Academic CV for Dr. G. Ivan Maldonado, Associate Professor
University of Tennessee Department of Nuclear Engineering

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A. PERSONAL DATA

Name: Guillermo Ivan Maldonado
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Clearances: US DOE-Q and US NRC-R Clearances

B. EDUCATION

Ph.D. North Carolina State University, Raleigh, NC, 1993
Nuclear Engineering, Minor: Computational Applied Mathematics
M.N.E. North Carolina State University, Raleigh, NC, 1988
Nuclear Engineering, Minor: Materials Science and Engineering
B.S. University of Toledo, Toledo, OH, 1985
Engineering Physics, Minor: Nuclear Engineering

C. ACADEMIC EXPERIENCE

Associate Professor, Department of Nuclear Engineering, University of Tennessee, 2007-Present (Awarded Tenure in 2012)
Associate Professor, Department of Mechanical, Industrial and Nuclear Engineering, University of Cincinnati, 2003-2007
Assistant Professor of Nuclear and Mechanical Engineering, Department of Mechanical Engineering, Iowa State University, 1994-1999
Instructor and Tutor, Carolina Power and Light Company, University of Maryland Educational Program, New Hill, NC, 1990-1993
Research Assistant and Computer Systems Administrator, NCSU Electric Power Research Center, Raleigh, NC, 1989-1993
Teaching Assistant, North Carolina State University, Department of Nuclear Engineering, Raleigh, NC, 1988-1989

D. INDUSTRIAL AND OTHER NON-ACADEMIC EXPERIENCE

Joint Faculty Appointment, UT/Battelle Oak Ridge National Laboratory, Reactor and Nuclear Systems Division, Reactor Physics Group, 2007-Present
Technical Program Manager, General Electric Nuclear Energy, Global Nuclear Fuel, LLC., Fuel Engineering Services, Wilmington, NC 1999-2003
Visiting Postdoctoral Scientist, Electricité de France, R&D Division (Clamart), Reactor Physics Research Section, Paris, FRANCE, 1993-1994
Engineering Intern, General Electric Nuclear Fuel and Components Manufacturing, Automation Technology, Wilmington, NC, summers 1987/88
Nuclear Engineer, General Electric Knolls Atomic Power Laboratory, D2W Reactor Core Physics Group, Schenectady, NY, 1985-1987
Police Dispatcher, University of Toledo Police Department and Public Safety, Toledo, OH, 1982-1985

Military Service

Telecommunications Operations (72G), SGT/E-4, North Carolina Army National Guard, HQ STARC Communications Center, Raleigh, NC, 1989-1990

Public Affairs Specialist, SSGT/E-4, New York Air National Guard, 109 TAG Public Affairs Office, Scotia, NY, 1985-1986

Telecommunications Operations (29150), SSGT/E-4, Ohio Air National Guard, 180 TFG Communications Center, Toledo, OH, 1980-1985

E. HONORS AND AWARDS

2012	Awarded Early Tenure
2012	UT College of Engineering Research Fellow Award
2011	Best Paper, 2011 COMSOL Conference (PhD grad: D. Chandler)
2010-11	Chair, American Nuclear Society, Reactor Physics Division
2010	UT Nuclear Engineering Department Outstanding Research Award
2010	UT College of Engineering "Exceeded Expectations" Reward
2007-10	Secretary, Treasurer, Vice Chair, ANS Reactor Physics Division
2006	Best Paper Award, ANS Reactor Physics Division, Winter Meeting
2006	Robert E. Hundley Award for Excellence in Teaching in Undergraduate Education (University of Cincinnati)
2005	DOE Nuclear Energy Research Initiative (NERI) Award
2003	Presidential US/Canada Joint Task Force on Northeast Power Outage (Nuclear Facilities Working Group)
2003-06	ANS Reactor Physics Division, Chair of Technical Program Comm.
1999	Iowa State University Young Engr. Faculty Research Award
1999	ANS Reactor Physics Division, Executive Committee Member
1998	ASEE MIND Junior Faculty Award
1998	ISU Leadership for Academic Diversity Recognition Award
1996	National Science Foundation Early Faculty CAREER Award
1996	Society of Hispanic Engineers, Excellence in Service Award
1996	Miller Faculty Teaching Fellowship at ISU
1995/96	ISU Engr Student Council Outstanding Engineering Professor
1993	Author Special Recognition ANS Annual Conference
1990	IBM Supercomputing Competition (third place paper)
1981-85	National Fund for Minority Engineers Scholarship
1980-85	Ohio Air National Guard Tuition Scholarship

F. ACADEMIC AREAS OF SPECIALIZATION

Teaching (University of Tennessee - UT)

NE 301	Fundamentals of Nuclear and Radiological Engineering (F07, F08)
NE 470	Nuclear Reactor Theory I (S08-S11, F11, S12-16)
NE 571	Reactor Theory and Design (F09-15)
NE 611	Selected Topics in Reactor Theory (F08, F12)
NE 697	Special Topics in Nuclear Reactor Theory (F11, S13, S14)

Teaching (University of Cincinnati - UC)

NUC 101	MNE ACCEND Freshman Seminar I (W04, W05, W06, W07)
NUC 102	MNE ACCEND Freshman Seminar II (S04, S05, S06, S07)
NUC 211	Fundamentals of Nuclear and Radiological Engr. (F04, F05, F06)
NUC 311	Fundamentals of the Nuclear Fuel Cycle (S05, F05, S06, F06, W07, S07, U07) – Distance Learning Course
NUC 401	Summer Readings for Tuskegee-UC Bridge Scholars (U04-U06)
NUC 601	Nuclear Reactor Theory and Engineering I (F03)
NUC 602	Nuclear Reactor Theory and Engr. II (W04, W05, W06, W07)
NUC 620	In-Core Nuclear Fuel Management (S04)

Teaching (Iowa State University - ISU)

NE 411	Nuclear Radiation Theory and Engineering (F94)
NE 531	Nuclear Reactor Theory (as 590 – 2 students) (S95)
ME 331	Engineering Thermodynamics (F97, S98, S99)
ME 431	Nuclear Radiation Theory and Engineering (F95, F96)
ME 436	Heat Transfer (S95, F95, S96, S97, F98)
ME 460	Experimental Engineering (S96, F96)
ME 536	Advanced Heat Transfer (S99)
ME 583	Computational Methods in Nuclear Engineering (S98)

G. GRANTS AND CONTRACTS

Summary of Awards as Lead and/or Principal Investigator (at University of Tennessee)

Overall External Awards as Sole/Lead PI (Updated Feb. 2016)		Fiscal Year	Expenditures
Subtotal Inactive Overall	*$4,138,496*	*FY2008*	*$120,008*
Subtotal Active	*$2,320,231*	*FY2009*	*$470,910*
		FY2010	*$609,972*
Overall Total Awards Sole/Lead PI	**$6,458,727**	*FY2011*	*$650,353*
		FY2012	*$700,298*
		FY2013	*$760,064*
		FY2014	*$658,375*
		FY2015	*$613,455*
		6 months of FY2016	*$359,897*
		Total Expenditures	***$4,943,332***

Awards as Lead and/or Principal Investigator (at University of Tennessee) - Projects

1. UT-Batelle Oak Ridge National Laboratory, "Benchmark Evaluation Of U(5) Metal Rods In Water for ICSBEP Handbook Submission," $25,000. Dec-2007-May.2008. Lead-PI (co-PI is Dr. Ron Pevey).
2. University of Maryland, "Consortium on the Development of a Joint US-Russia Educational Program on Advanced Energy Technologies," $71,519. Nov. 2007-Oct. 2010 (parent contract with US Dept. of Education). Sole-PI.
3. University of Cincinnati, "BWR Assembly Optimization for Minor Actinide Recycling," $99,183. Jan. 2008-Dec. 2008. Sole-PI of subcontract and of parent DOE contract.

