

Andrew S. Voyles, EIT

CONTACT INFORMATION

1106B Etcheverry Hall
The University of California, Berkeley
Berkeley, CA 94720 USA

Voice: (850) 281-0217
Fax: (925) 281-0219
E-mail: andrew.voyles@gmail.com

EDUCATION

University of California, Berkeley

Berkeley, California

Ph.D. Candidate, Nuclear Engineering
Nuclear Regulatory Commission Graduate Fellowship

Expected Graduation: **May, 2018**

- 3.725/4.0 Cumulative GPA
- Dissertation Topic: Nuclear Excitation Functions for Production of Novel Medical Radionuclides.
- Research Advisor: Lee A. Bernstein

University of Utah, Honors College

Salt Lake City, Utah

B.S., *cum laude*, Chemical Engineering
Minors: Nuclear Engineering, Chemistry

May, 2013

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

PUBLICATIONS

A.S. Voyles, M.S. Basunia, J.C. Batchelder, J.D. Bauer, T.A. Becker, L.A. Bernstein, E.F. Matthews, P.R. Renne, D. Rutte, M.A. Unzueta, and K.A. van Bibber. *Measurement of the $^{64}\text{Zn}, ^{47}\text{Ti}(n,p)$ Cross Sections using a DD Neutron Generator for Medical Isotope Studies*. Nuclear Instruments and Methods in Physics Research B 410 (2017) 230 - 239. <http://dx.doi.org/10.1016/j.nimb.2017.08.021>

CONTRIBUTED
TALKS

Voyles, A. "Spin Distribution of Excited Nuclear States in $^{nat}\text{Fe}(p,\alpha n)$," 6th Workshop on Nuclear Level Density and Gamma Strength, Oslo, Norway, 08 May, 2017.

Voyles, A. "Experimental Activities in Berkeley," US National Nuclear Data Week 2016 (CSEWG), Upton, NY, 14 November, 2016.

Voyles, A. " ^{64}Cu and ^{47}Sc (n,p) Cross-Section Measurements for Medical Radionuclide Production," 16th 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," 2nd 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	<ul style="list-style-type: none"> • Licensed in Utah as Engineer in Training (EIT, ID# 13-802-04) 	April, 2012
COMPUTER SKILLS	<ul style="list-style-type: none"> • Languages: Java and C/C++, use of Unix shell scripts. • Mathematics Packages: MATLAB, Mathematica and Maple. • Applications: L^AT_EX, 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	<ul style="list-style-type: none"> • HPGe Gamma spectroscopy, radiation detection and measurement. • Design and implementation of PID process control systems. • Operation of heat exchanger, distillation column, ebulliometer (classroom experience). • ¹H and ¹³C NMR , IR characterization and analysis, chromatography. • Organic laboratory synthesis and purification techniques. 	
PROFESSIONAL SOCIETY MEMBERSHIPS	American Nuclear Society Alpha Nu Sigma Nuclear Engineering Honor Society Tau Beta Pi National Engineering Honor Society Phi Eta Sigma National Honor Society American Institute of Chemical Engineers	- since 2011 - since 2011 - since 2010 - since 2010 - since 2009
HONORS AND AWARDS	<i>University of California, Berkeley</i> <ul style="list-style-type: none"> • Department of Nuclear Engineering Outstanding Service Award • Nuclear Regulatory Commission Graduate Fellowship <i>University of Utah</i> <ul style="list-style-type: none"> • Undergraduate Research Scholar Award • University of Utah President's Club (Full Ride) Scholarship • Dean's List • Neil R. Mitchell Scholarship in Engineering • Chevron Scholarship in Engineering • Theodore Verender Hanks Scholarship in Science & Engineering • Don Dahlstrom Scholarship in Chemical Engineering • College of Science Dean's Scholarship, University of Utah International Baccalaureate Diploma Recipient Finalist: Intel International Science and Engineering Fair 3 rd Place: Florida State Science Fair	2016 - since 2015 May, 2013 2009 - 2013 2009 - 2013 2012 2011 2011 2010 2010 July, 2009 May, 2009 April, 2009