

Matthew J. Gidden

CONTACT INFORMATION	Department of Nuclear Engineering University of Wisconsin - Madison 1500 Engineering Dr., Rm. 437 Madison, WI 53706 USA	Mobile: +1-225-892-3192 E-mail: matthew.gidden@gmail.com Website: mattgidden.com
CITIZENSHIP	USA	
RESEARCH INTERESTS	Nuclear fuel cycle analysis, energy policy, nuclear non-proliferation, agent-based modeling, advanced nuclear reactors, alternative energy systems, scientific computation	
EDUCATION	<p>PH.D., <i>Nuclear Engineering</i>, University of Wisconsin - Madison March 2015</p> <ul style="list-style-type: none"> • An Agent-Based Modeling Framework and Application for the Generic Nuclear Fuel Cycle • Advisor: Professor Paul P.H. Wilson <p>MASTERS, <i>Nuclear Engineering</i>, University of Wisconsin - Madison December 2011</p> <p>B.S., <i>Nuclear Engineering</i>, Texas A&M University May 2009</p> <ul style="list-style-type: none"> • <i>Summa cum Laude</i>, With Honors in Engineering • Minor in Mathematics 	
RESEARCH EXPERIENCE	<p>University of Wisconsin, NE Dept., Madison, WI April 2015 – Present</p> <p><i>Postdoctoral Research Assistant</i></p> <p>Investigated novel methods for modeling recycle fuel fabrication in NFC simulations.</p> <p>University of Wisconsin, NE Dept., Madison, WI Aug 2010 – March 2015</p> <p><i>Graduate Research Assistant</i> Aug 2009 – Jan 2010</p> <p>Developed and extended the Cyclus NFC simulator to model generic nuclear fuel cycles.</p> <p>AREVA, Paris, FRANCE Feb – Jul 2010</p> <p><i>Research Intern (Stagiaire), Core Design Group</i></p> <p>Simulated and analyzed a boron dilution accident in multiple reactor configurations using MCNP.</p> <p>Pacific Northwest National Lab, Richland, WA Jun – Aug 2009</p> <p><i>Research Assistant</i></p> <p>Analyzed a design of an automated verification unit for canisters of enriched UF₆ using MCNP.</p> <p>TN International (AREVA), Montigny-le-Bretonneux FRANCE Jun – Aug 2008</p> <p><i>Research Intern, Materials Group</i></p> <p>Analyzed material suitability for nuclear cask shock absorber via dynamic compression testing.</p> <p>Oak Ridge National Lab, Oak Ridge, TN Jun – Aug 2007</p> <p><i>Research Assistant</i> Jun – Aug 2006</p> <p>Tested the collimation of radiation portal monitors for use with the U.S. Megaports Initiative.</p>	
HONORS & AWARDS	<p>2nd Place in Energy Policy, Innovations in Fuel Cycle Research 2014</p> <p>Winner, The Why Files Cool Science Image Contest 2014</p> <p>Nuclear Energy University Program Graduate Research Fellowship 2010 – 2013</p> <p>American Nuclear Society Graduate Scholarship 2013</p> <p>Nuclear Regulatory Commission Undergraduate Scholarship 2008 – 2009</p> <p>President's Endowed Scholarship, Texas A&M University 2005 – 2009</p> <p>Stinson Scholarship, Texas A&M University 2005 – 2009</p>	

PROFESSIONAL ORGANIZATIONS	American Nuclear Society , Member	2006 – Present
	Communications Committee, Member	2013 – Present
	Public Policy Committee, Member	2013 – Present
	Student Sections Committee, Member	2010 – Present
	Local Sections Committee, Member	2010 – 2012
	Nuclear Nonproliferation Special Committee, Member	2010 – 2012
	ANS Student Conference, Co-Chair	2008
	Institute of Nuclear Materials Management , Member	2008 – Present
	Alpha Nu Sigma , Member	2009 – Present
	Nuclear Engineering Student Delegation , Delegate	2011 – 2013
	Chair	2013
	Vice Chair	2012
TEACHING EXPERIENCE	American Nuclear Society, Texas A&M Chapter , Member	2005 – 2009
	Vice President	2006 – 2007
	University of Wisconsin Advanced Computing Initiative , Madison, WI	Jan 13 – 16, 2015
	Version Control	
	University of Wisconsin Advanced Computing Initiative , Madison, WI	Aug 25 – 26, 2014
	Version Control and Unit Testing	
	University of Wisconsin Advanced Computing Initiative , Madison, WI	Aug 28 – 29, 2013
	Version Control	
	University of Wisconsin Advanced Computing Initiative , Madison, WI	Apr 29 – 30, 2013
	Version Control and Unit Testing	
JOURNAL PUBLICATIONS	[1] Pearce, T. M. Williams, J. J. Kruzel, S. P. Gidden, M. J. Williams, J. C., “Dynamic control of extracellular environment in in vitro neural recording systems,” <i>Neural Systems and Rehabilitation Engineering, IEEE Transactions on</i> , vol. 13, no. 2, pp. 207–212, 2005	
	[2] Huff, K. D. Gidden, M. J. Carlsen, R. W. Flanagan, R. R. McGarry, M. B. Opotowsky, A. C. Schneider, E. A. Scopatz, A. M. Wilson, P. P. H., “Fundamental concepts in the cyclus fuel cycle simulator framework and modeling ecosystem,” <i>Nuclear Technology</i> , 2015	
	[3] Scopatz, A. M. Gidden, M. J. Carlsen, R. W. Flanagan, R. R. Huff, K. D. McGarry, M. B. Opotowsky, A. C. Rakhimov, O. Welch, Z. Wilson, P. P. H., “Cyclus Archetypes,” <i>Nuclear Technology</i> , 2015	
	[4] Gidden, M. Wilson, P., “Dynamic Resource Exchange with CoinOR-CBC in Cyclus, a Nuclear Fuel Cycle Simulator,” in <i>Operations Research and Computing: Algorithms and Software for Analytics</i> , Richland, VA, United States, Jan. 2015	
	[5] Gidden, M. Carlsen, R. Opotowsky, A. Rakhimov, O. Scopatz, A. Wilson, P., “Agent-based dynamic resource exchange in cyclus,” in <i>Proceedings of PHYSOR</i> , Kyoto, Japan, Sep. 2014	
	[6] Gidden, M. Wilson, P., “An agent-based framework for fuel cycle simulation with recycling,” in <i>Proceedings of GLOBAL</i> , Salt Lake City, UT, United States, Sep. 2013	
	[7] Gidden, M. Wilson, P., “Dynamic Resource Exchange Performance in Cyclus,” in <i>Transactions of the American Nuclear Society</i> , San Antonio, TX, United States, Jun. 2015	
ACCEPTED MANUSCRIPTS		
SUBMITTED MANUSCRIPTS		
REFEREED PROCEEDINGS		
CONFERENCE PUBLICATIONS		