4. UT-Batelle Oak Ridge National Laboratory, “Development of Nuclear Reactor Models.” $569,465. Jun.2008-Dec.2013. Sole-PI.
5. Los Alamos National Laboratory, “Advanced Reactor Fuel Cycle Modeling,” $35,000. Jan. 2008-Dec. 2010. Sole-PI.
6. US Nuclear Regulatory Commission, "Development of SCALE-based Educational Modules to Innovate Reactor Physics and Criticality Safety Curricula," $250,000. Sep.2008-Aug.2011. Lead PI. Collaborator: TAMU.
7. US Nuclear Regulatory Commission, "US NRC Undergraduate Scholarship Program for Excellence In Nuclear Education at the University of Tennessee," $200,000. Aug.2008-Jul.2010. Lead PI (Co-PI is Dr. Lee Dodds)
8. US Nuclear Regulatory Commission, "US NRC Graduate Fellowship Program for Excellence In Nuclear Education at the University of Tennessee," $400,000. Aug.2008-Jul.2012. Lead PI (Co-PI is Dr. Lee Dodds)
9. UT-Batelle Oak Ridge National Laboratory, "High Fidelity Neutronic and Depletion Simulations for the High Flux Isotope Reactor," $313,923. Sep.’08-Dec.’13. Sole PI.
10. US Nuclear Regulatory Commission, "US NRC Graduate Fellowship Program to Promote Diversity In Nuclear Education at the University of Tennessee," $400,000. Aug.2009-Jul.2013. Lead PI (Co-PI is Dr. Lee Dodds)
11. UT SARIF Equipment and Infrastructure Awards, “Development of Computational Infrastructure for HTGR Safety and Licensing Simulations in Research and Education,” $10,000. Nov. 2009. Sole PI.
12. UT/ORNL JDRD Science Alliance, “Revolutionary Radiation Transport for Next Generation Predictive Multi-Physics Modeling and Simulation,” $94,580. Jan.2010-Dec.2011. Sole PI.
13. DOE/UT-Battelle/ORNL, “High Fidelity Modeling and Optimization of Heavy Element Production at the High Flux Isotope Reactor,” $140,000. Jan.’11-Dec.’12. Sole PI.
14. University of Arizona, “Verification of the CENTRM module for High Temperature Gas-cooled Reactor Applications,” $164,236. Oct.2010-Oct.2013. Sole PI.
15. DOE/UT-Battelle/ORNL, “Curriculum Development for Consortium for Advanced Simulation of Light Water Reactors (CASL),” $153,000. (2010-2014). Sole PI.
16. US Nuclear Regulatory Commission, " End-to-End Lattice Physics to Core Design Educational Modules for Nuclear Fuel Management Training," $59,728. Aug.2011-Jul.2013. Sole PI.
17. Canadian Nuclear Safety Commission (CNSC), “Enhancements to the 3-D Core Simulator NESTLE-CANDU,” $25,000. Jan.-Mar.2012. Sole PI.
18. DOE/UT-Batelle/ORNL, “Storage and Transportation Engineering Analysis and Used Nuclear Fuel Assessment Capabilities Support,” $67,734. Jun.12-Jun.13. Sole PI.
19. Babcock & Wilcox, mPower, “Development of Core Neutronics and Fuel Cycle Simulations for the B&W mPower Small Modular Reactor,” $208,386. Dec.12-Dec.14. Sole PI.
20. DOE/UT-Batelle/ORNL, “On-the-fly (OTF) Doppler Broadening Implementation for the SCALE/KENO Code,” $115,000. Oct.’12.-Jan.’15. Sole PI.

21. Georgia Institute of Technology (GATech), “Fuel and Core Design Options to Overcome the Heavy Metal Loading Limit and Improve Performance and Safety of Liquid Salt Cooled Reactors,” $358,000. Sep.2012-Sep.2015, Sole PI.
22. DOE/UT-Battelle/ORNL, “Development of COMSOL models to support Pu-238 production at HFIR,” $45,998. Jan.14-Sep.15, Sole PI.
23. DOE/UT-Battelle/ORNL, “Radioisotopic Analysis of HFIR,” $28,495. Feb.2014-May.2014, Sole PI.
24. DOE/UT-Battelle/ORNL, “Simulation of Plutonium Isotopic Composition Measurement in Fuel Elements,” $17,347. Oct.2013-Feb.2014, Sole PI.
25. US Nuclear Regulatory Commission, "Scholarship Program For Excellence and Diversity In Nuclear Education at the University of Tennessee," $400,000. Aug.2013-Jul.2016. Sole PI. (Two Awards: FY13 and FY14)
26. Tennessee Valley Authority, “Models and Simulations of the mPower Small Modular Reactor,” $64,000. Oct.13-Dec.14, Sole PI.
27. DOE/UT-Battelle/ORNL, “Improved Approach for Inverse Depletion Analyses,” $48,985. Oct.2013-Feb.2014, Sole PI.
28. DOE/UT-Battelle/ORNL, “Neutronic Evaluation of Accident Tolerant Fuels for LWRs,” $20,000. Jun.2014-Jun.2015, Sole PI.
29. DOE/UT-Battelle/ORNL, “Testing SCALE Procedure for Verified, Archived Library of Inputs and Data (VALID) Approach,” $50,000. Feb.2014-Dec.2015, Sole PI.
30. DOE/UT-Battelle/ORNL, “VVER 1000 Computational Modeling and Benchmark Calculations,” $132,198. Oct.2014-Jul.2016, Sole PI.
31. UT-Battelle Oak Ridge National Laboratory, “Joint Faculty Appointment: RNSD Reactor Physics Group.” $469,016. Aug.2007-Apr. 2016. Sole-PI.
32. US Nuclear Regulatory Commission, " Scholarship Program For Excellence and Diversity In Nuclear Education at the University of Tennessee," $69,782.00. Nov.2015-Sep.2017. Sole PI.
33. DOE NEUP, “Performance Assessment of Enhanced Accident Tolerant Fuels within Aggressive Operational Power Histories,” $799,967. Oct.2014-Nov.2017, Lead PI (Co-PI is Dr. Brian Wirth, Collaborators are J. Powers and A. Worrall at ORNL).
34. US Nuclear Regulatory Commission, " Development of a Sustainable Bridge for Entering Nuclear Engineering Graduate Students at the University of Tennessee," $400,000. Nov.2015-Sep.2019. Sole PI.

<u>Awards as Principal Investigator (at Univ. of Cincinnati and Iowa State University)</u>

1. Lawrence Livermore National Laboratory, “MCNP-based Isotopic Characterization of PWR Spent Nuclear Fuel Assemblies,” $60,000. March 2006 - March 2008, Sole-PI.
2. Penn State University, “Innovations in Nuclear Infrastructure and Education,” $60,000. Sep. 2006 – Aug. 2007, PI (50% Co-PI is Dr. John Christenson).
3. UT-Batelle Oak Ridge National Laboratory, “Development of Assumptions and Criteria for the High Flux Isotope Reactor,” $14,250. Sep.-Dec. 2005, Sole-PI.
4. Department of Energy, NERI Program, “BWR Assembly Optimization for Minor

Actinide Recycling," $399,834. 2005-2008. Collaborating Institutions: Westinghouse BWR, ORNL, and LANL. Sole-PI.

5. National Science Foundation, Early Faculty CAREER Award, "Adaptive Higher-Order Error Correction of Nonlinear Diffusion Generalized Perturbation Theory via a Neural Network," $285,000. August 1, 1996 – July 31, 2001, Sole PI.
6. IES Industries, "Adaptive Higher-Order Error Correction of Nonlinear Diffusion Generalized Perturbation Theory for Boiling Water Reactor Applications," $75,000, April 1, 1997 - December 31, 1999, Sole PI.
7. North Carolina State University Electric Power Research Center: "Optimization of the Spatial Distribution of Enrichment and Burnable Absorbers within a BWR Fuel Assembly," - $103,442, January 1, 1995 - December 31, 1999, Sole PI.
8. ISU PROMAG Fund, Vice Provost for Research, "Support for Proposal Preparation for NSF Alliance for Minority Participation (AMP) Program," $4,300, August 1997. (Co-PI' s: L. Zachary and R. Kanwar).
9. Iowa State University, Sponsored Programs, "Equipment Matching Fund to NSF CAREER Grant," $10,000, August 1996, Sole PI.
10. Electricité de France, Paris-France, "Control Rod and Shutdown Margin Constraints in PWR Reload Optimization," $24,000, January 1995 - May 1996.

Summary of Research Awards at Prior Institutions (Grants & Contracts)	**Total Awards**	**Assigned Share**
Total Grants as Lead Principal Investigator (UC+ISU)	$1,025,826	$992,959
Subtotal as Lead PI at University of Cincinnati	$524,084	$494,084
Subtotal as Lead PI at Iowa State University	$501,742	$498,875
Total Grants as Co-Principal Investigator (UC+ISU)	$543,130	$251,731
Subtotal as Co-PI at University of Cincinnati	$485,000	$237,000
Subtotal as Co-PI at Iowa State University	$58,130	$14,731
Sum of All Grants at University of Cincinnati	$1,009,084	$731,084
Sum of All Grants at Iowa State University	$559,872	$513,606
Sum of All Grants (UC+ISU)	$1,568,956	$1,244,690

Awards as Co-Principal Investigator (UT, UC, and ISU)

1. US Nuclear Regulatory Commission, "Faculty Development Grant," $449,766. 2009-12, Co-PI with H.L. Dodds (PI), L. Heilbronn, J. Hayward, and Haitao Liao.
2. UT-Battelle Oak Ridge National Laboratory, "Development of a Nuclear Security Science and Analysis Certificate Program," $187,810. 2008-2010, Co-PI with J. P. Hayward (PI) – at UT.
3. Department of Energy, "Improvement in Capability of UTNE to Support GNEP R&D Programs," $99,981. 2007-2009, Co-PI with Prof. Ron Pevey (PI) and Prof. Larry Miller (co-PI) – at UT.
4. Department of Energy, "Collaborative Project for a Program for Simulator Interfaced Light Water Reactor Instruction and Research," $50,000. 2005-2007, 45% Co-PI with Prof. John Christenson (PI) – at UC.

5. FENOC and American Electric Power Co., "Collaborative Project for a Program for Simulator Interfaced LWR Instruction and Research," Industrial Matching to DOE, $60,000. Awarded. 2005, 45% Co-PI with Prof. John Christenson (PI) – at UC.
6. Department of Energy, "Building An Effective Educational Bridge Between Tuskegee University and University of Cincinnati," $375,000. Awarded. 2005-2007, 50% Co-PI with Prof. John Christenson (PI) – at UC.
7. ISU Center for Teaching Excellence: Miller Faculty Fellowship, "Project LEA/RN: Leadership Development," $25,000, July, 1996 - June 1997, (Co-PI with B. Licklider, et.al.) – at ISU.
8. Iowa Department of Public Health, Bureau of Radiation Health, "Gamma Spectroscopy Measurements," $1,130, July 1996. (Co-PI with S. Wendt) – at ISU.
9. Special Research Initiation Grant (Fall 1995 Competition), "Development of a CO2 Scrubber for Closed-Cycle Hazardous Waste Incineration," - $7,000, January 1, 1996-June 30, 1996. (Co-PI with R. C. Brown and Dean Ulrichson) – at ISU.
10. IES Utilities, Inc. - "Mutual Enhancements Between Perturbation Theory Methods and Neural Networks" - $25,000, January 1, 1995 – December 31, 1995. (Co-PI with E.B. Bartlett and D. B. Bullen) – at ISU.

