Leo Nofs

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Academic and Research Employment History

2021 - ·· **Graduate Research Assistant** Department of Physics, Auburn University. Design, construction, and testing of ALICE: the Active Levitation and Impedance Characterization Experiment in the Microgravity complex plasma lab. Design, prototype, and testing of a novel plasma diagnostic utilizing directly measured plasma impedance.
Graduate Research Assistant Department of Physics, Auburn University. Development of atomic diagnostic suite, AtomSpect, a fast python-based tool for optical plasma diagnostics.

2020 - 2021 **Graduate Teaching Assistant** Department of Physics, Auburn University. Instruction of introductory laboratory courses.

2019-2020 **Research Associate I** University of Michigan, Ann Arbor, MI. Continuation of optical trapping work in Randall Labs.

2018-2019 **Graduate Research Assistant** Department of Physics, Eastern Michigan University. Work in Randall Labs at University of Michigan on optical trapping experiment under Georg Raithel.

2017 **Graduate Teaching Assistant** Department of Physics, Eastern Michigan University. Instruction of introductory laboratory courses.

Education

2020 – Present **Ph.D. Candidate, Auburn University** Plasma Physics and Diagnostics

2017 – 2019 **M.S. Physics, Eastern Michigan University** in Atomic Molecular and Optical Physics. August 12, 2019
Thesis title: *Designing a modified Zeeman slower for the Paschen-Back magnetic regime*.

2008 – 2016 **B.S. Physics Research and Mathematics, Eastern Michigan University** Cum Laude, August 16, 2026

Research Publications

Journal Articles

1. L. Nofs and S. Loch, "Atomspect: A python package for spectroscopic diagnostic via synthetic spectra – including lineshape effects from external magnetic fields and hyperfine structure," *J. Quant. Spectrosc. Radiat. Transfer*, vol. 362, p. 110 015, Oct. 2026, ISSN: 00224073. DOI: 10.1016/j.jqsrt.2026.110015.

2. C. S. Nichols, L. M. Nofs, M. A. Viray, L. Ma, E. Paradis, and G. Raithel, "Magneto-optical trap with millimeter ball lenses," *Phys. Rev. Appl.*, vol. 14, p. 044 013, 4 Oct. 2020. DOI: 10.1103/PhysRevApplied.14.044013.

Skills

Language Skills Strong reading, writing, speaking, and proofreading in English

Coding Python: writing, testing, debugging, and optimizing code, C: Arduino microcontrollers, github

Publication Tools Microsoft Office: Word, Excel, Powerpoint, Access, LaTeX, Zotero

Skills (continued)

Mechanical Design	FreeCAD for 3D design, technical drawings, and 3d printing models
Electronics	KiCAD - Design, modeling, and construction of circuit boards. LTSpice - SPICE simulation of circuits. SimNEC - Impedance modeling for matching efficiency. Vector Network Analyzer - Analysis and characterization of power and impedance via measurement.
Troubleshooting	Rigorously able to identify issues, both intermittent and consistent, and identify underlying problems via thorough testing - Both in lab experiments and computational work
Misc.	Academic research, teaching, technical documentation of experimental procedures, and organization of lab space and documentation

Lab Experience

Plasma Chamber	Building, testing, and implementing all aspects of operating a plasma chamber: Electrodes, power source, vacuum system, and diagnostics.
Experimental Automation	Integration of python and microcontrollers to automate experiment operation, data acquisition, and post-processing.
Saturation Spectroscopy	Use of reference gas vapor cell for Doppler-free saturation spectroscopy.
Precision Optical Alignment	Atom Trapping, Power Measurement, Polarization, Fiber Coupling.

Miscellaneous Experience

Awards and Achievements

- 2018 **Graduate Fellowship**. Eastern Michigan University
- 2015 **Smith, Harry L. Endowed Scholarship**
- 2014,2015 **Michigan Competitive Scholarship**
- 2014 **TRUEMU Scholarship**
- **Thomas H. Stark Memorial Endowment**
- **Warren Scholarship**
- 2013 **Herrick Foundation Scholarship**
- 2008,2009 **Michigan Promise Scholarship**

Conferences

- 2025 **Dust Transport in a Low Temperature Plasma Device by Induced Plasma Modulations***. Poster Presentation at International Conference for the Physics of Dusty Plasmas, in Eindhoven, the Netherlands
- 2024 **Dust Transport in a Low Temperature Plasma**. Poster Presentation at APS DPP, Atlanta, GA, USA
- **Dust Transport by Induced Plasma Modulations in Low-Pressure RF Argon Plasma**. Poster Presentation at Dusty Plasma Workshop, Minneapolis, MN, USA
- 2023 **US Low Temperature Plasma Summer School** Week long summer school at University of Michigan, Ann Arbor. Attended without presentation, Ann Arbor, MI, USA

Miscellaneous Experience (continued)

- **Dust Transport in a Low Temperature Plasma Device by Induced Plasma Modulations**. Poster Presentation at APS DPP, Denver, CO, USA

2020 - **Ball Lens Optical Trap**. Virtual Oral Presentation at APS DAMOP, Online

2019 - **Zeeman slowing of an atomic beam in a strong, dipolar background field**. Presentation at APS DAMOP, Milwaukee, WI, USA

References

Available on Request