LUCAS TRACY

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EDUCATION

Old Dominion University *June 2020*
B.S. in Physics
Minor in Applied Mathematics
Overall GPA: 3.94

RESEARCH

Summer Undergraduate Laboratory Internship (Department of Energy) Summer 2019
Thomas Jefferson National Accelerator Facility *Newport News, VA*

- Mentors: Bogdan Wojsetkhowski and Douglas Higinbotham, Thomas Jefferson National Accelerator Facility
- Aided in construction of electromagnetic calorimeter for SuperBigBite detector
- Analyzed energy measurements for the 2016 GMp experiment in Hall A
- Results of energy measurement analysis presented at the 2019 Thomas Jefferson National Accelerator Facility Summer poster session
- Results are planned to be published in Nuclear Instruments & Methods by the end of 2019

Electrons for Neutrinos Collaboration ($e4\nu$) Spring 2019 - Summer 2019
Old Dominion University/Thomas Jefferson National Accelerator Facility *Norfolk, VA*

- Mentor: Dr. Lawrence Weinstein, Department of Physics, Old Dominion University
- Performed analysis on TJNAF electron beam data using CERN's ROOT library
- Analysis served as a proof of concept for energy reconstruction techniques to be used by various neutrino experiments such as Fermilab's DUNE
- Results presented at 2019 PhysCon poster session
- Results are planned to be published by the end of 2019

Computer Vision for Optical Tweezers Fall 2017
SUNY New Paltz *New Paltz, NY*

- Mentor: Dr. Catherine Herne, Department of Physics and Astronomy, SUNY New Paltz
- Developed C++ code with the OpenCV computer vision library for the purpose of measuring light polarization in optical tweezers

Determining Elliptical Polarization of Light from Rotation of Calcite Crystals Summer 2017
SUNY New Paltz *New Paltz, NY*

- Mentor: Dr. Catherine Herne, Department of Physics and Astronomy, SUNY New Paltz
- Expanded lab capabilities with improvements to hardware, writing LabVIEW programs, and aiding in the motorization/automation of sample translation stage
- Wrote Matlab code to correlate/analyze video and analog sensor data with the goal of measuring laser polarization
- Results presented at the 2017 Frontiers in Optics/Laser Science conference (Oral Presentation, Washington, DC) and Summer Undergraduate Research Experience (SURE) presentation (Oral Presentation, SUNY New Paltz, New Paltz, NY)

Measuring Rotation Rates of Graphite Flakes in Laguerre Gauss Modes Fall 2016
SUNY New Paltz *New Paltz, NY*

- Mentor: Dr. Catherine Herne, Department of Physics and Astronomy, SUNY New Paltz
- Studied the behavior of graphite in optical tweezers utilizing a Laguerre-Gauss beam
- Results presented at the 2016 Frontiers in Optics/Laser Science conference (Poster Session, Rochester, NY) and 2017 Spring Undergraduate Research Symposium (Poster Session, SUNY New Paltz, New Paltz, NY)

TECHNICAL STRENGTHS

Programming Languages	C/C++, ROOT, Python, Java, Matlab, LabVIEW
Computer Programs	Linux, Windows, Microsoft Office/LibreOffice, LaTeX
Optics	Aligment, Optical Tweezers, Measurement and Data Acquisition
Languages	English (Native)

AWARDS

Clifford L. & Lillian R. Adams Scholarship - 2019

Merit based scholarship awarded yearly to outstanding Old Dominion University physics undergraduates

United States Coast Guard Achievement Medal - 2014

Awarded for outstanding achievement while stationed at USCG Station Portsmouth as an active duty service member

PROFESSIONAL ASSOCIATIONS

American Physical Society

Division of Laser Science

Division of Particles and Fields

Society of Physics Students

Member of SPS National and Old Dominion University Chapter