

# Andrew S. Voyles, Ph.D., EIT

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Department of Nuclear Engineering ◊ The University of California, Berkeley  
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## EDUCATION

### University of California, Berkeley

Ph.D., Nuclear Engineering

Nuclear Regulatory Commission Graduate Fellowship

Berkeley, California

**August, 2018**

### University of Utah, Honors College

B.S., *cum laude*, Chemical Engineering

Minors: Nuclear Engineering, Chemistry

University of Utah President's Club Scholarship, Dean's List, 2009 - 2013

Salt Lake City, Utah

**May, 2013**

## RESEARCH EXPERIENCE

### University of California, Berkeley

*Graduate Student Researcher / NRC Fellow*

Berkeley, California

**August, 2014 – Present**

- Researched “Nuclear Excitation Functions for Production of Novel Medical Radionuclides” — measurement of cross-sections for neutron-induced and charged particle-induced reaction pathways for the production of emerging novel therapeutic and diagnostic medical radionuclides, with high specific activity.
- Developed intense mono-energetic neutron source capabilities for production of novel therapeutic radionuclides.
- Research carried out at the Lawrence Berkeley National Laboratory's 88-Inch Cyclotron and the Los Alamos National Laboratory's Isotope Production Facility at LANSCE.

### University of Oslo

*Visiting Researcher, Department of Physics*

Oslo, Norway

**April – May, 2018**

- Studied preparation of a chelate-conjugated biomolecule carrying a radionuclide, in the Nuclear and Energy Physics group.
- Focus on the radiolanthanide  $^{161}\text{Tb}$  and a peptidomimetic displaying dual-receptor targeting through the endothelial growth factor receptor and the HER2/neu antigen.

### Institute for Laser Engineering, Osaka University

*Visiting Researcher*

Osaka, Japan

**February – March, 2015**

- Research and evaluation of solid debris collection diagnostics in search of evidence of nuclear-plasma interactions.

### University of Utah

*Undergraduate Researcher, Nuclear Engineering*

Salt Lake City, Utah

**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.

*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.

### University of West Florida

*Visiting Researcher, Department of Physics*

Pensacola, Florida

**May, 2008 – January, 2009**

- Modeled specific heat capacity anomalies of 4'-octyl-4-biphenyl-carbonitrile liquid crystals, due to the effect of mesophase transitions.

TEACHING  
EXPERIENCE

**University of California, Berkeley**  
*Graduate Student Instructor*

Berkeley, California

- NE 101 / 210M — Nuclear Reactions and Radiation

**Fall 2015**

**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 and science careers, focusing on historically underrepresented demographics.

*Teaching Assistant*

- CH EN 2300 — Thermodynamics I
- NUCL 3000 / 5030 — Nuclear Principles in Engineering

**Spring 2013**

**Fall 2011**

SELECTED  
PUBLICATIONS

**Andrew S. Voyles**, Lee A. Bernstein, Eva R. Birnbaum, Jonathan W. Engle, Stephen A. Graves, Toshihiko Kawano, Amanda M. Lewis, and Francois M. Nortier, *Excitation functions for  $(p,x)$  reactions of niobium in the energy range of  $E_p = 40\text{--}90\text{ MeV}$* . Nuclear Instruments and Methods in Physics Research B, **429** (2018) 53–74. <http://dx.doi.org/10.1016/j.nimb.2018.05.028>

Mauricio Ayllon, Parker A. Adams, Joseph D. Bauer, Jon C. Batchelder, Tim A. Becker, Lee A. Bernstein, Su-Ann Chong, Jay James, Leo E. Kirsch, Ka-Ngo Leung, Eric F. Matthews, Jonathan T. Morrell, Paul R. Renne, Andrew M. Rogers, Daniel Rutte, **Andrew S. Voyles**, Karl Van Bibber, and Cory S. Waltz, *Design, construction, and characterization of a compact DD neutron generator designed for  $^{40}\text{Ar}/^{39}\text{Ar}$  geochronology*. Nuclear Instruments and Methods in Physics Research A, (In Press, Accepted 2018). <http://dx.doi.org/10.1016/j.nima.2018.04.020>

**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>

CERTIFICATIONS

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

**April, 2012**

COMPUTER SKILLS

**Languages**

Java, C/C++, Python

**Tools**

git, MATLAB, Mathematica, Maple, L<sup>A</sup>T<sub>E</sub>X, Arduino, shell, bash, SQLite, COMSOL Multiphysics, Aspen, ANSYS Fluent

**Nuclear Software**

EXFOR, TALYS, EMPIRE, GEANT4, MCNP/MCNPX

LAB SKILLS

- Radionuclide labeling via chelate-conjugated biomolecules.
- Radio-HPLC, radio-TLC, and solid-phase extraction radiochemical purification.
- HPGe Gamma spectroscopy, radiation detection and measurement.
- Design and implementation of PID process control systems.
- Operation of heat exchanger, distillation column, ebulliometer (classroom experience).
- $^1\text{H}$  and  $^{13}\text{C}$  NMR, IR characterization and analysis, chromatography.
- Organic laboratory synthesis and purification techniques.

PROFESSIONAL  
SERVICE

Nuclear Instruments and Methods in Physics Research B

- Reviewer

– since 2017

American Nuclear Society

- Program Chair, Northern California Section
- Executive Committee, Northern California Section
- Webmaster, Utah Student Section

– since 2016

– since 2016

2011 – 2013