

ROBERT SNUGGS

PHYSICS | PARTICLE PHYSICS

Phone: (419) 503-7426

Email: robert.snuggs@rockets.utoledo.edu

Website: <https://madscentoast.github.io/>

325 W. Hillsdale Ln

Holland, OH 43528

EDUCATION

BS in Applied Physics, Nominated Outstanding Graduating Student (UT Physics)

2018-Present

University of Toledo

RESEARCH EXPERIENCE

University of Toledo, Toledo, Ohio

2019 to Present

Undergraduate Researcher, Advisor: Dr. Richard Irving

- Ultraviolet Transitions in Neutral Chlorine and Sulfur II
 - Performed spectroscopic measurements on neutral Chlorine and Sulfur II utilizing THIA (Toledo Heavy Ion Accelerator).

University of Toledo, Toledo, Ohio

Summer 2021

REU Student, Advisor: Dr. Richard Irving

- Ultraviolet Transitions in Sulfur II including Diagnostic Techniques in Atomic Physics
 - Engaged in development of PyBeaming, a software package built to simulate THIA's beam-foil interaction.

Argonne National Lab, Virtual

Summer 2020

SULI Intern, Advisor: Dr. Walter Hopkins

- Validating the use of Lossy compression on ATLAS data
 - Engaged in an analysis on whether lossy compression influences the physics of data collected by the ATLAS detector.

University of Toledo, Toledo, Ohio

2022 to Present

Undergraduate Researcher, Advisors: Dr. Richard Irving, Dr. Randall Ellingson

- Ion Implantation in CdTe Solar Cells
 - Performed implantation of protons in CdTe (Cadmium Telluride) solar cells utilizing THIA.

SKILLS

Computing Skills

- Programming: C/C++/C#, Python, BASIC, Java, HTML/CSS/JS, PHP, Go, Rust
- Remote Access of Lab PCs with VNCs such as TightVNC, RealVNC
- General PC building/maintenance
- Database Management of THIA's data pipeline with SQL, HDF5/Apache
- General use and terminal experience with Windows, Linux, and server/cloud machines
- Virtualization with VirtualBox, VMWare, Docker, Windows Subsystem(s)
- Data Acquisition with a Kmax crate and LabView
- Data Analysis with ROOT, PyROOT, OriginLab, and homebrew analysis scripts (C++/Python)
- Simulation with SRIM, GRASP2018 (MCDHF), MCNP, PYTHIA, and GEANT.

Lab Skills

- Building, maintenance, and modification of a Danfysik 911A hollow cathode ion source
- Mounting of thin ($2.2 - 2.4 \mu\text{g}/\text{cm}^2$) excitation carbon foils
- Operation and maintenance of vacuum systems including diffusion and mechanical pumps
- Operation and Maintenance of a 300 KV LINAC
- Setup and utilized various PMTs, Surface Barrier detectors, channeltrons, and Ge (Li) particle detectors.
- Operating and maintaining a monochromator and its parts, including diffraction gratings and photomultiplier tubes.

RECENT TALKS

Ultraviolet Transitions in Neutral Chlorine, COF Scholar Showcase, Greater Columbus Convention Center, February 12, 2020.

Validating the use of Lossy compression on ATLAS data, *Learning off the Lawn*, Argonne National Lab, Virtual, July 30, 2020.

Ultraviolet Transitions in Sulfur II including Diagnostic Techniques in Atomic Physics National Physics REU Poster Symposium, APS, Virtual, October 16, 2021.

TEACHING EXPERIENCE

University of Toledo, Toledo, Ohio January 2021 to May 2021

Learning Assistant, Department of Physics & Astronomy

- Helped teach Intermediate Lab (Electronics Lab, ~6 Students)
- Built and tested lab circuits ahead of other students, helped troubleshoot circuits during class, and maintained the lab space.

University of Toledo, Toledo, Ohio August 2022 to December 2022

Teaching Assistant, Department of Physics & Astronomy

- Helped teach a Modern Physics course (~15 students).
- Held recitations sections, graded homework, and managed a class Discord for homework/study help.

PROFESSIONAL AFFILIATIONS

University of Toledo Society of Physics Students, 2018-Present

- Secretary, 2018-2019
- Webmaster/Social Media Manager, 2019-2020
- President, 2020-2022
- SPS National Member, 2019-Present

OUTREACH/SERVICE

WISDOM, *Blackberry Solar Cells*

SPS Outreach, University of Toledo, May 9, 2019

COSMOS, *STEM in the Park*

SPS Outreach, Bowling Green State University, September 28, 2019

Downtown Fremont, Stargazing

SPS Outreach, Fremont, Ohio, October 1, 2021

REFERENCES

[Dr. Richard Irving]

MH2010

The University of Toledo

Toledo, OH 43606

419-530-2589

Richard.Irving@utoledo.edu

[Dr. Randall Ellingson]

MH3007

The University of Toledo

Toledo, OH 43606

419-530-2648

Randall.Ellingson@utoledo.edu

[Dr. Walter Hopkins]

Argonne National Laboratory/CERN

607-216-8752

Walter.Hopkins@cern.ch