G. Cucho-Padin, P. Silva, A. Glocer, E. Villalba, (2024). "Variability of Earth's ionospheric outflow in response to the dynamic terrestrial exosphere", *Frontiers in Astronomy and Space Physics*, <https://doi.org/10.3389/fspas.2024.1462957>.
- R. Ilie, **M-Y. Lin**, M. F. Bashir, A. Majumder (2023). "A review of N⁺ observations in the ionosphere-magnetosphere system", *review paper*, *Frontiers in Astronomy and Space Physics*, <https://doi.org/10.3389/fspas.2023.1224659>.
- **M-Y. Lin**, H. Chen, H. Golecki, (2023). "HUG Initiative: Overcoming Roadblocks on a Research Career Roadmap of Individuals from Historically Marginalized or Underrepresented Genders", *review paper*, *Frontiers in Astronomy and Space Physics*, <https://doi.org/10.3389/fspas.2023.1134327>.
- **M-Y. Lin**, H. Chen, H. Golecki, M. Kulkarni, A. Huang, R. Cusick (2023). "Supporting Students with Minoritized Gender Identities in Research: the Design and Assessment of an Initiative in Electrical and Computer Engineering", *conference paper*, 2023 American Society for Engineering Education (ASEE) Annual Conference.
- **M-Y. Lin**, R. Ilie, (2022). "A review of observation of molecular ions in the Earth's magnetosphere-ionosphere", *Invited review paper*, *Frontiers in Astronomy and Space Physics*, <https://doi.org/10.3389/fspas.2021.745357>.
- **M-Y. Lin**, R. Ilie, A. Glocer, (2020). "The contribution of N⁺ ions to Earth's polar wind", *Geophysical Research Letters*, 47, e2020GL089321, <https://doi.org/10.1029/2020GL089321>.