EDUCATION

Doctorate of Philosophy   2009
Experimental Nuclear Physics
University of Maryland, College Park MD
Dissertation topic: "Measurement of the Electric Form Factor of the Neutron at High Momentum Transfer"

Bachelor of Arts   2002
Mathematics and Honors Physics
Gustavus Adolphus College, St. Peter MN
Honors thesis topic: "Linearization Techniques for Riccati Systems"
Awarded the Partners in Scholarship scholarship

OBJECTIVE:

SUMMARY

Skilled researcher who will soon complete a doctorate in experimental nuclear physics after 4 years in the field. Strong background in mathematics and mathematical problem solving, using these skills in modeling and analysis of experimental data. Experienced in commissioning and calibration of over 400 scintillation detectors, using these detectors to reconstruct hadron event tracks and using multiple apparatus to reconstruct physics events to measure the neutron's properties. Fit these properties into model's, developed by others, in C++/ROOT to gain insight into the physics of hadrons.

EXPERIENCE

Graduate Research Assistant
University of Maryland at Jefferson Laboratory
Sept. 2005 - present

Took part in a large international collaboration to measure the electric form factor of the neutron, taking part in the experiment from commissioning to final analysis and publication. Completed radiological and general safety training to take part in the experiment.

- Commissioned the neutron detector and served as detector and analysis expert over the course of the experiment; trouble shooting the detector apparatus and data acquisition to keep the experiment running.
- Collaborated in writing the software in ROOT/C++ to analyze the neutron arm data and calibrated over 400 individual detectors that made up the neutron detector apparatus.
- Studied the properties of the neutron detector apparatus, and of the accidental background and hadron events within it.
- Developed new techniques to solve analysis problems, such as proton to neutron conversion and accidental background within the neutron detectors.
- Interpreted the experimental results within theoretical models in the GPD framework to provide an improved physical picture of the neutron.

Teaching Assistant
University of Maryland and *Gustavus Adolphus College*
Sept. 1999 - May 2005

Assisted and instructed undergraduate students in discussion sections and laboratory settings. Graded and prepared home work solutions for both graduate and undergraduate students.
- Assigned problems and developed quizzes; assisted in the preparation of laboratories.

Research Experience for Undergraduates
Indiana University Cyclotron Facility
June 2001-Aug. 2001

Implemented a model to study the properties of fine periodic structure in two dimensional quantum wires.
- Developed a Fortran program to study the transmission properties of periodic structures.

PUBLICATIONS AND PRESENTATIONS

Presentation and Proceedings
"Measurement of the Electric Form Factor of the Neutron at High Momentum Transfer", Particle and Nuclear International Conference 2008, Proceedings 2009

Presentation
"Analysis Techniques: E02-013", Hall A Workshop, 2008

Presentation
"Highest Q^2 Polarized Measurement of the Electric Form Factor of the Neutron – E02-013", Hall A Meeting, 2008

Poster
"G_E^n measurement up to a Q^2 of 3.4 GeV^2", Gordon Conference, 2007

Presentation
"The Neutron Detector for the Measurement of G_E^n at high Q^2 in Hall A.", October Division of Nuclear Physics Meeting, 2006

SKILLS

- Experience with operation and development in Linux and Windows.
- Skill in mathematical problem solving, including using ROOT, mathematica, maple, mathcad, gnuplot, and other similar programs.
- Experience with nuclear electronics, analog electronics, and digital electronics.
- Skill with using the ROOT/C++ and Fortran languages in calculations, plotting, and handling large data sets.
- Skill with dealing with large amounts of data, and experience with interfacing with MySQL databases from within ROOT/C++.