H. TECHNICAL PUBLICATIONS

Summary of Peer-Reviewed Publications at all Academic Institutions

Summary of Peer-Reviewed Publications for Dr. G. Ivan Maldonado (January 2016)				
	All Institutions	***UT***	***UC***	***ISU***
Journal Articles and Chapters	30	**17**	3	10
Transactions of the American Nuclear Society	64	**38**	10	16
Full Length Conference Proceedings	60	**36**	13	11
Total Peer Reviewed Publications	154	**91**	26	37

Peer-Reviewed Journal and Archival Articles

S. Hogle, C. Alexander, J. Burns, J. Ezold, G. Ivan Maldonado, "Sensitivity Studies and Experimental Evaluation for Optimizing Transcurium Isotope Production," Submitted, *Nuclear Science and Engineering*, March 2016.

K. Ottinger and G. I. Maldonado, "SMR Fuel Cycle Optimization," Submitted, *Nuclear Engineering and Design*, March 2016.

1. S.W.D. Hart, C. Celik, G. I. Maldonado, L. Leal, "Creation of problem-dependent Doppler-broadened cross sections in the KENO Monte Carlo code," *Annals of Nuclear Energy*, **88**, 49-56 (Feb. 2016).
2. K. Ottinger and G. I. Maldonado, "BWROPT: A multi-cycle BWR fuel cycle optimization code," *Nuclear Engineering and Design*, **291**, 236-243 (Sep. 2015).
3. N. George, G.I. Maldonado, K. Terrani, A. Godfrey, J.C. Gehin, J. Powers, and A. Worrall, "Neutronic Analysis of Candidate Accident-Tolerant Cladding Concepts In Pressurized Water Reactors," *Annals of Nuclear Energy*, **75**, 703-712 (Jan. 2015).

4. N. George, G.I. Maldonado, K. Terrani, J. Powers, and A. Worrall, “Neutronics Studies of Uranium-bearing Fully Ceramic Microencapsulated Fuel for Pressurized Water Reactors,” *Nuclear Technology*, **188** (3), p. 238-251 (Dec. 2014).
5. C. Gentry, G.I. Maldonado, A. Godfrey, K. Terrani, J.C. Gehin, and J. Powers, “A Neutronic Investigation of the Use of Fully Ceramic Microencapsulated Fuel for Pu/Np Burning in PWRs,” *Nuclear Technology*, **186**, 60-75 (Apr. 2014)
6. J.C. Gehin and G.I. Maldonado. “Preface: Special Issue on the PHYSOR 2012 International Conference on the Physics of Reactors,” *Nuclear Science and Engineering*, **175** (3), vii, November 2013.
7. S. Hogle, G.I. Maldonado, C.W. Alexander, “Increasing transcurium production efficiency through directed resonance shielding”, *Annals of Nuclear Energy*, **60**, 267-273. (October 2013). Available online 9 June 2013.
8. B.T. Mervin, S.W. Mosher, J.C. Wagner, G.I. Maldonado, “Uncertainty Under-Prediction in Monte Carlo Eigenvalue Calculations,” *Nuclear Science and Engineering,* **173**, 276-292 (March 2013). Invited Paper.
9. D. Chandler, L.D Proctor, G.I. Maldonado, R.T Primm, III, "Nuclear Transmutations in HFIR’s Beryllium Reflector and their Impact on Reactor Operation and Reflector Disposal,” *Nuclear Technology*, **177** (3), 395-412, March 2012.
10. D. Chandler, G.I. Maldonado, R.T. Primm,III, J.D. Freels, "Neutronics Modeling of the High Flux Isotope Reactor using COMSOL," *Annals of Nuclear Energy*, Volume **38**, Issue 11, 2594-2605, November 2011.
11. G.I. Maldonado, "Editorial - Select Papers from Advances in Nuclear Fuel Management IV," *Progress in Nuclear Energy*, Volume **53**, Issue 6, 553, August 2011. (Guest Editor for Special Issue and Technical Program Chair of Conference).
12. C.H. Juarez, R. McBroom, and G.I. Maldonado, "Water-Moderated and Water-Reflected 0.300 in Diameter U(4.95) Metal Rods in 1.3, 2.05, and 2.9 cm Square-Pitched Arrays,” International Handbook of Evaluated Criticality Safety Benchmark Experiments, NEA/NSC/DOC/IV, Volume IV, LEU-MET-THERM-007 (2010).
13. D. Chandler, R.T. Primm, G.I. Maldonado, "Validation of a Monte Carlo Based Depletion Methodology via HFIR HEU Post-Irradiation Examination Measurements,” *Nuclear Engineering and Design*, **240**, 1033-1042 (2010).
14. D. Chandler, R.T. Primm, G.I. Maldonado, "Power Distribution Analysis for the High Flux Isotope Reactor Critical Experiment 3,” *Nuclear Science and Engineering*, **164**(1), 53-68, January 2010.
15. G.I. Maldonado, J.D. Galloway, H. Hernandez, “Recycling Heterogeneous Americium Targets in a Boiling Water Reactor, ”*Annals of Nuclear Energy*, **37**(2), 256-264, February 2010. (Available Online 28 November 2009).
16. N. Xoubi, R.T. Primm, G.I. Maldonado, "Neutronic Analysis of an Advanced Fuel Design Concept for the High Flux Isotope Reactor,” *Nuclear Science and Engineering*, **162** (1), 87-97, May 2009.
17. G.I. Maldonado, N. Xoubi, and Z. Zhao, “Enhancement of a Subcritical Experimental Facility via MCNP Simulations,” *Annals of Nuclear Energy*, **35**(2), 263-268 (2008).

18. Z. Zhao and G.I. Maldonado, “Speedup of Particle Transport Problems with a Beowulf Cluster,” *Am. Journal of Applied Sciences*, **3**(8): 1948-51, 2006.

19. N. Xoubi, R.T. Primm, G.I. Maldonado, “Loading Beryllium Targets to Extend the High Flux Isotope Reactor’s Cycle Length,” *Annals of Nuclear Energy*, **33**, 664-672 (2006).

20. G.I. Maldonado, “Optimizing LWR Cost of Margin One Fuel Pin at a Time” *IEEE Transactions on Nuclear Science*, **52**:4, 996-1003, August 2005.

21. G.I. Maldonado and N. Kondapalli, "Online Higher-Order Error Correction of Nonlinear Diffusion Generalized Perturbation Theory Using Neural Networks,” *The Journal of Supercomputing*, **23**:2, 185-192, September 2002.

22. B. McClain, S. Batzer, and G.I. Maldonado, "A Numeric Investigation of Rake Face Stress Distribution in Orthogonal Machining,” *Journal of Materials Processing Technology*, **123**:1, 114-119 (2002)

23. J. Zheng, T. Guo, and G.I. Maldonado, "An Application of Linear Superposition to Estimating Lattice Physics Parameters,” *Nuclear Science and Engineering*, **137**, 156-172, February 2001.

24. B. McClain, W. Thean, G.I. Maldonado, and X.D. Fang, "Finite Element Analysis of Chip Formation in Grooved Tool Metal Cutting," *Machining Science and Technology*, **4**:2, 305-316, July 2000.

25. M.G. Lysenko, H.I. Wong, and G.I. Maldonado, "Predicting Neutron Diffusion Eigenvalues with a Query-Based Adaptive Nodal Architecture,” *IEEE Transactions on Neural Networks*, **10**:4, 790-800, July 1999.

26. M.G. Lysenko, H.I. Wong, and G.I. Maldonado, "Neural Network and Perturbation Theory Hybrid Models for Eigenvalue Prediction,” *Nuclear Science and Engineering*, **132**:1, 78-89, May 1999.

27. E.L. Wick, R. Arreaza-Blanco, G.I. Maldonado, H.N. Shapiro, “Total Assessment Evaluation of a Cupola-based to Electric Induction Furnace Replacement,” *Energy Engineering: Journal of the Assoc. of Energy Engineering,* **95**(5):33-49, Dec 1998

28. G.I. Maldonado, P.J. Turinsky, D.J. Kropaczek and G.T. Parks, "Employing Nodal GPT for the Minimization of Feed Enrichment During PWR In-Core Nuclear Fuel Management Optimization," invited paper, *Nuclear Science and Engineering*, **121**:2, 312-325, October 1995.

29. G.I. Maldonado and P.J. Turinsky, "Application of Non-Linear Nodal Diffusion Generalized Perturbation Theory to Nuclear Fuel Reload Optimization," *Nuclear Technology*, **110**:2, 198-219, May 1995.

30. G.T. Parks, P.J. Turinsky, and G.I. Maldonado, "Solving the PWR Reload Core Optimization Problem," Scientific Excellence in Supercomputing: The IBM 1990 Contest Prize Papers, Baldwin Press, Athens, GA, Vol. 1, Ch. 10, 281-310 (1992).