- [8] Carlsen, R. W. **Gidden, M. J.** Wilson, P. P., “Deployment Optimization with the CYCLUS Fuel Cycle Simulator,” in *Transactions of the American Nuclear Society*, DOI link for code, methods, etc: <http://dx.doi.org/10.6084/m9.figshare.1086284>, vol. 111, Anaheim, CA, Nov. 2014, pp. 241–244
- [9] Biondo, E. Scopatz, A. **Gidden, M.** Slaybaugh, R. Bates, C. Willson, P. P., “Quality Assurance within the PyNE Open Source Toolkit,” in *Transactions of the American Nuclear Society*, vol. 111, Anaheim, CA, Nov. 2014. [Online]. Available: <https://github.com/pyne/ans-winter-2014-vnv>
- [10] **Gidden, M.** Wilson, P. Scopatz, A., “Developing standardized, open benchmarks and a corresponding specification language for the simulation of dynamic fuel cycles,” in *Proceedings of the 2013 ANS Summer Conference*, Atlanta, GA, United States, Jun. 2013
- [11] **Gidden, M.** Wilson, P. Huff, K. Carlsen, R., “Once-through benchmarks with cyclus, a modular, open-source fuel cycle simulator,” in *Proceedings of the 2012 ANS Winter Conference*, San Diego, CA, Nov. 2012
- [12] **Gidden, M.** Wilson, P. Huff, K., “Once-Through Benchmarks with Cyclus,” in *ANS Student Conference*, Las Vegas, NV, 2011
- [13] Huff, K. D. Wilson, P. P. **Gidden, M. J.**, “Open Architecture and Modular Paradigm of Cyclus, a Fuel Cycle Simulation Code,” in *Transactions of the American Nuclear Society*, vol. 104, 2011, p. 183
- [14] Huff, K. Wilson, P. **Gidden, M.** Elmore, R., *Cyclus : An Open, Modular, Next Generation Fuel Cycle Simulator Platform*, Poster, Mar. 2011
- [15] **Gidden, M.** Livesay, J. York, R. Blessinger, C., “Collimation of Radiation Portal Monitors to Reduce the Innocent Alarm Rate (Poster),” in *Transactions of the American Nuclear Society*, Washington, DC, Nov. 2007
- OTHER PUBLICATIONS
- [16] **Gidden, M. J.**, “An Agent-Based Modeling Framework and Application for the Generic Nuclear Fuel Cycle,” Thesis, University of Wisconsin, Madison, WI, United States, Mar. 2015
- [17] **Gidden, M.**, “An agent-based modeling framework and application for the generic nuclear fuel cycle,” Prelim, University of Wisconsin, Madison, Sep. 2013. [Online]. Available: <http://dx.doi.org/10.6084/m9.figshare.1132596>
- SOFTWARE
- [18] Carlsen, R. W. **Gidden, M.** Huff, K. Opotowsky, A. C. Rakhimov, O. Scopatz, A. M. Welch, Z. Wilson, P., *Cyclus v1.0.0*, Jun. 2014. [Online]. Available: http://figshare.com/articles/Cyclus_v1_0_0/1041745
- [19] Carlsen, R. W. **Gidden, M.** Huff, K. Opotowsky, A. C. Rakhimov, O. Scopatz, A. M. Wilson, P., *Cycamore v1.0.0*, Jun. 2014. [Online]. Available: http://figshare.com/articles/Cycamore_v1_0_0/1041829
- [20] **Gidden, M.**, *Cyclopts*, <http://mattgidden.com/cyclopts/>, Dec. 2014. [Online]. Available: <http://mattgidden.com/cyclopts/>
- [21] Scopatz, A. **Gidden, M.** Welch, Z., “Polyphemus v0.1,” Jun. 2014. [Online]. Available: <http://dx.doi.org/10.6084/m9.figshare.1066058>

COMPUTATIONAL SKILLS	Languages	C++/C, Python, FORTRAN, Visual Basic, Perl
	Build Systems	CMake, make, autoconf/automake
	Database Formats	SQL, HDF5
	Test Frameworks	GoogleTest, nose
	Tools	L ^A T _E X, Doxygen, Sphinx, Jekyll, XML, JSON
	NE Applications	MCNP, Origen, DRAGON, TransLAT
	Other Applications	IPython/IPython Notebooks, Matlab, Mathcad, Mathematica, Maple
REFERENCES	Available upon request	