William S. Parker

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EDUCATION

University of Oregon (Benjamin J. McMorran) — Eugene, Oregon
Doctor of Philosophy: Physics — GPA: 3.880
Fall 2024

Chapman University — Orange, California
Bachelor of Science *Magna Cum Laude,* May 2018 — GPA: 3.729
Major: Physics
Major: Mathematics
Minor: General Music

EXPERIENCE

PhD Candidate – Prof. Benjamin McMorran — Eugene, Oregon
University of Oregon — Spring 2020 - present
Studied the 3D structure of skyrmions in magnetic multilayer thin films experimentally, theoretically, and computationally.

Graduate Research Assistant – Prof. Benjamin McMorran — Eugene, Oregon
University of Oregon — Summer 2018 - Winter 2020
Investigated techniques to measure chirality using the orbital angular momentum of fast electron beams within commercial transmission electron microscopes.

Graduate Teaching Assistant — University of Oregon
PHYS 152 (Physics of Sound & Music) — Fall 2022
PHYS 201 (General Physics) — Fall 2019

Undergraduate Researcher – Prof. Jerry LaRue — Orange, California
Chapman University — Spring 2017 - Spring 2018
Created vortex optical states using a digital micromirror device for RAMAN spectroscopy applications.

Undergraduate Researcher (NSF REU) – Prof. Joseph Eberly — Rochester, New York
University of Rochester — Summer 2017
Investigated fundamental limitations to mode-locked lasers, focusing on phase noise, lasing cavity length, and novel frequency distributions.

Supplemental Instructor — Chapman University
PHYS 102 (General Physics 2) — Fall 2017
PHYS 101 (General Physics 1) — Spring 2017

EXPERTISE

Primary Programming languages	**Experience**
Python	2014 - present
LaTeX	2014 - present
JavaScript/HTML/CSS	2019 - present
Experimental techniques	
Transmission Electron Microscopy	2018 - present
SEM/FIB Dual Beam sample preparation	2018 - present
Ultra-high vacuum systems	2018 - present

Resume
W. S. Parker

Programming experience

Numerical physics simulation

Lorentz TEM phase reconstructions | Electron Fourier optics | Micromagnetic simulations (MuMax3)

Image processing

OpenCV | 2D signal processing | FIJI

Python package development, with Git version control

`ltempy` - *tools for the analysis, simulation, and presentation of LTEM data*

`ovf2io` - *a lightweight I/O package for the OOMMF Vector Field format*

SSH | *nix command line | High-Performance Computing

Micromagnetic simulations on University of Oregon's HPC cluster Talapas.

3D modeling and computer graphics

Blender for 3D scientific figures

Web development

`frctl` | `frctl (GitHub)` - *An interactive fractal explorer built in Svelte*

FEATURED PUBLICATIONS

1. **Parker, W. S.** et. al. *Phys. Rev. B.* **2024.** DOI: 10.1103/PhysRevB.110.224420
2. **Parker, W. S.** et. al. *Microscopy and Microanalysis* **2022**, *28* (S1), 2336–2337. DOI: 10.1017/S1431927622008960.
3. **Parker, W. S.** et. al. *Microscopy and Microanalysis* **2021**, *27* (S1), 2404–2407. DOI: 10.1017/S1431927621008618.

FEATURED HONORS & AWARDS

Best Student Presentation Finalist - Magnetism and Magnetic Materials	October 2023
Honorable Mention - NSF GRFP	April 2020
Graduate First Year Fellow - University of Oregon Graduate School	September 2019
OMQ Director's Fellow - University of Oregon OMQ	September 2019

FEATURED LEADERSHIP

Project Mentor — Eugene, Oregon

McMorran Lab, University of Oregon — 2019 - present

Led REU students, ESPRIT scholars, undergraduate researchers, and MASTERIt students on magnetics and electron microscopy projects.

Activity Coordinator & Student Assistant — Eugene, Oregon

Mad Duck Science Fridays, University of Oregon — Spring 2021

Led middle school students through a variety of STEM activities on days when school was cancelled due to budget restraints.

Curriculum Design — Orange, California

Physics Bootcamp, Chapman University — Fall 2017

Prepared materials to help incoming physics students learn the mathematics required for physics courses to boost student retention in physics.