Max L. Trostel | CV

CONTACT

Department of Physics
University of Texas at Austin
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EDUCATION

University of Texas at Austin Sep 2020 –
Graduate student in physics

Carleton College, Northfield, MN Sep 2015 – Jun 2019
B.A. in Physics (Math minor) *cum laude*, Jun 2019
Cumulative GPA: 3.78/4.00, Physics: 3.80, Math: 3.67

Senior comprehensive thesis: *Predicting the Weather: The Physics of Earth's Atmosphere*

- Advisors: Joel M. Weisberg, Arjendu K. Pattanayak
- Public talk presented Feb 1, 2019. Awarded Distinction Jun 2019.

RESEARCH EXPERIENCE

General relativity and Lorentz symmetry Jan 2018 – Jul 2019
Department of Physics and Astronomy, Carleton College

- Developing equations for sensitivities to Lorentz violation in Sagnac gyroscope experiments [1, 2].
- Advisor: Jay D. Tasson

Climate variability and global warming Jun 2018 – Aug 2018
Department of Atmospheric Sciences, Texas A&M University

- Implementing a novel statistical analysis in Python to better separate modes of internal multidecadal variability in the climate from external forcings.
- Advisor: Yangyang Xu
- Poster: *Isolating Warming and Multidecadal Variability in Pacific Sea Surface Temperatures*

Quantum chaos simulation Mar 2016 – Jan 2018
Department of Physics and Astronomy, Carleton College

- Implementing simulations of the quantum, semiclassical, and classical damped-driven Duffing oscillator and analyzing the transition from quantum periodicity to classical chaos [3].
- Advisors: Arjendu K. Pattanayak, Andrés Aragoneses

Observational astronomy Jun 2014 – Aug 2014
Department Physics and Astronomy, University of Maine

- Developing software in MATLAB to correct the color of starfield images for the effects of the Earth's atmosphere and human eye color perception.
- Advisor: Neil F. Comins
- Presentation: *Effects of the Earth's atmosphere and human neural processing of light on the apparent colors of stars*

Professional Experience

Graduate Research Assistant Jan 2023 –
University of Texas at Austin
- Computational Research in Ice and Ocean group (CRIOS) at the Oden Institute for Computational Engineering and Sciences

Graduate Teaching Assistant Sep 2020 – May 2021
University of Texas at Austin
- PHY 375R: Introduction to Relativity (Fall 2020)
- PHY 303K: Engineering Physics I (Spring 2021)

Math Teaching Fellow Aug 2019 – Jun 2020
Conserve School
- Teaching algebra, precalculus, and calculus.

Asst. System Administrator for Physics Mar 2017 – Jun 2019
Department of Physics and Astronomy, Carleton College
- Maintaining computer systems for classroom and research applications in the department.
- Website development and maintenance for the department.
- Various coding and database development projects for use in the classroom and research.

Coding Experience

- **Unix and Linux system administration**: Installing Linux operating systems; writing scripts in Bash; other advanced commands in the terminal.
- **XML**: Writing and parsing for instrumentation and database projects.
- **Python**: Extensive use in multiple research projects; projects for asst. system admin job.
- **Mathematica**: Symbolic manipulation for theoretical physics research; numerical and symbolic applications throughout physics and math courses.
- **MATLAB**: Various research projects; math course on numerical analysis.

Publications

[1] **M.L. Trostel**, S. Moseley, N. Scaramuzza, and J.D. Tasson, *Ring Laser Gyroscope Tests of Lorentz Symmetry*, Proceedings of the Eighth Meeting on CPT and Lorentz Symmetry (CPT '19), preprint: arXiv:1907.07071.

[2] S. Moseley, N. Scaramuzza, J.D. Tasson, and **M.L. Trostel**, *Lorentz violation and Sagnac gyroscopes*, Phys. Rev. D **100**, 6 (2019).

[3] **M.L. Trostel**, M.Z.R. Misplon, A. Aroganoses, and A.K. Pattanayak, *Characterizing Complex Dynamics in the Classical and Semi-Classical Duffing Oscillator Using Ordinal Patterns Analysis*, Entropy **20**, 40 (2018).