

EDUCATION**UNIVERSITY OF OREGON, EUGENE, OR**

Anticipated Graduation – September 2018

Master of Science in Applied Physics
Concentration in Optical Materials and Devices

DREXEL UNIVERSITY, PHILADELPHIA, PA

September 2013 – June 2017

Bachelor of Science in Materials Science and Engineering
Concentration in Electronic and Photonic Materials

EXPERIENCE**ARGONNE NATIONAL LABORATORY, LEMONT, IL****Research Aide**, High Energy Physics Division, March 2016 – September 2016

- Improved detector yield by 60% from 2015 by optimizing electronic properties of superconducting transition edge sensors for the 3rd Generation South Pole Telescope receiver
- Developed fabrication processes that are currently implemented in device fabrication to fine-tune superconducting transition temperature of thin films for transition edge sensors
- Identified preliminary issues with detector performance and collected data for published journal articles by measuring and analyzing the sub-Kelvin superconducting transition temperature of thin films and patterned devices

Research Aide, Materials Science Division, April 2015 – September 2015

- Fabricated and characterized arrays of superconducting transition edge sensors for cosmic microwave background detection for the 3rd Generation South Pole Telescope receiver by following standard operating procedures for microfabrication in a class 100 clean room
- Designed photomasks using LayoutEditor for use in final array fabrication and for versatile test array designs that streamlined device fabrication to obtain a larger range of data on shorter time scales
- Conveyed results and proposed fabrication methods to multidisciplinary collaboration that included over ten institutions by attending weekly meetings

RUTGERS UNIVERSITY, LASER MATERIALS INTERACTION LABORATORY, CAMDEN, NJ**Student Researcher**, June 2013 – October 2013

- Developed a method which is currently implemented to create alloy nanoparticles using laser ablation and irradiation with a pulsed nanosecond Nd:YAG laser
- Designed experiments to create stable alloy nanoparticles for further application in antibacterial research based on extensive literature review and trial and error
- Independently conducted experiments on creating and characterizing Ag/Au nanoparticles and collaborated with four team members on studies involving the size and stability of Au nanoparticles in various mediums

GLOUCESTER COUNTY SPECIAL SCHOOLS DISTRICT, SEWELL, NJ**Information Technology Technician**, June 2010 – August 2011

- Selected as one of four students out of a class of 28 students to work as a computer and network technician for two schools within the school district
- Communicated effectively with faculty and students on a daily basis through help desk support by resolving technical issues virtually and in person
- Excelled in PC hardware support and repair by receiving a CompTIA A+ certification, computer installation and imaging, and Ethernet cable installation

SKILLS AND TECHNIQUES

SOFTWARE: Intermediate proficiency in MATLAB, Python, LayoutEditor
Novice proficiency in LabView, COMSOL, Zemax

LABORATORY TECHNIQUES: Photolithography, Magnetron Sputtering, Reactive Ion Etching, Wet Etching, Four-point Resistivity, Atomic Force Microscopy, Dynamic Light Scattering, Physical Property Measurement Systems, Manual Wire Bonding, Confocal Microscopy, Scanning Electron Microscopy, Ultraviolet Visible Spectroscopy, X-Ray Diffraction, Profilometry

PUBLICATIONS AND PRESENTATIONS

- Posada, C. M., Gannon, R., et al. "Large arrays of dual-polarized multichroic TES detectors for CMB measurements with the SPT-3G receiver", Proc. SPIE 9914, *Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VIII*, 991417 (2016).
- Ding, Junjia, R. Gannon, et al. "Optimization of transition edge sensor arrays for cosmic microwave background observations with the south pole telescope." *IEEE Transactions on Applied Superconductivity* 27.4 (2017): 1-4.
- Gannon, R., et al. Effects of Sputtering Pressure and Ex-Situ Heating on the Superconducting Transition Temperature of Ti/Au Transition Edge Sensors. Presentation at the 12th Annual Workshop on Low Temperature Electronics (WOLTE12), Arizona State University, Tempe, AZ (2016).

PROJECTS

EFFECTS OF SPUTTERING PRESSURE AND HEATING ON THE PERFORMANCE OF TI/AU TRANSITION EDGE SENSORS, Drexel University, September 2016 – June 2017

- Analyzed superconducting Ti/Au films at Drexel University in collaboration with Argonne National Laboratory for a senior design project.
- Determined that exposure to heat on hot plates in air during normal fabrication processes lead to significant changes in film properties which were characterized for film thickness, roughness, and density with using X-Ray Reflectivity and for film stress with heating using profilometry
- Measured the residual resistivity ratio, or film quality, using four-point resistance measurements from 4K-300K in a Physical Property Measurement System
- Used experimental data and literature reviews to construct theoretical and experimental models to predict the change in film thickness at different heating times.

ELECTROMYOGRAPHY CONTROLLED ELECTRIC WHEELCHAIR, Drexel University, May 2014 – June 2014

- Used principles of electromyography (EMG), or electrical signals from muscles, to control an electric wheelchair by acquiring signals from masseter (jaw) muscles for applications which could include individuals who suffer from loss of limb muscle control
- Constructed a signal amplifier to amplify EMG signals which were collected by a data acquisition box and processed in MATLAB to remove noise and output commands to the wheelchair motors

ORGANIZATIONS

Material Advantage, Member, 2013 – Present

Delta Phi Epsilon International Sorority, Member, Fundraising Coordinator, 2013 – 2017

Mentor/Former Member, FIRST Robotics, 2009 – Present

COMMUNITY OUTREACH

DREXEL UNIVERSITY, LINDY SCHOLARS PROGRAM, Advisor, October 2013 – June 2017

- Mentored, taught, and tutored middle school students in West Philadelphia, PA, to strengthen students' problem solving skills in science, engineering, mathematics, and literacy through designing experiments and lessons
- Assigned to be a group leader at weekend sessions which were held at Drexel University

RUTGERS UNIVERSITY, CIVIC ENGAGEMENT, Education Ambassador, September 2012 – August 2013

- Mentored, taught, and tutored middle school students in North Camden, NJ, on a daily basis through the academic year, and was a group leader for students enrolled in the summer program
- Focused on strengthening students' academic success, particularly in STEM field, by working with students on group activities or individual tutoring