Peer-Reviewed Extended Abstracts (Transactions of the American Nuclear Society)

1. T.A. Eckleberry, W.J. Marshall, E.L. Jones, and G.I. Maldonado, “Validation of KENO Thermal Moderator Doppler Broadening Method in SCALE 6.2b4 Using Continuous-Energy B-VII.1 Library,” Trans. Am. Nucl. Soc., **114**, In Press, New Orleans, LA, Jun. 2016.
2. N.M. George, R.T. Sweet, G.I. Maldonado, B.D. Wirth, J.J. Powers, A. Worrall, “Fuel Performance Calculations for FeCrAl Cladding in BWRs,” Trans. Am. Nucl. Soc., **113**, Washington, DC, Nov. 2015.
3. C. Gentry, G.I. Maldonado, O. Chvala, B. Petrovic, “Burnable Poison Reactivity Control for the Advanced High Temperature Reactor,” Trans. Am. Nucl. Soc., **113**, Washington, DC, Nov. 2015.
4. P.E. Collins, N. Luciano, G.I. Maldonado, "Modernization and Expansion of Isotopic Depletion Capabilities within the NESTLE 3D Nodal Simulator," Trans. Am. Nucl. Soc., **111**, p. 1230-1233, Nov. 2014
5. N.M. George, J.J. Powers, G.I. Maldonado, K.A. Terrani, A. Worrall, "Neutronic Analysis of Candidate Accident-tolerant Cladding Concepts in Light Water Reactors," Trans. Am. Nucl. Soc., **111**, p. 1363-1366, Nov. 2014
6. E. Jones, W.J. Marshall, G.I. Maldonado, "Mixed Uranium-Plutonium Solution Validation of KENO V.a and KENO-VI in SCALE 6.1.2 and 6.2b3 Using Multigroup and Continuous-Energy ENDF/B-VII.0 Libraries," Trans. Am. Nucl. Soc., **111**, p. 857-860, Nov. 2014
7. K.R. Kenner, R. Montgomery, G.I. Maldonado, "Modeling an iPWR Startup Core Cycle with VERA," Trans. Am. Nucl. Soc., **111**, p. 1388-1390, Nov. 2014
8. P.E. Collins, N. Luciano, G.I. Maldonado, "Parametric Study to Capture the Skin Effect in PWR Control Rod Depletion," Trans. Am. Nucl. Soc., **109**, 1327-1329, Nov. 2013
9. N. Luciano, P.E. Collins, G.I. Maldonado, "3D Monte Carlo-Based Depletion of Control Rods for a Small PWR Core," Trans. Am. Nucl. Soc., **109**, 1325-1326, Nov. 2013
10. N. George, C. Gentry, O. Chvala, G.I. Maldonado, "Two Dimensional Calculations for Liquid Salt Cooled Reactors," Trans. Am. Nucl. Soc., **109**, 1339-1342, Nov. 2013
11. S. Hart. G.I. Maldonado, S. Goluoglu, and B. Rearden, "Implementation of the Doppler Broadening Rejection Correction in KENO,” Trans. Am. Nucl. Soc., **108**, 423-425, June 2013
12. C. Gentry, N. George, O. Chvala, G.I. Maldonado, S. Lewis, P. Avigni, B. Petrovic, "Core Physics Parametric Studies for Liquid Salt Cooled Reactors," Trans. Am. Nucl. Soc., **108**, 831-833, June 2013
13. J. E. Banfield, S.P. Hamilton, K.T. Clarno, and G.I. Maldonado, “A New Semi-Implicit Direct Kinetics Method with Analytical Representation of Delayed Neutrons,” Trans. Am. Nucl. Soc., **107**, 1111-1114, Nov. 2012
14. N. George, C. Gentry, G.I. Maldonado, A. Godfrey, K. Terrani, J. Gehin, “Evaluation of Burnable Poisons in Uranium-Based Fully Ceramic Micro-Encapsulated Fuel for PWRs,” *Trans. Am. Nucl. Soc*, **106**, 692-694 (2012).

15. S. Hogle, G.I. Maldonado, C. Alexander, "Development and Validation of Actinide Target Models for Optimization of Transcurium Production in the High Flux Isotope Reactor," *Trans. Am. Nucl. Soc*, **106**, 736-738 (2012).

16. B.T. Mervin, S.W. Mosher, J.C. Wagner, I. Maldonado "Underprediction of Localized Tally Uncertainties in Monte Carlo Eigenvalue Calculations," *Trans. Am. Nucl. Soc*, **104**, 329-330 (2011).

17. D. Chandler, R.T. Primm, G.I. Maldonado, R. W. Hobbs, "Black Rabbit Ejection Studies and COMSOL Kinetics Modeling Development at HFIR," *Trans. Am. Nucl. Soc*, **104**, 845-847 (2011).

18. J. E. Banfield, S. Allu, P. Barai, K.T. Clarno, W.K. Cochran, G. A. Dilts, J.H. Lee, G.I. Maldonado, B. Mihaila, L. Ott, S. Pannala, B. Philip, R. Sampath, S. Simunovic, G. Yesilyurt, "Quasi-Static Validation of the AMP Nuclear Fuel Performance Code," *Trans. Am. Nucl. Soc*, **104**, 83-85 (2011).

19. O. Lastres, D. Chandler, J. Jarrell, G.I. Maldonado, "Studies of Plutonium-238 Production at the High Flux Isotope Reactor," *Trans. Am. Nucl. Soc*, **104**, 716-718 (2011).

20. S. Hogle, G.I. Maldonado, J.G. Ezold, "Modeling of the High Flux Isotope Reactor Cycle 400 with KENO-VI," *Trans. Am. Nucl. Soc*, **104**, 915-917, (2011).

21. S. Hogle, G. I. Maldonado, I. Gauld, J. Ezold, "Calculating Transcurium Production Yields at the High Flux Isotope Reactor," *Trans. Am. Nucl. Soc.*, **103**, 766-767 (2010).

22. D. Chandler, R. T. Primm III, G. I. Maldonado, "Burnup and Spatially Dependent Uranium Isotopic Calculations for the High Flux Isotope Reactor," *Trans. Am. Nucl. Soc.*, **103**, 768-769 (2010).

23. J. D. Galloway, G. I. Maldonado, I. Gauld, M. A. Jessee, K. T. Clarno, "Generalized Isotopic Tracking Capabilities Within the 3-D BWR Nodal Simulator NESTLE," *Trans. Am. Nucl. Soc.*, **103**, 748-750 (2010).

24. D. Chandler, R. T. Primm III, G. I. Maldonado, "Classification Calculations for the ORNL HFIR's Beryllium Reflector Number 3," *Trans. Am. Nucl. Soc.*, **103**, 676-678 (2010).

25. J. E. Banfield, G. I. Maldonado, R. J. Kapernick, "HTGR Modeling with ANSYS and SINDA/FLUINT," *Trans. Am. Nucl. Soc.*, **103**, 902-904 (2010).

26. S. Allu, J. Banfield, P. Barai, J. J. Billings, K. T. Clarno, W. K. Cochran, G. A. Dilts, S. Kadioglu, J. H. Lee, G. I. Maldonado, R. Martineau, B. Mihaila, L. Ott, S. Pannala, B. Philip, R. Sampath, S. Simunovic, J. A. Turner, C. Unal, G. Yesilyurt, "Initial Validation of the AMP Nuclear Fuel Performance Code," *Trans. Am. Nucl. Soc.*, **103**, 255-258 (2010).

27. D. Chandler, R. T. Primm, III, G. I. Maldonado, "HFIR Post-Irradiation Curium Target Rod and Beryllium Reflector Nuclide Inventory Calculations," *Trans. Am. Nucl. Soc.*, **102**, 560-561, (2010).

28. J. Banfield, S. Goluoglu, D. Wiarda, G. I. Maldonado. "Unionizing Cross Sectional Energy Grids for SCALE Applications," *Trans. Am. Nucl. Soc.*, **101**, 752-754, (2009).

29. D. Chandler, R. T. Primm, III, and G. I. Maldonado, "Validation of a Monte Carlo Based Depletion Methodology Using HFIR Post-Irradiation Measurements," *Trans. Am. Nucl. Soc.*, **101**, 696-698, (2009).

30. S. Hart, B. Broadhead, R. Ellis, and G. I. Maldonado, "SCALE-based Lattice Physics for CANDU Simulations," *Trans. Am. Nucl. Soc.*, **101**, 701-702, (2009).

31. J.S. Burdo, J.M. Christenson, G.I. Maldonado, and Y.S. Ham, "Detectability of Pin Diversion In PWR Spent Fuel Assemblies," *Trans. Am. Nucl. Soc.*, **101**, 755-758, (2009).

32. G.I. Maldonado, P. Tsvetkov, W. Sadowski, "Experiences with International Collaborations in Nuclear Engineering Research and Educational Exchanges," Panel Organized and Chaired, *Trans. Am. Nucl. Soc.*, **101**, 681, (2009)

33. G. I. Maldonado, J. Galloway, H. Hernandez, K. T. Clarno, E. L. Popov, M. A. Jessee, "Integration of the NESTLE Core Simulator with SCALE," *Trans. Am. Nucl. Soc.*, **100**, 619-620, (2009).

34. D. Chandler, R.T. Primm, and G. I. Maldonado, "Power Distribution Analysis for the High Flux Isotope Reactor Critical Experiment 3," *Trans. Am. Nucl. Soc.*, **100**, 603-604, (2009).

35. P. Tsvetkov, J. Ragusa, G.I. Maldonado, W. Sadowski, "International Collaboration in Nuclear Energy Technology Education: Fulfilling the Need for Nuclear Engineers," Panel Organized, *Trans. Am. Nucl. Soc.*, **99**, 667, (2008).

