

Liutauras Rusaitis

📍 Rome, Italy ✉ liutauras.rusaitis@gmail.com 🇪🇺 Lithuanian (EU) 🌐 rusaitis
🆔 0000-0002-9220-9tried

EDUCATION

Ph.D., Geophysics & Space Physics, *University of California, Los Angeles* 2015–2022
Los Angeles, CA **B.A., Physics**, *University of Oxford, St Anne's College* 2010–2013
Oxford, UK

EXPERIENCE

Postdoctoral Researcher / Science Staff, *NASA Goddard Space Flight Center (via CUA)* Oct 2022 – Sep 2025
CCMC, Greenbelt, MD

- Multi-scale MHD–PIC simulations of magnetotail reconnection and ring current formation on NASA Pleiades (HPC)
- Developed open-source interactive visualization tools for multi-TB simulation datasets (magviz)
- Designed reproducible analysis pipelines (xarray/dask, HDF5/Zarr) for community model output
- Contributed to open science practices at CCMC; co-authored open science paper (HOME)

Graduate Researcher, *University of California, Los Angeles* 2015–2022
Dept. of Earth, Planetary, and Space Sciences

- Modeled Alfvén wave resonances in Saturn's magnetosphere using realistic plasma/field models
- Developed multi-scale PIC simulation framework coupling global MHD with kinetic codes
- Taught and mentored undergraduates in astrophysics and scientific computing (7 years)

Staff, *Princeton Plasma Physics Laboratory* Nov 2013 – Aug 2015
Science Education Department, developer of RGDX **Staff Associate**, *Columbia University* Jun 2014 – Jun 2015
Physics Department, Condensed Matter Physics

PUBLICATIONS

Rusaitis, L., El-Alaoui, M., Walker, R. J., Lapenta, G., Schriver, D. (2024). A Multi-Scale Particle-in-Cell Simulation of Plasma Dynamics from Magnetotail Reconnection to the Inner Magnetosphere. *JGR: Space Physics*. doi:10.1029/2024JA032821

Rusaitis, L., Khurana, K. K., Kivelson, M. G., & Walker, R. J. (2021). Quasiperiodic 1-hour Alfvén Wave Resonances in Saturn's Magnetosphere: Theory for a Realistic Plasma/Field Model. *Geophysical Research Letters*. doi:10.1029/2020GL090967

Rusaitis, L., Khurana, K. K., Kivelson, M. G., & Walker, R. J. (in revision). Long-Period Alfvén Waves as Signatures of Field Line Resonances in Saturn's Magnetosphere. *JGR: Space Physics*. Corti, C., Kuznetsova, M. M., Reiss, M. A., Yue, J., **Rusaitis, L.**, et al. (in preparation). Advancing Open Science in Heliophysics Modeling. *Space Weather*.

TECHNICAL SKILLS

- **Scientific computing:** Python (NumPy, SciPy, xarray, dask, h5py, Zarr, netCDF4), C/C++ (MPI/PETSc), Fortran (reading/model support), Rust (learning)
- **HPC:** Production runs on NASA Pleiades; Slurm, MPI, parallel I/O
- **Visualization & web:** Matplotlib, Plotly, PyVista, Three.js/TypeScript, FastAPI; built interac-

tive 3D tools for large simulation data

- **Data engineering:** HDF5, Zarr, netCDF4; reproducible pipelines; Docker; Git/GitHub
 - **Open science:** NASA Open Science 101; FAIR data practices; PyHC-compliant open-source workflows
 - **Computational physics:** Implicit PIC (iPIC3D/ECsim), global MHD (OpenGGCM), multi-scale coupling
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TALKS

iPIC3D Workshop, <i>KU Leuven</i>	Feb 2026
Leuven, Belgium	
Director's Seminar, Heliophysics Science Division (Code 670), <i>NASA Goddard</i>	Mar 2025
Greenbelt, MD	
ISSS-15/IPELS-16 (invited), <i>Max Planck IPP</i>	Aug 2024
Garching, Germany	
Physics Colloquium (invited), <i>Catholic University of America</i>	Feb 2024
Washington, DC	
Director's Seminar, Heliophysics Science Division (Code 670), <i>NASA Goddard</i>	Oct 2023
Greenbelt, MD	

LEADERSHIP & SERVICE

Team Lead, G1-07: Beyond the Continuum, <i>ISWAT (COSPAR)</i>	2024–present
• Bridging kinetic and MHD models for geospace plasma dynamics. iswat-cospar.org/G1-07	
Member & co-author, <i>HOME (Heliophysics Open Modeling Environment)</i>	2024–present
Panel Lead, “Beyond MHD” sessions, <i>CCMC Workshop</i>	2024
NASA Goddard	
Proposal Reviewer, <i>NASA ROSES 2024 Solicitations</i>	2024

TEACHING

Unsolved Mysteries of the Universe (Instructor), <i>UCLA</i>	2018–2021
CLUSTER: Evolution of the Cosmos & Life (Teaching Fellow), <i>UCLA</i>	2017–2021

AWARDS

Excellence in Teaching Award, <i>UCLA, Earth, Planetary, and Space Sciences</i>	2016
Best BA Literature Project, <i>Final Honour School of Physics, Oxford</i>	2013
Best Undergraduate Physics Presentation, <i>St Anne's College, Oxford</i>	2012
Travel Fellowship, <i>Hadron Collider School, University of Göttingen</i>	2013
David and Maria Willett's Travel Scholarship, <i>St Anne's College, Oxford</i>	2012
Commendation, 1st & 2nd Year Practical Work, <i>Oxford Physics</i>	2011–2012

LANGUAGES

English (fluent) · Lithuanian (native) · Italian (beginner, studying)