

# Kathryn D. Huff

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CONTACT INFORMATION	Department of Nuclear Engineering, University of California, Berkeley Postdoctoral Scholar, <i>Nuclear Science and Security Consortium</i> Data Science Fellow, <i>Berkeley Institute for Data Science</i>	mobile: (281) 734-1342 e-mail: <a href="mailto:katyhuff@gmail.com">katyhuff@gmail.com</a> website: <a href="http://katyhuff.github.com">katyhuff.github.com</a>
RESEARCH INTERESTS	Advanced nuclear reactors and fuel cycles, multi-physics simulation, nuclear fuel cycle analysis, scientific computation.	
POSTDOC	<b>University of California - Berkeley</b> , NUCLEAR ENGINEERING	<b>Sep 2013 – Aug 2015</b>
PHD	<b>University of Wisconsin - Madison</b> , NUCLEAR ENGINEERING	<b>Aug 2008 – Aug 2013</b>
BA	<b>University of Chicago</b> , PHYSICS	<b>Aug 2004 – June 2008</b>
HONORS AND AWARDS	National Energy Research Scientific Computing Allocation, Senior Investigator. Data Science Fellowship, Berkeley Institute for Data Science, UC Berkeley. Nuclear Science and Security Consortium Postdoctoral Fellowship, UC Berkeley. DOE Office of Science Laboratory Graduate Appointment, Argonne National Lab. Roy G. Post Foundation Nuclear Waste Management Graduate Scholarship. John Randall Memorial Scholarship, American Nuclear Society FCWMD. J.A. McDeavitt Scholarship, University of Chicago, Chicago, IL. University Scholar Award, University of Chicago, Chicago, IL. Los Alamos Distinguished Student Performance Award, Los Alamos National Lab.	<b>2015–2016</b> <b>2014–2016</b> <b>2013–2016</b> <b>2011–2013</b> <b>2011</b> <b>2009</b> <b>2007–2008</b> <b>2004–2008</b> <b>2004</b>
RESEARCH EXPERIENCE	<b>University of California - Berkeley, NE Dept.</b> , Berkeley, CA <i>Postdoctoral Scholar, Nuclear Science and Security Consortium</i> <i>Data Science Fellow, Berkeley Institute for Data Science</i> Developing computational tools and multiphysics models for advanced reactor safety analysis.  <b>Argonne National Laboratory</b> , Argonne, IL <i>Laboratory Graduate Research Appointee, Used Fuel Disposition Campaign</i> Developed a used fuel disposition and generic repository computational model.  <b>University of Wisconsin - Madison, NEEP Dept.</b> , Madison, WI <i>Graduate Research Assistant, Computational Nuclear Engineering Research Group</i> Developed and applied CYCLUS , a nuclear fuel cycle systems analysis tool.  <b>Idaho National Laboratory</b> , Idaho Falls, ID <i>Graduate Research Assistant, Systems Analysis Campaign</i> Developed software functions and requirements for the Fuel Cycle Simulator concept.  <b>Kavli Institute For Cosmological Physics</b> , Chicago, IL <i>Research Assistant, Laboratory for Astrophysics and Space Research</i> Programmed & machined instrumentation. Planned protocol for QUIET polarimeter calibration.  <b>Universidad de Chile, Physics Dept.</b> , Santiago, Chile <i>Research Assistant, Chicago-Chile Research Exchange Program</i> Constructed and operated a far from equilibrium granular materials experiment.  <b>Los Alamos Neutron Science Center</b> , Los Alamos, NM <i>Research Assistant, LANSCE-3</i> Applied digital filtration algorithms and MCNPX models to experimental data.	<b>Sept 2013 – Present</b> <b>Aug 2014 – Present</b>  <b>June 2011 – Aug 2013</b>  <b>June 2008 – Aug 2013</b>  <b>June – Aug 2010</b>  <b>Jan 2005 – June 2008</b>  <b>June – Sept 2006</b>  <b>June – Sept 2004</b> <b>May – Aug 2003</b>

