Curriculum Vitae

Daniel E.M. Hoff

Objective:

Pursuing a Professorship in Nuclear Physics, and starting an experimental program in nuclear science.

Education:

2018:

Ph.D Nuclear Chemistry ..... *Washington University in St. Louis*

Advisor: Lee Sobotka
Thesis: *Spin Alignment in Inelastic Nuclear Reactions*

2013:

B.A. Physics with honors ..... *University of Chicago*

B.S. Mathematics ..... *University of Chicago*

Publications:

2019:

Webb, T.B. et al. *Particle decays of levels in* ^{11,12}N *and* ^{12}O *investigated with the invariant-mass method* Physical Review C 100 (2), 024306.

Webb, T.B. et al. *First Observation of Unbound* ^{11}O*, the Mirror of the Halo Nucleus* ^{11}Li Physical review letters 122 (12), 122501.

2018:

Hoff, D.E.M et al. *Large Longitudinal Spin Alignment Generated in Inelastic Nuclear Reactions* Physical Review C 97 (5), 054605.

Patch, S.K., Hoff, D.E.M., Webb, T.B., Sobotka, L.G., Zhao, T *Two-stage ionoacoustic range verification leveraging Monte Carlo and acoustic simulations to stably account for tissue inhomogeneity and accelerator–specific time structure- A simulation study* Med. Phys., 45: 783–793.

2017:

Hoff, D.E.M, Charity, R.J. et al. *Large Longitudinal Spin Alignment of Excited Projectiles in Intermediate Energy Inelastic Scattering* Phys. Rev. Lett. 119, 232501.

2015:

Hoff, D.E.M., Barnes, A.B. et al. *Frequency swept microwaves for hyperfine decoupling and time domain dynamic nuclear polarization* Solid State Nuclear Magnetic Resonance, Volume 72, 2015, 79-89.

Research Interests:

Searching for physics Beyond the Standard Model using nuclear spectroscopic techniques. Understanding nuclear structure and dynamics through scattering experiments. Developing state-of-the-art neutron detectors for use throughout nuclear science. Understanding astrophysical processes through a nuclear lens, for example, isotopic abundances generated in neutron-star mergers. Studying the implications of different nuclear equations of state (EOS) on dense matter.

Research Experience:

2018-Present:

Research Associate ..... Department of Physics and Applied Physics, *University of Massachusetts Lowell*

2014-2018:

Graduate Research Assistant ..... Department of Chemistry, *Washington University in St. Louis*
Advisor: Dr. Lee Sobotka

2013-2014:

Staff Scientist ..... Department of Chemistry, *Washington University in St. Louis*
Advisor: Dr. Alexander Barnes

2010-2012:

Research Assistant ..... Department of Physics, *University of Chicago*
Advisor: Dr. Scott Wakely

2009:

Research Assistant ..... Department of Physics, *Washington University in St. Louis*
Advisor: Dr. James Buckley

Teaching Statement:

I want to foster a culture of learning and excitement for science, while involving students in state-of-the-art experiments.

Teaching Experience:

Fall 2019:

Instructor for Phy 1440 at *University of Massachusetts, Lowell*
Second Semester Physics Lecture (Electromagnetism)
Section* Size: 10 undergraduates
Time Commitment: 2 hours of instruction, and 2 hours of grading per week

Fall 2017:

T.A. for Chem 460 Radiochemistry at *Washington University in St. Louis*
Upper Level Undergraduate/Graduate Student Lab.
Class Size: 3 Undergraduates
Time Commitment: 5 hour Lab, and 2 hours of grading per week

2014-2016:

T.A. for Chem 151/152 General Chemistry Lab at *Washington University in St. Louis*
Introductory Level Undergraduate Lab.
Class Size: 20 Undergraduates
Time Commitment: 3 hour lab, and 7 hours of grading per week

Conferences and Talks:

2019:

Poster at Nuclear Chemistry Gordon Conference
^{73}Sr *β-delayed proton emission and the structure of* ^{73}Rb

Talk at April Meeting of APS
A Radio-Frequency Fragment Separator (RFFS) for FRIB

2018:

Talk at April Meeting of APS
Large Longitudinal Spin Alignment Generated in Inelastic Nuclear Reactions

Poster at April Meeting of APS
ASICs for FRIB

Poster at SSAP Symposium
Producing Huge Spin Alignment of Inelastically Scattered Projectiles in Clustered Nuclei
Received Poster Award

2017:

Invited Talk at Los Alamos National Laboratory (LANL) Nuclear Data Seminar
Large Longitudinal Spin Alignment of Excited Projectiles in Intermediate Energy Inelastic Scattering

Poster/Talk at Nuclear Chemistry Gordon Conference
Producing Huge Spin Alignment of Inelastically Scattered Projectiles in Clustered Nuclei Selected to Give Talk based on Poster Session Vote

2015:

Poster/Talk at Exotic Beam Summer School
Spin Alignment of Excited Projectiles
Selected to Give Talk based on Poster Session Vote

2014:

Poster at Rocky Mountain Conference on Magnetic Resonance
Frequency Agile Gyrotron for DNP and Electron Decoupling