36. C.H. Juarez, D.D. Dixon, G.I. Maldonado, R.C. McBroom, C.M. Hopper, "Analysis of Legacy LEU Critical Experiments with ENDF/B-VII," *Trans. Am. Nucl. Soc.*, **99**, 720-722, (2008).

37. T. Greifenkamp, G.I. Maldonado, J. Gehin, and M. DeHart, "Analysis of Minor Actinide Target Depletion in a Pressurized Water Reactor Lattice," *Trans. Am. Nucl. Soc.*, **98**, 670-672, (2008).

38. R. Sagdeev, P. Tsvetkov, W. Sadowski, G.I. Maldonado, et.al, "Development of a Joint US-RF Educational Program in Advanced Energy Technologies," *Trans. Am. Nucl. Soc.*, **98**, 775-776, (2008).

39. J. Galloway and G.I. Maldonado, "Three-dimensional Core Simulations of BWR Bundles with Americium Target Pins," *Trans. Am. Nucl. Soc.*, **97**, 400-401 (2007)

40. Hernandez, H. and G.I. Maldonado, "Application of Simulated Annealing Optimization to Recycle Minor Actinides in a BWR Lattice," *Trans. Am. Nucl. Soc.*, **96**, 771-773 (2007)

41. N. Xoubi, G.I. Maldonado, and R. T. Primm, "Computation of the ORNL HFIR Reactor's Exposure-Dependent Eigenvalue using MCNP-based Core Depletion," *Trans. Am. Nucl. Soc.*, **95**, 417-419 (2006). (Best Paper Award)

42. C. Yin, J. Galloway, G. Ivan Maldonado, E. Fuentes, J. Casal, "University of Cincinnati and Westinghouse Collaboration: PHOENIX-4 Lattice Physics Studies," *Trans. Am. Nucl. Soc.*, **94**, 483-485 (2006)

43. C. Yin, J. Burdo, G. Ivan Maldonado, Y.S. Ham, "University of Cincinnati and LLNL Collaboration: PWR Fuel Pin Diversion Study," *Trans. Am. Nucl. Soc.*, **94**, 480-482 (2006)

44. N. Xoubi, R. T. Primm, and G.I. Maldonado, “Investigation of Increased HEU Loading on the Fuel Cycle of the High Flux Isotope Reactor,” *Trans. Am. Nucl. Soc.*, **93**, 657-659 (2005)
45. Z. Zhao, and G.I. Maldonado, “Combining a Beowulf Cluster and MCNP5 to Solve Particle Transport Problems,” *Trans. Am. Nucl. Soc.*, **92**, 522-524 (2005)
46. N. Xoubi, R. T. Primm, and G.I. Maldonado, “Fuel Cycle Extension of the HFIR Using a Beryllium Internal Reflector,” *Trans. Am. Nucl. Soc.*, **92**, 534-536 (2005)
47. N. Xoubi, S. Usman, and G.I. Maldonado, “Subcritical Reactor Experiments at the University of Cincinnati,” *Trans. Am. Nucl. Soc.*, **90**, 420-421 (2004)
48. G.I. Maldonado, et al., “Reactivity Notch Worth Reduction During In-Sequence Approach to Critical,” *Trans. Am. Nucl. Soc.*, **89**, 580-581 (2003)
49. A. Karve, P. Keller, P. Turinsky, and G.I. Maldonado, "Nuclear Fuel Management Optimization Capabilities,” *Trans. Am. Nucl. Soc*. **84**, 59-60 (2001)
50. J. Zheng, G.I. Maldonado, "Parallel Generation of Linear Superposition Libraries for Lattice Loading Optimization.” *Trans. Am. Nucl. Soc.*, **83**, 275-276 (2000)
51. T. Guo, J. Zheng, G.I. Maldonado, and G.H. Hobson, "Lattice Loading Optimization within a 4x1/4 Assembly Colorset.” *Trans. Am. Nucl. Soc.*, **81**, 74-76 (1999)
52. G.I. Maldonado, J. Zheng, and T. Guo, "Separability of Perturbations Within a Superposition-Based Lattice Physics Model.” *Trans. Am. Nucl. Soc.*, **80**, 234-238 (1999)
53. G.I. Maldonado and E. Fuentes, "Determination of Limiting Cask Configuration by Simulated Annealing.” *Trans. Am. Nucl. Soc.*, **79**, 278-279 (1998)
54. G.I. Maldonado and J. Zheng, "Approximation of Lattice-Physics Parameters via Linear Superposition.” *Trans. Am. Nucl. Soc.*, **79**, 317-318 (1998)
55. G.I. Maldonado and T. Guo "Penalty-Based Constraints Applied to Within-Bundle Loading Optimization." *Trans. Am. Nucl. Soc.*, **78**, 235-236 (1998)
56. G.I. Maldonado, T. Guo, and P. Engrand "Dual-Objective Simulated Annealing Applied to Within-Lattice Loading Optimization." *Trans. Am. Nucl. Soc.*, **78**, 236-237 (1998)
57. H.I. Wong and G. I. Maldonado, "Adaptive Neural Network Error control for Generalized Perturbation Theory," *Trans. Am. Nucl. Soc.*, **75**, 174-176 (1996)
58. H.I. Wong and G. I. Maldonado, "Evaluation of Reactivity Shutdown Margin for Nuclear Fuel Reload Optimization," *Trans. Am. Nucl. Soc.*, **73**, 430-432 (1995)
59. S.E. Wendt, G.I. Maldonado and E.B. Bartlett, "Predicting Critical Boron Concentration in a PWR using an Artificial Neural Network," *Trans. Am. Nucl. Soc.*, **72**, 149-151 (1995)
60. G.I. Maldonado, P.R. Engrand and C. Beguinet, "A Multi-Reference Nodal GPT Approach to Rodded Constraints in Reload Optimization," *Trans. Am. Nucl. Soc.*, **71**, 261-263 (1994)
61. G.I. Maldonado, P.J. Turinsky and D.J. Kropaczek, "On the Treatment of Non-Linear Local Feedbacks within Advanced Nodal Generalized Perturbation Theory," *Trans. Am. Nucl. Soc.*, **68** , 218-220 (1993) - ANS Special Recognition.

62. P.R. Engrand, G.I. Maldonado, R. Al-Chalabi, and P.J. Turinsky, "Non-Linear Iterative Strategy for NEM: Refinement and Extension," *Trans Am. Nucl. Soc.*, **65**, 221-223 (1992)

63. S. Sun, G.I. Maldonado and P.J. Turinsky, "Loading Pattern Sensitivity to Burnable Poison Availability," *Trans. Am. Nucl. Soc.*, **65**, 67-68 (1992)

64. J.M. Sawyer, P.R. Murphy, G.T. Parks, G.I. Maldonado, P.J. Turinsky and D.A. Daniels, "Integration of FORMOSA PWR In-Core Fuel Mgt Optimization Code into Nuclear Design Code Systems," *Trans. Am. Nucl. Soc.*, **63**, 416-418 (1991)

Peer-Reviewed Full-Length Conference Proceedings

1. N.P. Luciano, G.I. Maldonado, I. Gauld, “Modeling and Simulation of an Operational VVER-1000 Benchmark with NESTLE,” Under Review, Proc. 2016 International Congress on Advances in Nuclear Power Plants (ICAPP 2016), San Francisco, CA, April 17-20, 2016.

2. T.A. Eckleberry and G.I. Maldonado, “Reactivity Assessment of Enhanced Accident Tolerant Claddings in a Modern PWR,” Accepted, PHYSOR 2016, Sun Valley, Idaho, May 1-5. 2016.

3. C.A. Gentry, G.I. Maldonado, K.S. Kim, “Development of Two-Step Analysis Procedure for the Advanced High Temperature Reactor,” Accepted, PHYSOR 2016, Sun Valley, Idaho, May 1-5. 2016.

4. E.L. Jones, G.I. Maldonado, W.J. Marshall, C.M. Perfetti, B.T. Rearden, “Investigation of the Continuous-Energy Sensitivity Methods in Scale 6.2 using Tsunami-3D,” Proc. International Conference on Nuclear Criticality Safety (ICNC) 2015, Charlotte, North Carolina, September 13-17, 2015.

5. N.P. Luciano, K.E. Ottinger, P.E. Collins, C. Gentry, N. George, A.J. Pawel, K. Kenner, S. Hart, O. Chvala, G.I. Maldonado, F. Fejt, “The NESTLE 3D Nodal Core Simulator: Modern Reactor Models,” Proc. M&C+SNA+MC 2015, Nashville, TN, April 19-23, 2015.

6. N.M. George, J.J. Powers, G.I. Maldonado, A. Worrall, K.A. Terrani, “Development of a Full-Core Reactivity Equivalence for FeCrAl Enhanced Accident Tolerant Fuel in BWRs,” Proc. Advanced in Nuclear Fuel Management V, Hilton Head Island, March 29-April 1, 2015.

7. N.M. George, J.J. Powers, G.I. Maldonado, A. Worrall, K.A. Terrani, “Demonstration of a Full-Core Reactivity Equivalence for FeCrAl Enhanced Accident Tolerant Fuel in BWRs,” Proc. Advanced in Nuclear Fuel Management V, Hilton Head Island, March 29-April 1, 2015.

