

# AARON OAKS

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## EDUCATION

**University of Illinois, Urbana-Champaign** Urbana, IL • Ph.D., Nuclear Engineering, 2015  
**University of Illinois, Urbana-Champaign** Urbana, IL • M.S., Nuclear Engineering, 2010  
**University of California, Berkeley** Berkeley, CA • B.S., Computational Engineering Science, 2007

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## RESEARCH EXPERIENCE

**University of Illinois, Urbana-Champaign** **March 2011 to December 2015**  
*Research Assistant – Helium-Vacancy Clustering in Iron*

- Researched and developed helium and vacancy transport and clustering mechanisms in BCC iron
- Implemented general defect clustering framework in custom KMC code
- Implemented possible helium/vacancy transport and clustering mechanisms in custom KMC code
- Implemented OpenMP shared memory parallelization in custom KMC code
- Used KMC code to generate data, and analyzing data to determine void size distribution in iron under irradiation

**Argonne National Laboratory** **May 2012 to August 2012**  
*Research Aide – Equation of State for Xenon in Molybdenum*

- Implemented EAM potential form in SPPARKS monte carlo code (Sandia)
- Used SPPARKS and recently developed Mo-Xe EAM potentials to relax bubble systems to equilibrium
- Developed and used tools to process data and directly calculate the equation of state for xenon in molybdenum

**University of Illinois, Urbana-Champaign** **August 2007 to December 2010**  
*Research Assistant – Defect Evolution in Oxide Fuels*

- Researched and developed defect and fission product transport mechanisms
- Implemented environment-dependent defect transport mechanisms in custom KMC simulation code (C++)
- Used custom built KMC code to generate data, and analyzed data to determine material properties

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## TEACHING EXPERIENCE

**University of Illinois, Urbana-Champaign** **September 2010 to December 2013**  
*Course Instructor – L<sup>A</sup>T<sub>E</sub>X Programming for Math and Science*

- Organized, prepared, and delivered class lectures to audiences at varying experience levels
- Developed and evaluated homework assignments based on specific learning goals
- Held office hours for advanced problem solving after lectures

**University of Illinois, Urbana-Champaign** **August 2013 to December 2013**  
*Course Instructor – Learning in Community*

- Lead class in course-long project to improve partner's sustainability efforts
- Prepared slides/materials for and lead project management meetings/classes
- Evaluated homework assignments and group projects based on standard criteria
- Provided objective, constructive feedback on assignments and problem solving sessions

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## SELECTED PUBLICATIONS

- A. Oaks and J. F. Stubbins, *KMC cluster model comparison in BCC iron*, Journal of Nuclear Materials, Volume 442, Issue 1–3, Supplement 1, November 2013, Pages S639–S642
- B. Ye, A. Oaks, M. Kirk, D. Yun, W. Chen, B. Holtzman, J. F. Stubbins, *Irradiation effects in UO<sub>2</sub> and CeO<sub>2</sub>*, Journal of Nuclear Materials, 441 (1–3), October 2013, Pg. 525–529
- A. Oaks, D. Yun, B. Ye, W. Chen and J. F. Stubbins, *Kinetic monte carlo model of defect transport and irradiation effects in La-doped CeO<sub>2</sub>*, Journal of Nuclear Materials, 414 (2), 15 July 2011, Pg. 145–149
- A. Oaks, *Development of Kinetic Monte Carlo Code to Study Oxygen Mobility in Lanthanum-doped Ceria*, M.S. Thesis, Nuclear, Plasma, and Radiological Engineering, University of Illinois, Urbana-Champaign, 2010

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## CAMPUS SERVICE

- Engineering Graduate Student Advisory Committee — President, 2012–Present
- American Society for Engineering Education — President, 2011–Present; Public Relations, 2010–2011
- College Teaching Effectiveness Network — Secretary/Treasurer, 2012–Present
- Tau Beta Pi — Graduate Advisor, 2011–Present; Member Development, 2010–2011

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## SKILLS

- Programming Languages: C++, Python, Bash, FORTRAN, Perl, and others
- Software Packages: MATLAB, R, Mathematica, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office
- Operating Systems: Microsoft Windows 7/8, Debian/OpenSUSE Linux

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## HONORS AND AWARDS

- Center for Teaching Excellence Certificate in Technology-Enhanced Teaching 2013
- Center for Teaching Excellence Teacher Scholar Certificate 2013
- Center for Teaching Excellence Graduate Teacher Certificate 2013
- Nuclear Regulatory Commission Fellowship 2008–2012
- Alpha Nu Sigma Membership (Nuclear Engineering Honor Society) 2010
- Tau Beta Pi Membership (Engineering Honor Society) 2009