

Murti Nauth

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Education

PhD - Earth and Planetary Science (Aug 2020 - present)

University of California, Berkeley, Berkeley, CA

M.S. - Physics (Aug 2020)

Fisk University, Nashville, TN

B.A. - Astronomy, International Affairs (Dec 2017)

University of Colorado Boulder, Boulder, CO

Research Experience

Space Sciences Laboratory, Berkeley, CA

Research Assistant, Aug 2020 - present

- Characterizing the electron acceleration mechanisms in the Martian magnetotail

Vanderbilt University, Nashville, TN

Research Assistant, Aug 2018 - Aug 2020

- Determined the clustering of massive binary-black hole mergers detectable by the forthcoming Laser Interferometer Space Antenna (LISA) mission using the *Illustris* large-scale cosmological simulation

Laboratory for Atmospheric and Space Physics, Boulder, CO

Research Assistant, Dec 2016 - Aug 2018

- Performed the first ever statistical analysis on the thermal electron ($< 1\text{eV}$) population in the Martian magnetotail using the Mars Atmosphere and Volatile Evolution (MAVEN) mission's plasma instrumentation
- Showed that local magnetic topology and flaring direction play an important role in determining the thermal electron structure in the magnetotail
- Discovered thermal electrons originating from the dayside ionosphere were more likely to be observed outside the optical shadow, whereas those originating from the nightside were more likely to be observed close to the planet

Sommers-Bausch Observatory, Boulder, CO

Research Assistant, Summer 2015

- Performed follow-up observations of transiting stars to confirm exoplanet candidates and form the KELT pipeline

Honors and Awards

- **Awarded**, Future Investigators in NASA Earth and Space Science and Technology (FINESST) Research Grant (2021)

- **Honorable Mention**, NSF Graduate Research Funding Program (2020)
- **Awarded**, Robert P. Lin Fellowship (2020)

Selected Skills

- IDL, Python 3, Mathematica, and Git proficiency
- Experience working with remote Linux servers
- Science communication
 - *ComSciCon* Workshop (2020)
 - Fiske Planetarium Presenter (2013-2016)

Publications & Presentations

- **Nauth, M.**, Fowler, C. M., Andersson, L., DiBraccio, G. A., Xu, S., Weber, T., and Mitchell, D. (2021). The influence of magnetic field topology and orientation on the distribution of thermal electrons in the Martian magnetotail. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028130. <https://doi.org/10.1029/2020JA028130>
- **Nauth, M.** (2020). “The Effect of Binary Black Holes on Gravitational Wave Observations of the Very Early Universe”. Master’s thesis, Fisk University
- **Nauth** et al., “Large-Scale Structure Measurements with Gravitational Waves: How biased are LISA sources?” American Astrophysical Society Meeting #233, 2019, poster id.141.06
- **Nauth** et al., “Density Structure of the Martian Tail,” American Geophysical Union Fall Meeting, 2017, poster #SM33B-2659

Outreach

Fiske Planetarium, Boulder, CO

- Presented and programmed presentations for K-12 students in an inflatable planetarium dome
- Fostered learning and public engagement through hands on activities