8. S.W.D. Hart, G.I. Maldonado, C. Celik, L.C. Leal, "Problem Dependent Doppler Broadening of Continuous Energy Cross Sections in the KENO Monte Carlo Computer Code," PHYSOR 2014 - The Role of Reactor Physics toward a Sustainable Future, Kyoto, Japan, Sep. 28 – Oct. 3, 2014, on CD-ROM (2014)

9. J. Powers, N. George, A. Worrall, K. Terrani, G.I. Maldonado, "Reactor Physics Assessment of Alternate Cladding Materials," Proc. of WRFPM 2014, Sendai, Japan, Sep. 14-17, 2014. Paper No. 100104.

10. K. Ottinger, G.I. Maldonado, "Multi-Cycle Boiling Water Reactor Fuel Cycle Optimization," 2013 Global Conference, Salt Lake City, UT, September 2013.
11. S. Hart and G.I. Maldonado, “Modernization of the NESTLE-CANDU Reactor Simulator and Coupling to SCALE-Processed Cross Sections,” Proc. of the 24th Nuclear Simulation Symposium, Ottawa, Ontario, Canada, Oct. 14-16, 2012.
12. R.A. Joseph, III, B. Ganapol, G.I. Maldonado, “The Ultra-Fine-Group Panel Method for Neutron Slowing Down,” Proc. of the 20th International Conference on Nuclear Engineering, ICONE20, Anaheim, CA, Jul.30-Aug.3, 2012.
13. J.E. Murphy, G.I. Maldonado, R. St Clair, D. Orr, “PWR Core and Spent Fuel Pool Analysis using SCALE and NESTLE,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
14. S. Hogle, G.I. Maldonado, C. Alexander, “The Effects of Flux Spectrum Perturbation on Transmutation of Actinides: Optimizing the Production of Transcurium Isotopes,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
15. N.C. Sly, B.T. Mervin, S. W. Mosher, T.M. Evans, J.C. Wagner, G.I. Maldonado, “Verification of the SHIFT Monte Carlo Code,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
16. N. Luciano, J. Shamblin, G.I. Maldonado, “Fast Reactor Burnup Using VESTA,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
17. J. Banfield, B.T. Mervin, S. Hart, J. Ritchie, S. Walker, A. Ruggles, G.I. Maldonado, “RELAP5 Model of the High Flux Isotope Reactor with Low Enriched Fuel Thermal Flux Profiles,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
18. C. Gentry, G.I. Maldonado, A. Godfrey, K. Terrani, J. Gehin, “Application of Fully Ceramic Microencapsulated Fuel for Transuranic Waste Recycling in PWRs,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
19. N. George, G.I. Maldonado, K. Terrani, A. Godfrey, J. Gehin, “Uranium-Based Fully Ceramic Microencapsulated Fuel for PWRs,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
20. B. Mervin, S. W. Mosher, T.M. Evans, J.C. Wagner, G.I. Maldonado, “Variance Estimation in Domain Decomposed Monte Carlo Eigenvalue Calculations,” Proc. of PHYSOR 2012 – Advances in Reactor Physics – Linking Research, Industry and Education, Knoxville, TN, April 15-20, 2012.
21. J.E. Banfield, K.T. Clarno, G.I. Maldonado, J. Lee, S. Hamilton, “Inclusion of Spatial-Kinetics with Thermal Feedback within Multi-Physics Fuel Performance Analysis,” Proceedings of ICAPP’12, Chicago, IL, June 24-28, 2012.
22. S. Hart, G.I. Maldonado, M. Williams, “Embedded Self-Shielding Method for Use in SCALE Transport Codes,” Proceedings of ICAPP’12, Chicago, IL, June 24-28, 2012.

23. C. Gentry, G.I. Maldonado, A. Godfrey, K. Terrani, J. Gehin, “Application of Fully Ceramic Microencapsulated Fuels in Light Water Reactors,” Proceedings of ICAPP’12, Chicago, IL, June 24-28, 2012.
24. J.E. Banfield, K.T. Clarno, S.P. Hamilton, G.I. Maldonado, B. Philip, M.L. Baird, “Benchmarking of Software and Methods for use in Transient Multidimensional Fuel Performance with Spatial Reactor Kinetics,” Proceedings of ICAPP’12, Chicago, IL, June 24-28, 2012.
25. D. Chandler, J.D. Freels, G. I. Maldonado, R. T. Primm, III, “COMSOL-based Nuclear Reactor Kinetics Studies at the HFIR,” COMSOL Conference, Boston, MA, Oct. 13-15, 2011. (Winner of Best Paper Award)
26. J.E. Banfield, K.T. Clarno, G.I. Maldonado, J. Lee, “Kinetics Implementation in AMP (Advanced Reactor Multi-physics) Fuel Performance Code,” Materials Modeling and Simulation for Nuclear Fuels (MMSNF 2011), Aix en Provence, France, Sep. 26-28, 2011.
27. B.T. Mervin, G.I. Maldonado, S.W. Mosher, J.C. Wagner, “Uncertainty Analyses for Localized tallies in Monte Carlo Eigenvalue Calculations,” International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering (M&C 2011), ID#244, Rio de Janeiro, Brazil, May 8-12, 2011. (Invited for special issue of Nuclear Science and Engineering Journal)
28. D. Chandler, G.I. Maldonado, R.T. Primm, III, “Startup Reactivity Accountability Attributed to Isotopic Transmutations in the Irradiated Beryllium Reflector of the High Flux Isotope Reactor,” CD-ROM, PHYSOR 2010, Pittsburgh, PA, May 9-14, 2010.
29. J. Galloway, H. Hernandez, G.I. Maldonado, M. Jessee, E. Popov, K. Clarno, ”BWR Modeling Capability and SCALE/TRITON Lattice-to-Core Integration of the NESTLE Nodal Simulator,” CD-ROM, PHYSOR 2010, Pittsburgh, PA, May 9-14, 2010.
30. H.L. Hall, H.L. Dodds, J.P. Hayward, L.H. Heilbronn, J.W. Hines, H. Liao, G.I. Maldonado, L.F. Miller, R.E. Pevey, A.E. Ruggles, L.W. Townsend, B.R. Uphadhyaya, “Nuclear Engineering and Nuclear Security: A Growing Emphasis at the University of Tennessee,” Pacific Northwest International Conference on Global Nuclear Security–the Decade Ahead, January, 2010.
31. G.I. Maldonado “Integration of the NESTLE Core Simulator with SCALE,” 4th Russian International Conference on Nuclear Material Protection, Control and Accounting”, Obninsk, Russia, October 19-23, 2009.
32. B. Hyland, R.J. Ellis, G.R Dyck, G.I. Maldonado, J.C Gehin, G.W.R. Edwards, “Transmutation of Americium in Light and Heavy Water Reactors,” Proc. of Global 2009, Paris, France, Sep. 6-11, 2009 (#9244).
33. B. Mervin and G. I. Maldonado, “Development of SCALE-based Educational Modules to Innovate Reactor Physics and Criticality Safety Curricula,” Proc. of ASEE Annual Conference & Exposition, Houston, TX, 2009 (#2516).
34. B. Ganapol, G. I. Maldonado, and M.L. Williams, “An Ultra-Fine Group Slowing Down Benchmark,” 2009 ANS Mathematics and Computation Topical, Saratoga Springs, NY, 2009.

35. H. Hernandez and G. I. Maldonado, “Added Features and MPI-based Parallelization of the FORMOSA-L Lattice Loading Optimization Code,” Proc. Advances in Nuclear Fuel Management IV, Hilton Head Island, SC, April 2009.
36. J. Galloway, H. Hernandez, and G.I. Maldonado, “Optimization of Americium-Loaded Lattices Tested in 3D BWR Core-Wide Simulations,” Proceedings of the International Conference on the Physics of Reactors, September 14-19, 2008, Interlaken, Switzerland (CD-ROM, Log#617)
37. G.I. Maldonado, et al., “Nuclear Engineering 24/7 via Distance Learning: Course Development and Management Experiences,” PHYSOR-2006, Vancouver, BC, Canada, D094, 1-6/6, Sept. 10-14, 2006.
38. M. Erighin, C. Yin, J. Galloway, G. I. Maldonado, “Analysis of BWR Lattices to Recycle Americium,” PHYSOR-2006, Vancouver, BC, Canada, D063, 1-10/10, Sept. 10-14, 2006.
39. Y. Ham, G. I. Maldonado, J. Burdo, T. He, “Development of a Safeguards Verification Method and Instrument to Detect Pin Diversion from Pressurized Water Reactor (PWR) Spent Fuel Assemblies,” Proc. Symp on Intl Safeguards: Addressing Verification Challenges, Vienna, Austria, Oct.16-20, 2006.
40. Y. Ham, G. I. Maldonado, C. Yin, J. Burdo, “Monte Carlo Characterization of PWR Spent Fuel Assembly for Development of a New Instrument for Pin Diversion Detection,” Proc. of the Institute of Nuclear Materials Management 47th Annual Meeting, Nashville, TN, July 2006.
41. N. Xoubi, Z. Zhao, and G. I. Maldonado, “MCNP Prediction of Measured Subcritical Reactor Parameters,” 2005 IEEE Nuclear Science Symposium, Wyndham El Conquistador Resort, San Juan, Puerto Rico, October 23-29, 2005
42. N. Xoubi, R. T. Primm III, and G. I. Maldonado, “A Computational Model of the High Flux Isotope Reactor – Validation and Application to Low Enriched Uranium Fuels,” IGORR-10: 10th International Group on Research Reactors Meeting, Gaithersburg, MD, September 12-16, 2005.
43. G.I. Maldonado, J. Christenson, E. Rutz, “Pipelining Domestic Undergraduates into the Univ. of Cincinnati's Nuclear and Radiological Engineering Graduate Program,” ASEE 2005 Annual Conference and Exposition, Portland, Oregon, June 12-15, 2005.
44. G.I. Maldonado, “The Performance of North American Nuclear Power Plants During the Electric Power Blackout of August 14, 2003”, 2004 IEEE Symposium on Nuclear Power Systems (SNPS), Rome, Italy, October 16-22, 2004.
45. G.I. Maldonado, “Optimizing LWR Cost of Margin One Fuel Pin at a Time”, 2004 IEEE Symposium on Nuclear Power Systems (SNPS), Rome, Italy, Oct. 16-22, 2004.
46. G.I. Maldonado, et al., “Non-Standard Constraints within In-Core Fuel Management” Intl Joint Mtg Cancun 2004 LAS/ANS-SNM-SMSR, XV SNM Annual Mtg and XXII SMSR Annual Mtg, Cancún, Mexico, July 11-14, 2004.
47. J. Christenson, G.I. Maldonado, E. Rutz, H. Spitz, “MNE-ACCEND,” ASEE Annual Conference and Exposition, Salt Lake City, Utah, June 20-23, 2004.
48. G.I. Maldonado, et al., “PANAC11 Off-line Predictions of Measured Axial Tip Responses at Quad Cities and Dresden,” Advances in Nuclear Fuel Management III (ANFM 2003), Hilton Head Island, SC, USA, October 5-8, 2003.

