Jedediah Daniel Styron
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Education

Ph.D. Candidate in Nuclear Engineering - All but Dissertation   Present
University of New Mexico, Albuquerque, NM
Expected completion date: May 2017, GPA: 3.86
Dissertation: "Time and Energy Characterization of a Neutron Time-of-Flight Detector for
Redesigning Line-of-Sight 270 at the Z-Pulsed Power Facility"

M.S. in Nuclear Engineering   Fall 2014
University of New Mexico, Albuquerque, NM
Thesis: "Predicting the Sensitivity of a Beryllium/Scintillator Fusion Neutron Detector
Combining Experimental Results and Monte Carlo Methods"

B.S. in Nuclear Engineering   Spring 2013
University of New Mexico, Albuquerque, NM
Honors: Cum Laude, GPA: 3.69

Awards

American Nuclear Society Undergraduate Scholarship   Fall 2012

Assistantships

UNM Research Assistantship   Summer 2013 - present
Research assistant for Dr. Gary Cooper. Performed calculations and conducted experiments for
characterizing and improving the neutron diagnostic suite at Sandia National Laboratories' Z-
Machine.

UNM Student Technical Specialist   Spring 2012 – Summer 2013
Worked under the supervision of Dr. Gary Cooper. Performed calculations and aided in neutron
detector calibrations for neutron diagnostics at Sandia National Laboratories' Z-Machine and the
National Ignition Facility.

Teaching Experience

Co-Honors Thesis Advisor   Fall 2016 – present

Currently co-advising two undergrad senior honors thesis projects under the supervision of Dr. Gary Cooper. Includes meeting with students bi-weekly to verify progress and to provide instruction on MCNP modeling, experimental techniques, and the development and application of numerical techniques for data analysis.

Reactor Operator Instructor, NE 413L Nuclear Engineering Lab   Spring 2016
Assisted Dr. Robert Busch and Ken Carpenter with the UNM senior reactor lab. Duties include - training seniors in reactor operations, safe radiation work practices, and having general discussions involving reactor physics and radiation interactions with the students.

Co-Instructor, Reactor Operations   Summer 2015
Co-taught with Dr. Robert Busch and Ken Carpenter a two day course for the Defense Nuclear Weapons School on introductory reactor physics and operations of the AGN-201 experimental reactor at the University of New Mexico.

Substitute Lecturer, UNM NE485 Fusion   Spring 2014
Developed a lecture and presentation that discussed the three main approaches to achieving fusion along with the neutron diagnostics used to diagnose the performance of the fusion plasma.

Lab Assistant, UNM NE 323L Radiation Detection Measurement   Fall 2014
Assisted Dr. Gary Cooper by helping students with the experimental set-up of NIM electronics, data collection, documentation, data analysis and the writing of lab reports.

Substitute Lecturer, UNM NE323L Radiation Detection Measurement   Fall 2013
Lectured on counting statistics and error propagation relevant to radiation measurements.

Related Experience

Licensed NRC Reactor Operator   March 2016 - present
Licensed to operate the UNM AGN-201M training reactor. Main duties include the safe operation and shut down of the reactor. Other duties include pre-operation inspections, annual and monthly maintenance, and documentation for compliance with NRC regulations. In addition, I have participated in the complete removal of the core tank and fuel, where physical measurements of the core were desired for benchmarking criticality calculations.

UNM NE Lab Radiation Supervisor   Summer 2013 - present
Responsible for the storage, retrieval and safe use of non-accountable nuclear material.

Sandia National Laboratories/ DOE Radiation Worker II Training   Spring 2012 - present
Additional training that allows unescorted access into high radiation areas, contamination areas, high contamination areas, and airborne radioactive areas to perform job duties.

UNM Criticality Safety Training Short Course   Summer 2013

This course provides the training necessary to advert a nuclear excursion in an undesired location. Training includes the recognition of potential accidents, carrying out criticality calculations, criticality standards, and practices for maintaining sub-critical material storage.

Publications and Presentations

J. D. Styron et al., "Predicting the sensitivity of the beryllium/scintillator layer neutron detector using Monte Carlo and experimental response functions", Rev. Sci. Instrum. **85**, (2014). doi: 10.1063/1.4896176

J. D. Styron et al., "Optimization of a fast neutron beryllium/scintillator layer detector using a Monte Carlo approach", Podium Presentation – ANS Student Conference, (2013).

J. D. Styron et al., "Review of the Thorium Fuel Cycle and Its Higher Burn-up Capabilities in Future PWR Designs", Poster Presentation – ANS Student Conference, (2013).

Co-authored publications

K. D. Hahn et al., "Diagnosing fuel magnetization for magnetized liner inertial fusion experiments on the Z-accelerator", Rev. Sci. Instrum., (In progress).

K. D. Hahn et al., "Fusion-neutron measurements for magnetized liner inertial fusion experiments on the Z accelerator", Journal of Physics: Conference Series **717** (2016). doi:10.1088/1742-6596/717/1/012020

M. A. Bonura et al., "A technique for verifying the input response function of neutron time-of-flight scintillation detectors using cosmic rays", Rev. Sci. Instrum. **85** (2014). doi.org/10.1063/1.4896176

G. W. Cooper et al., "Copper activation deuterium-tritium neutron yield measurements at the National Ignition Facility", Rev. Sci. Instrum. **83** (2012). doi.org/10.1063/1.4746999

Memberships

Student member of the American Nuclear Society   2012 - 2015

Additional information

Prior to pursuing higher education I worked as a cabinet maker for 15 years. For 10 of those 15 years I trained ~50 people in techniques relevant to the art of high-end woodworking. In my spare time I enjoy many outdoor activities: golfing, hiking, camping, fishing, and hunting.