Robert Snuggs

325 W. Hillsdale Ln, Holland, Ohio 43528
419-503-7426
robert.snuggs@rockets.utoledo.edu

Experience

Undergraduate Student, University of Toledo

May 2018 - Present
Toledo, Ohio

I joined the atomic physics group at UToledo at the end of my freshman year. My first project was assisting a graduate student with collecting spectra and decay curves for neutral chlorine. We were collecting data in order to obtain lifetimes and oscillator strengths for neutral chlorine. During my first year in the lab I became acquainted with our Kmax data acquisition system and general atomic physics concepts. My second project began near the end of my fall semester sophomore year. This project was about attempting to acquire atomic lifetimes and oscillator strengths for Sulfur II. Specifically, I was to be looking for possible cascades affecting the atomic lifetimes in the transitions of interest. In this project I became more familiar with our 300 KeV LINAC THIA, as well as learning how to perform data analysis on obtained spectra. I am currently still pursuing this project. Parallel to my experimental work with THIA, I am also developing software to simulate our accelerator's conditions.

SULI Intern, Argonne National Laboratory

May 2020 – August 2020

During this internship I worked in a collaboration between Argonne and CERN. CERN collects large data sets and in recent years has been running low on space. Projections of future runs predict space shortages with future upgrades. During this internship I performed an analysis on whether lossy compression has a effect on the physics of data collected by the ATLAS detector. In this internship I was acquainted with high energy physics concepts and the ATLAS data format. I performed the analysis utilizing CERN's PyROOT.

Education

The University of Toledo – Toledo, OH Expected Graduation: December 2022

Pursuing Bachelor of Science in Applied Physics

Four and a half year degree with a focus on applied physics. This included the staple classes and labs, such as Quantum Mechanics, Electromagnetism, and Classical Mechanics. More fundamental classes were taken such as well, such as Chemistry, Programming, and advanced maths.

GPA: 3.61/4.0

Skills

Computing Skills

- Programming: C/C++/C#, Python, Basic, Java, HTML, Javascript, PHP

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- TightVNC, RealVNC
- General PC building/maintenance
- Data Science/Database Maintenance with HDF5
- General use and terminal experience with Windows, Linux, and server/cloud machines
- Virtual Machine usage
- Data Acquisition with a Kmax terminal
- LabView
- Data Analysis with ROOT, PyROOT, and Origin
- Docker
- Simulation with SRIM and MCNP

Lab Skills

- Building, maintenance, and modifying of a hollow cathode ion source.
- Mounting thin carbon foils.
- Usage of an oscilloscope.
- Vacuum Systems operation, and maintenance including diffusion and mechanical pumps. Operation of pressure gauges including Pirani and Penning gauges.
- Operating and maintaining a 300 KeV LINAC.
- Troubleshooting a Kmax data acquisition system.
- Operating and maintaining a monochromator and its parts, including diffraction gratings and photomultiplier tubes.

Interests

Most things that fall under the “nerd” category are listed in my hobbies and interests. Such as video games, tech, and tabletop games such as Dungeons & Dragons. I also have more broad interests such as music. I’ve played guitar for over 10 years, in elementary I played cello, in middle and high school I played trumpet.