49. G.I. Maldonado, et al., “On-Line versus Off-Line Core Tracking Trends at G.I. Verde,” Advances in Nuclear Fuel Management III (ANFM 2003), Hilton Head Island, South Carolina, USA, October 5-8, 2003.

50. J. Zheng and G.I. Maldonado, "Parallel Generation of Linear Superposition Libraries within Nuclear Fuel Lattice Loading Optimization," Proc. of the Intl Conf. on Parallel and Distributed Processing Techniques and Applications, PDPTA'2000, Volume VI, 3034-3038, Las Vegas, Nevada, June 26-29, 2000.

51. G.I. Maldonado and N. Kondapalli, "Online Higher-Order Error Correction of Nonlinear Diffusion Generalized Perturbation Theory Using Neural Networks,” Proc. of the Intl. Conf. on Parallel and Distributed Processing Tech. and Applic., PDPTA'2000, Volume VI, 3039-3045, Las Vegas, NV, June 26-29, 2000.

52. G.I. Maldonado and A. Ahrens. On the Internationalization of the Iowa State University's College of Engineering. Proc. of the American Society for Engineering Education Annual Conference, Charlotte, NC, 1999.

53. G.I. Maldonado, T. Guo, J. Zheng, and P.R. Engrand. Bundle Enrichment Minimization via Multi-Objective Simulated Annealing. Poster Paper for: International Nuclear Congress ENC’98, Nice, France, October 25-28, 1998.

54. E.L. Wick, R. Arreaza-Blanco, G.I. Maldonado, and H.N. Shapiro, “ Total Assessment Evaluation of a Cupola-Based to Electric Induction Furnace Replacement,” Proc. 20th World Energy Engineering Congress, Georgia World Congress Center, Atlanta, GA, November 19-21, 1997.

55. W.I. Klee, T. Guo, and G.I. Maldonado. A Coupling of Within-Bundle Loading Optimization to Lattice Physics Calculations. Proc. Advances in Nucl. Fuel Mgt II, Vol. 2, 17-47, Myrtle Beach, South Carolina, March 23-26, 1997.

56. H.I. Wong and G.I. Maldonado. GPT Error Correction Technique for Shutdown Margin Optimization Calculations. Proc. Advances in Nucl. Fuel Mgt. II, Vol. 2, 15-51, Myrtle Beach, South Carolina, March 23-26, 1997.

57. G.I. Maldonado, P.J. Turinsky, D.J. Kropaczek, and G.T. Parks, "Constrained Minimization of Fresh Reload Fuel Enrichment within the FORMOSA Code's Nodal GPT and Optimization Framework," Proc. Topl. Mtg., Adv. in Reactor Physics , Vol. 3, 314-323, Knoxville, TN, American Nuclear Society (1994).

58. D.J. Kropaczek, P.J. Turinsky, G.I. Maldonado, and G.T. Parks, "The Efficiency and Fidelity of the In-Core Fuel Management Code FORMOSA," Proc. Intl. Conf. Reactor Phys. and Comp., Tel Aviv, Israel, 572-579 (1994).

59. G.I. Maldonado, P.J. Turinsky and D.J. Kropaczek, "PWR In-Core Nuclear Fuel Management Optimization Utilizing Nodal (Non-Linear NEM) Generalized Perturbation Theory," Proc. Joint Intl. Conf. on Math. Methods and Supercomputing in Nucl. Appl., Karlsruhe, Germany, I-787, 19-23 (April 1993).

60. D.J. Kropaczek, G.T. Parks, G.I. Maldonado, P.J. Turinsky, "Application of Simulated Annealing to In-Core Nuclear Fuel Management Optimization," Proc. Intl. Topl. Mtg., Advances in Mathematics, Computations, and Reactor Physics, Vol. 5, 22.1 1-1, Pittsburgh, PA, American Nuclear Society (1991).

Selected Technical Reports & Other Writings

1. N.P. Luciano, P.E. Collins, G. I. Maldonado, I. Gauld, "Modeling and Simulation of a VVER-1000 Benchmark with High Fidelity Monte Carlo Codes and Realistic Whole Core Operational Conditions," **ORNL/SPR-2015/265**, June 2015.
2. D. Chandler, R. T. Primm, III, G. I. Maldonado, "Reactivity Accountability Attributed to Beryllium Reflector Poisons in the High Flux Isotope Reactor," **ORNL/TM-2009/188**, December 2009.
3. D. Chandler, R. T. Primm, III, G. I. Maldonado, **ORNL/TM-2009/123**, "Validation of a Monte Carlo Based Depletion Methodology with HFIR Post-Irradiation Examination Data," July 2009.
4. D. Chandler, R. T. Primm, III, G. I. Maldonado, **ORNL/TM-2008/126**, "Validating MCNP for LEU Fuel Design via Power Distribution Comparisons," Nov. 2008. [GS: 6]
5. M. Massie, G.I. Maldonado, J. Gehin, M. DeHart, "Fast Reactor Analysis with Bold Venture IV," 2008 ANS Student Conference, Texas A&M University, February 28th - March 1st, 2008 (Best Paper Award – Undergraduate Reactor Physics).
6. U.S.-Canada Power System Outage task Force, "Interim Report: Causes of the August 14th Blackout in the United States and Canada," http://www.doe.gov, November 19, 2003.
7. U.S.-Canada Power System Outage task Force, "Final Report on the August 14th, 2003 Blackout in the United States and Canada: Causes and Recommendations," http://www.doe.gov, April 5, 2004.
8. Maldonado, G.I., Supplemental Reload Licensing Report for Quad Cities Unit 1 Cycles 18 and 18A. GE/GNF Report (March and June 2003).
9. Maldonado, G.I., Supplemental Reload Licensing Report for Laguna Verde Unit 2 Cycle 7. GE/GNF Report (April 2003).
10. Maldonado, G.I., Bundle Design Report and Fuel Management Summary for Laguna Verde Unit 1 Cycle 10. GE/GNF Report (Feb. 2002).
11. Maldonado, G.I., Cycle Management Report for Laguna Verde Unit 2 Cycle 6. GE/GNF Report (November 2001).
12. Maldonado, G.I., Supplemental Reload Licensing Report for Laguna Verde Unit 2 Cycle 6. GE/GNF Report (August 2001).
13. Maldonado, G.I., Cycle Management Report for Laguna Verde Unit 1 Cycle 9. GE/GNF Report (May 2001).
14. Maldonado, G.I., Supplemental Reload Licensing Report for Laguna Verde Unit 1 Cycle 9. GE/GNF Report (January 2001).
15. Maldonado, G.I., Cycle Management Report for Mid-Cycle Core Re-Shuffle for Laguna Verde Unit 1 Cycle 8. GE/GNF Report (September 2000).
16. Maldonado, G.I., Bundle Design Report and Fuel Management Summary for Laguna Verde Unit 1 Cycle 9. GE/GNF Report (August 2000).
17. Maldonado, G.I., Cycle Management Report for Laguna Verde Unit 2 Cycle 5. GE/GNF Report (April 2000).

18. Maldonado, G.I., Supplemental Reload Licensing Report (SRLR) for Laguna Verde Unit 2 Cycle 5. GE/GNF Report (January 2000).
19. Arreaza, R., E. L. Wick, H. N. Shapiro, G. I. Maldonado, "Total Assessment Audit Project: Evaluation of Cupola Change-Out at Quinn Machine," (1997).
20. Maldonado, G.I., "Implementation of the FORMOSA-P Software Package at Electricité de France," Report, Electricité de France, DER/RNE/PhR, Paris-Fr (1994).
21. Maldonado, G.I., "Non-Linear Nodal Generalized Perturbation Theory within the Framework of PWR In-Core Nuclear Fuel Management Optimization," PhD Dissertation, North Carolina State University (1993).
22. Maldonado, G. I., "Zircaloy-2: Evaluation of the Effects of Minor Alloying Element Variability and Fabrication Processes on Density and Velocity of Sound," M.N.E. Project Report, NCSU & GE Co., Wilmington, NC (1988).
23. Various (classified) Naval Reactor Core Design Reports. General Electric Co., Knolls Atomic Power, Schenectady, NY (1985-87).