BOOKS	[1] Scopatz, A., <b>Huff, K.</b> “Effective Computation in Physics: Field Guide to Research in Python” O’Reilly Media. 2015. <a href="http://shop.oreilly.com/product/0636920033424.do">shop.oreilly.com/product/0636920033424.do</a> .	
JOURNAL PUBLICATIONS	[2] Aruliah, D.A., Brown, C.T., Chue Hong, N.P., Davis, M., Guy, R.T., Haddock, S.H.D., <b>Huff, K.</b> , Mitchell, I., Plumbley, M., Waugh, B., White, E.P., Wilson, G.V., and Wilson, P.P.H. “Best Practices For Scientific Computing.” <i>PLOS Biology</i> , Vol 1, Issue 12, 2014. <a href="https://doi.org/10.1371/journal.pbio.1001745">dx.doi.org/10.1371/journal.pbio.1001745</a> .	
	[3] Clerc, M., Dunstan, J., <b>Huff, K.</b> , Mujica, N., Varas, G. “Liquid-Solid-Like Transition in Quasi-One-Dimensional Driven Granular Media ”, <i>Nature Physics</i> , Vol 4, 249 - 254, 2008.	
SUBMITTED	[4] <b>Huff, K.</b> “Rapid Methods for Radionuclide Contaminant Transport in Nuclear Fuel Cycle Simulation” <i>Progress In Nuclear Energy</i> , 2015. ( <i>submitted</i> )	
MANUSCRIPTS IN PREPARATION	[5] <b>Huff, K.</b> , Scopatz, A., Gidden, M., Carlsen, R., Flanagan, R., McGarry, M., Opotowsky, A., Rakhimov, O., Welch, Z., Schneider, E., Wilson, P. “Fundamental Concepts in the Cyclus Fuel Cycle Simulator Framework and Modeling Ecosystem” 2015. ( <i>in preparation</i> ) <a href="https://github.com/cyclus/fundamentals\_paper">github.com/cyclus/fundamentals\_paper</a> .	
	[6] Scopatz, A., <b>Huff, K.</b> , Gidden, M., Carlsen, R., Flanagan, R., Opotowsky, A., Rakhimov, O., Welch, Z., Wilson, P. “Cyclus Archetypes” 2015. ( <i>in preparation</i> ) <a href="https://github.com/cyclus/archetypes\_paper">github.com/cyclus/archetypes\_paper</a> .	
	[7] <b>Huff, K.</b> , et al. “Coupled Neutronic and Thermal-Hydraulic Accident Transients in the Pebble-Bed, Fluoride-Salt-Cooled, High-Temperature Reactor (PB-FHR)” 2015. ( <i>in preparation</i> ) <a href="https://github.com/katyhuff/atws">github.com/katyhuff/atws</a> .	
OTHER SELECTED PUBLICATIONS	[8] Bates, C., Biondo, E., <b>Huff, K.</b> , Kiesling, K., Scopatz, A. “PyNE Progress Report” <i>Transactions of the American Nuclear Society Winter Conference</i> . Anaheim, CA. November 2014.	
	[9] Krumwiede, D.L., Andreades, C., Choi, J.K., Cisneros, A.T., Huddar, L., <b>Huff, K.</b> , Laufer, M.D., Munk, M., Scarlat, R.O., Seifried, J.E., Zweibaum, N., Greenspan, E., and Peterson, P.F. “Design of the Mark-I Pebble-Bed, Fluoride-Salt-Cooled, High-Temperature Reactor Commercial Power Plant,” Paper 14231. <i>Proceedings of ICAPP</i> , Charlotte, NC. April 2014.	
	[10] <b>Huff, K.</b> “Cyclus Fuel Cycle Simulation Capabilities with the Cyder Disposal System Model,” Paper 7730. <i>Proceedings of Global</i> , Salt Lake City, UT. October 2013.	
	[11] Gidden, M., Wilson, P., <b>Huff, K.</b> , Carlsen, R. “An Agent-Based Framework for Fuel Cycle Simulation with Recycling,” Paper 7737. <i>Proceedings of Global</i> , Salt Lake City, UT. October 2013.	
	[12] <b>Huff, K.</b> , Nutt, M. “Hydrologic Nuclide Transport Models in Cyder, a Geologic Disposal Software Library,” Paper 13328. <i>Proceedings of the Waste Management Symposium</i> , Phoenix, AZ. February 2013.	
	[13] Rochman, D., Haight, R. C., Wender, S. A., O’Donnell, J. M., Michaudon, A., <b>Huff, K.</b> , Vieira, D. J., Bond, E., Rundberg, R.S., Kronenberg, A., Wilhelmy, J., Bredeweg, T. A., Schwantes, J., Ethvignot, T., Granier, T., Petit, M., Danon, Y. “First Measurements with a Lead Slowing-Down Spectrometer at LANSCE,” <i>AIP Conference Proceedings, International Conference on Nuclear Data for Science and Technology</i> . Volume 769. 2005.	
SOFTWARE PRODUCTS	[14] Carlsen, R., Gidden, M. <b>Huff, K.</b> , Opotowsky, A., Rakhimov, O., Scopatz, A., Welch, Z., Wilson, P. “Cyclus v1.0.0.” <i>figshare</i> . <a href="https://doi.org/10.6084/m9.figshare.1041745">dx.doi.org/10.6084/m9.figshare.1041745</a> . June 2014.	
	[15] Carlsen, R., Gidden, M. <b>Huff, K.</b> , Opotowsky, A., Rakhimov, O., Scopatz, A., Welch, Z., Wilson, P. “Cycamore v1.0.0.” <i>figshare</i> . <a href="https://doi.org/10.6084/m9.figshare.1041829">dx.doi.org/10.6084/m9.figshare.1041829</a> . June 2014.	
PROFESSIONAL SERVICE	<b>Proceedings Co-Chair</b> , SciPy, Scientific Python Conference. <b>2015</b>	
	<b>Chair</b> , Steering Committee, Software Carpentry Foundation. <b>2014–2015</b>	
	<b>Secretary–Treasurer</b> , Fuel Cycle & Waste Management Division, ANS. <b>2013–2015</b>	
	<b>Secretary</b> , Young Members Group, ANS. <b>2013–2014</b>	
	<b>Technical Program Co-Chair</b> , SciPy, Scientific Python Conference. <b>2013–2014</b>	
	<b>Member</b> , Next Generation Leadership Committee, Waste Management Symposium. <b>2013–2014</b>	
	<b>Editor</b> , Proceedings of the SciPy Scientific Python Conference. <b>2013</b>	
	<b>Co-Founder</b> , Nuclear Pride, LGBTQA Organization. <b>2011–2013</b>	
	<b>Co-Founder, Treasurer, President</b> , Hacker Within Scientific Computing Group. <b>2008–2011</b>	