Andrew S. Voyles, EIT

Contact Information

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Education

University of California, Berkeley — Berkeley, California
Ph.D.-track Student, Nuclear Engineering — Expected Graduation: **May, 2019**
Nuclear Regulatory Commission Graduate Fellowship

- 3.775/4.0 Cumulative GPA
- Research Emphasis: Nuclear Excitation Functions for Neutron and Charged Particle Production of Novel Therapeutic and Diagnostic Radionuclides.

University of Utah, Honors College — Salt Lake City, Utah
B.S., *cum laude*, Chemical Engineering — **May, 2013**
Minors: Nuclear Engineering, Chemistry
University of Utah President's Club Scholarship, Dean's List, 2009 - 2013

- 3.877/4.0 Cumulative GPA
- Notable Coursework Emphases: Hands-on radiochemistry labs, coursework exposure to advanced Nuclear Engineering simulation codes (GEANT4, MCNP5/MCNPX, AGENT).

Research Experience

University of California, Berkeley — Berkeley, California
Graduate Student Researcher / NRC Fellow — **August, 2014 - Present**
Current Ph.D. research focuses on the measurement of cross-sections for neutron-induced and charged particle-induced reaction pathways for the production of emerging novel therapeutic and diagnostic radionuclides, with high specific activity.
Other research includes:
Development of intense mono-energetic neutron source capabilities for production of novel therapeutic radionuclides.
Evaluation of solid debris collection diagnostics in search of evidence of nuclear-plasma interactions, at Osaka University Institute for Laser Engineering, Osaka, Japan.

University of Utah — Salt Lake City, Utah
Undergraduate Researcher, Nuclear Engineering — **August, 2010 - August, 2011**
Developed simulation of Neutron Activation Analysis, an analytical technique using neutron irradiation of matter to determine highly precise compositions of samples.
Simulation optimizes irradiation times of samples to minimize resulting radioactivity.
Presented paper at 2011 ANS Student Conference, 2011 2nd Utah Detection Conference.

Undergraduate Researcher, Chemistry — **August, 2009 - May, 2010**
Synthesis and characterization of metal-doped Cadmium-Selenium quantum dots used to produce photonic crystals structured after iridescent scales of several Brazilian beetles.
Applications include fully-optical circuitry and tunable, customizable photoluminescent sensors for desired molecules and/or cells.
Later research involved sol-gel dip-coating quantum dots for use in geothermal wells.

University of West Florida — Pensacola, Florida
High School Researcher, Physics — **May, 2008 - January, 2009**
Investigated and modeled specific heat capacity anomalies of liquid crystals, namely, the 4'-octyl-4- biphenyl-carbonitrile molecule, due to the effect of mesophase transitions.
Research proceeded to place third in the 2009 Florida State Science Fair, and as a finalist in the 2009 Intel International Science and Engineering Fair.

Teaching Experience

University of California, Berkeley — Berkeley, California

Graduate Student Instructor — **August - December, 2015**

Wrote and graded homework sets for class of 41 undergraduate and graduate students, and led weekly discussion sections for entire class on supplementary material and applications of course material. Mentored students through semester in their coursework, and helped doctoral-track graduate students prepare for their departmental screening exams in this topic.

- NE 101 / 210M Nuclear Reactions and Radiation, Fall 2015.

University of Utah — Salt Lake City, Utah

National Science Foundation Outreach Mentor — **January - May, 2013**

Mentored students and fielded questions on coursework & exam preparation through the semester, with twice weekly and by-appointment office hours. Led weekly challenge exercises for students.

- CH EN 2300 Thermodynamics I, Spring 2013.

Teaching Assistant — **August - December, 2011**

Designed semester-long computational simulation projects using GEANT4 for class of 63 undergraduate and graduate students, after teaching GEANT4 programming to class. Mentored students through semester in developing their projects, as well as coursework.

- NUCL 3000 / 5030 Nuclear Principles in Engineering, Fall 2011.

Professional Experience

Freelance Programmer — **April, 2012 - Present**

Developed Android applications, and ported existing C++ applications for Android devices.

University of Utah — Salt Lake City, Utah

National Science Foundation Outreach Mentor — **May, 2010 - May, 2013**

Created and presented hands-on demos to local schools, to advocate engineering careers.

Professional Service

American Nuclear Society

- Program Chair, Northern California Section — - since 2016
- Executive Committee, Northern California Section — - since 2016
- Webmaster, Utah Student Section — 2011 - 2013

Contributed Talks

Voyles, A. " ^{64}Cu and ^{47}Sc (n,p) Cross-Section Measurements for Medical Radionuclide Production," 16$^{\text{th}}$ International Workshop on Targetry and Target Chemistry, Santa Fe, NM, 30 August, 2016.

Voyles, A. "Neutron Cross-Sections for Radionuclide Production," University & Industry Technical Interchange 2016 Review Meeting, Raleigh, NC, 07 June, 2016.

Voyles, A. "GEANT4 Simulation of Irradiation Facilities and Neutron Sources at University of Utah TRIGA for Nuclear Forensics and Detection," AICHE Annual Meeting, Minneapolis, MN, 19 October, 2011.

Voyles, A. "GEANT4 Simulation of Irradiation Facilities and Neutron Sources at University of Utah TRIGA for Nuclear Forensics and Detection," 2$^{\text{nd}}$ National Conference in Advancing Tools and Solutions for Nuclear Material Detection, Salt Lake City, UT, 02 May 2011.

Voyles, A. "GEANT4 Simulation of Irradiation Facilities at University of Utah TRIGA (2011)," ANS Student Conference, Atlanta, GA, 15 April 2011.

Certifications

- Licensed in Utah as Engineer in Training (EIT, ID# 13-802-04) — **April, 2012**

Computer Skills

- Languages: Java and C/C++, use of Unix shell scripts.
- Mathematics Packages: MATLAB, Mathematica and Maple.
- Applications: LaTeX, Arduino.

- Simulation Packages: GEANT4, MCNP/MCNPX radiation simulation codes, COMSOL Multiphysics, Aspen process simulator, ANSYS Fluent.
- Operating Systems: Unix/Linux, Windows, and basic network/system administration.

Lab Skills

- HPGe Gamma spectroscopy, radiation detection and measurement.
- Design and implementation of PID process control systems.
- Operation of heat exchanger, distillation column, ebulliometer (classroom experience).
- ^{1}H and ^{13}C NMR , IR characterization and analysis, chromatography.
- Organic laboratory synthesis and purification techniques.

Professional Society Memberships

American Nuclear Society	- since 2011
Alpha Nu Sigma Nuclear Engineering Honor Society	- since 2011
Tau Beta Pi National Engineering Honor Society	- since 2010
Phi Eta Sigma National Honor Society	- since 2010
American Institute of Chemical Engineers	- since 2009

Honors and Awards

University of California, Berkeley

• Department of Nuclear Engineering Outstanding Service Award	2016
• Nuclear Regulatory Commission Graduate Fellowship	2015

University of Utah

• Undergraduate Research Scholar Award	May, 2013
• University of Utah President's Club (Full Ride) Scholarship	2009 - 2013
• Dean's List	2009 - 2013
• Neil R. Mitchell Scholarship in Engineering	2012
• Chevron Scholarship in Engineering	2011
• Theodore Verender Hanks Scholarship in Science & Engineering	2011
• Don Dahlstrom Scholarship in Chemical Engineering	2010
• College of Science Dean's Scholarship, University of Utah	2010
International Baccalaureate Diploma Recipient	July, 2009
Finalist: Intel International Science and Engineering Fair	May, 2009
3rd Place: Florida State Science Fair	April, 2009