Jay Aronow Frothingham

CONTACT

(681)776-2224
jafroth@gmail.com
Mailing address
227 Rabbitt Patch Drive
Arbovale, WV 24915

EDUCATION

B.A. Engineering and Astronomy, 3.92 GPA
Smith College, Northampton MA, May 2023

EMPLOYMENT

Scientific Data Analyst, Green Bank Observatory
Green Bank WV
May 2023 - Present

Student Researcher, Smith College Physics Department
Northampton MA
September 2019 - September 2021

Hardware Engineering Intern, HP, Inc.
Corvallis OR
Summer 2019

Electrical Engineering Intern, HP, Inc.
Corvallis OR
Summer 2018

RESEARCH

Microwave Photonic Synthesizer Characterization for Applications in Radio Astronomy Instrumentation
National Radio Astronomy Observatory (NRAO) Research Experience for Undergraduates
Tested and characterized laser source for potential use as ngVLA (next-generation Very Large Array) local oscillator. Presented findings to external engineering representatives and NRAO mentors.
Research Mentor: William Shillue\

A Circuit Board Printer for Muon Detector Construction and Classroom Use
Summer Undergraduate Research Fellowship, Smith College Dept. of Physics
Tested feasibility of a circuit board printer to manufacture components quickly and reliably. Assembled and tested muon detectors to assess quality of reflow soldering techniques. Designed and built an adjustable camera mount to improve equipment accessibility. Wrote documentation and user guide to circuit board

printer. Presented results to Smith College Physics and Astronomy departments.
Research Advisor: Dr. Nathanael Fortune

Portable Muon Detectors for Tests of Time Dilation
STudent Research In DEpartments (STRIDE), Smith College Dept. of Physics
Used custom-built portable muon detectors to collect data at different elevations. Worked with peers to analyze data collected in various locations. Managed project milestones and scheduled lab meetings during periods of remote work. Presented results to Smith College Physics and Astronomy departments.
Research Advisor: Dr. Nathanael Fortune

A Python Package for Correction of Magnetic Field Dependence of Resistive Thermometers
Summer Undergraduate Research Fellowship, Smith College Dept. of Physics
Optimized Python code characterizing resistive thermometers' response to magnetic fields. Removed code redundancies by bundling custom functions into a package and defining a class. Automated essential functions and increased user control over other functions. Managed revisions through Gitlab. Wrote detailed documentation in Markdown and Python. Code used in analysis for published paper.
Research Advisor: Dr. Nathanael Fortune

Experimental Measurements of Phase Transitions in Superconductors Under Extreme Conditions
STudent Research In DEpartments (STRIDE), Smith College Dept. of Physics
Designed and fabricated custom lab equipment in a machine shop. Performed soldering under a microscope. Evaluated and modified test probe electronics and wiring.
Research Advisor: Dr. Nathanael Fortune

Using Arduino to Teach Mechatronics
Apprenticeships in Science and Engineering, Oregon State University, Corvallis OR
research description here
Research Advisor: Dr. Burak Sencer

PUBLICATIONS

LaBarre, P.G., Rydh, A., Palmer-Fortune, J., **Frothingham, J.A.**, Hannahs, S.T., Ramirez, A.P., Fortune, N.A. "Magnetoquantum oscillations in the specific heat of a topological Kondo insulator." Journal of Physics: Condensed Matter (2022).