I. TECHNICAL PRESENTATIONS AND INVITED TALKS

1. G.I. Maldonado, N.P. Luciano, et al., "NESTLE 3D Nodal Core Simulator: An Overview of Latest Features and Capabilities," 4-hour invited workshop provided at MC2015, Nashville, TN, April 2015.
2. G.I. Maldonado, N.P. Luciano, S.D. Hart, "NESTLE 3D Nodal Core Simulator: An Overview of Latest Features and Capabilities," 4-hour invited workshop provided at PHYSOR 2014, Kyoto, Japan, September 28, 2014.
3. G.I. Maldonado, "A View of the Near-Term Evolution of Light Water Reactor Technology," Invited Speaker, 2014 Wheaton College Science Symposium, Wheaton, IL, 27 March 2014.
4. G.I. Maldonado, "Advanced Technology for Small Modular Reactors," Invited Talk at the 2nd International Conference of the CENEN-NET, New Generation Nuclear Energy Partnership, Prague, Czech Republic, 4-7 February 2014.
5. G.I. Maldonado, "Reactor Physics and Small Modular Reactors," Invited Lecturer, Czech Technical University in Prague and Czech Nuclear Engineering Summer School, Počátky, Czech Republic, August 25-27, 2013.
6. G.I. Maldonado, "Reactor Physics and Small Modular Reactors," Invited Lecturer, Czech Nuclear Engr. Summer School, Počátky, Czech Republic, Aug. 26, 2013.
7. B. Ganapol, R. Joseph, G.I. Maldonado, "Analytical Benchmarks: Case Studies in Neutron Transport Theory", Invited Workshop Instructor, OECD/Nuclear Energy Agency, Issy-les-Moulineaux, France, 18-22 March 2013.
8. G.I. Maldonado, "Lectures in Fundamentals of Nuclear Engineering, Reactor Physics, and Nuclear Fuel Management," Sponsored by the International Atomic Energy Agency, Harbin, China, January 11-13, 2010.
9. G.I. Maldonado "Description of the ORNL SCALE Code Code System," FIPSE Consortium Meeting at the Moscow Engineering Physics Institute (MEPhI), Moscow, Russia, May 19-23, 2008.

10. G.I. Maldonado, ”UT ANS Student Chapter Meeting,” Jan. 22, 2009.
11. G.I. Maldonado, ”ORNL Summer Student Seminar Series,” Jun. 26, 2008.
12. G.I. Maldonado, ”UT NE Department Advisory Board Showcase,” Apr. 28, 2008.
13. G.I. Maldonado “A View into the Future of Nuclear Fuel Management Optimization,” University of Tennessee Colloquium, Nov. 28, 2007.
14. Nuclear Highlights from the US-Canada Task Force’s Report on the 2003 Blackout, UC/OSU Joint Seminar, June 2004.
15. Final Report Summary on the August 14, 2003, Blackout, presented to the Cincinnati Radiation Society, April 2004.
16. Interim Report Summary on the August 14 Blackout, presented to the SW Ohio Chapter of the Association of Energy Engineers, December 2003.
17. Within Bundle Lattice Loading Optimization, UCNRE Seminar, February 2002.
18. Two-week course on slow and fast transient analysis for the Comisión Federal de Electricidad (CFE) at Laguna Verde, Veracruz, Mexico (Oct. 9-20, 2000).
19. ISU Dept. of Mathematics, PDE Seminar, "Non-Linear Nodal Diffusion Generalized Perturbation Theory to Nuclear Reload Optimization," April, 1996.
20. ISU Advisory Committee Mtg., Research Showcase, April, 1994.
21. Nuclear Engineering Seminar, North Carolina State University, Jan. 1993.
22. FORMOSA-P software workshop, Electricité de-France, Paris, Apr. 1993.

J. STUDENT MENTORSHIP and SUPPORT

Summary of Mentorship at all Academic Institutions

Summary of Mentorship by Dr. G. Ivan Maldonado (Updated January 2016)

	PhD Degrees		*MS Degrees*		*Other*	
	Completed	*In Progress*	*Completed*	*In Progress*	*Postdoctoral*	*Undergraduate*
UT	10	6	18	2	3	13
UC	2		6			6
ISU	1		8		1	1
Totals	13	6	32	2	4	20

Major Professor at UT (PhD Degrees Completed)

1. Gentry, Cole (PhD, January 2016). Topic: Development of a Reactor Physics Analysis for the Plank-Based and Liquid Salt-Cooled Advanced High Temperature Reactor. Current Position: Postdoc at ORNL.
2. George, Nathan (Ph.D., March 2015). Topic: Assessment of Reactivity Equivalence for Enhanced Accident Tolerant Fuels in Light Water Reactors. Current Position: Staff at Nuclear Defense Safety Board.

3. Hart, Shane (Ph.D., December 2014). Topic: On-the-fly Doppler Broadening Methods for the Scale Transport Code. Current Position: Postdoc at ORNL.
4. Ottinger, Keith (Ph.D., July 2014). Topic: "Multi-Cycle Boiling Water Reactor Fuel Cycle Optimization." Current Position: Postdoc at University of Tennessee.
5. Mervin, Brenden (PhD, December 2013). Topic: "Monte Carlo and Depletion Reactor Analysis for High-Performance Computing Applications." Current Position: Project Engineer, Electric Power Research Institute.
6. Banfield, James (PhD, May 2013). Topic: "Semi-Implicit Direct Kinetics Methodology for Deterministic, Time-Dependent, Three-Dimensional, and Fine-Energy Neutron Transport Solutions." Current Position: Computational Methods Engineer, GE Hitachi Nuclear Energy.
7. Hogle, Susan (PhD, December 2012). Thesis: "Optimization of Transcurium Isotope Production in the High Flux Isotope Reactor." Current Position: Staff Member at Oak Ridge National Laboratory.
8. Chandler, David (Ph.D., August 2011). Thesis: "Spatially-Dependent Reactor Kinetics and Supporting Physics Validation Studies at the High Flux Isotope Reactor." Current position: Staff Member at Oak Ridge National Laboratory (RRD)
9. Hernandez, Hermilo (Ph.D., August 2010). Thesis: "Robust Parallel Algorithms for Minor Actinide Transmutation Rate Maximization in combined Within-Lattice and Within-Core Environments." Current position: Postdoctoral Associate at Univ. of Utah
10. Galloway, Jack (Ph.D., July 2010). Thesis: "Boiling Water Reactor Core Simulation with Generalized Isotopic Inventory Tracking for Actinide Management." Current position: Staff Member at Los Alamos National Laboratory

<u>Major Professor at UT (PhD Degrees In Progress)</u>

1. Luciano, Nicholas (estimated PhD completion: May 2016)
   Topic: Sensitivity of VVER-1000 Spent Fuel Pin Nuclide Inventory to Operational Parameters Over Multiple Cycles.
2. Hurt, Christopher (estimated PhD completion: May 2016)
   Topic: Deterministic Neutron Transport and Multiphysics Experimental Safety Analyses at the High Flux Isotope Reactor.
3. Dixon, David (estimated PhD completion: May 2016)
   Topic: Design and Validation of a Fission-based Heat Pipe / Sterling Engine Electricity Generator for Long Term Space Applications
4. Joseph, Robby III (estimated PhD completion: May 2016)
   Topic: The Ultra-Fine-Group Panel Method for Neutron Slowing Down in High Temperature Gas-cooled Reactor Applications
5. Pawel, Aaron J. (estimated PhD completion: December 2017)
   Topic: MPACT related research with CASL (Speed-up of MOC during load-follow and depletion)
6. Jones, Elizabeth (estimated PhD completion: December 2017)
   Topic: TSUNAMI/SAMPLER related research with Drs. Rearden and Dunn

Major Professor at UT (MS Degrees Completed)

1. Juarez, Carlos (MS, December 2008) Project: "Water-Moderated and Water-Reflected 0.300 in Diameter U(4.95) Metal Rods in 1.3, 2.05, and 2.9 cm Square-Pitched Arrays." – *Co-Advised with Prof. R. Pevey*
2. Dixon, David (MS, May 2009). Project: "A Powerful and Affordable Computational Infrastructure for Nuclear Engineering Education and Research."
3. Banfield, James (MS, May 2010). Project #1: "HTGR Modeling with SINDA/FLUINT, ANSYS and Analytically." Project #2: "Unionizing Cross Sectional Energy Grids for SCALE Applications."
4. Mervin, Brenden (MS, May 2010). Project #1: "Development of SCALE-based Educational Modules to Innovate Reactor Physics and Criticality Safety Curricula." Project #2: "FSPS Electronics Shielding Analysis."
5. Hart, Shane (MS, May 2010). Project: "CANDU Core Modeling and Refueling Simulations using SCALE and NESTLE."
6. Murphy, James E. (MS, December 2011). Project #1: "PWR Lattice Physics Benchmark of TRITON against CASMO." Project #2: "PWR Core and Spent Fuel Pool Analysis using SCALE and NESTLE."
7. Morris, Sam (MS, December 2011). Project #1: "Validation of KENO V.a. Computer Code by Modeling Benchmark Critical Experiments." Project #2: "Analysis of Small-Sample Reactivity Experiments in the MINERVE Reactor."
8. Lastres, Oscar (MS, December 2011). Project #1: "Studies of Plutonium-238 Production at the High Flux Isotope Reactor." Project #2: "Validation of Heavy Element Processing Campaigns 51-59 Data using the TCOMP and SCALE Code."
9. George, Nathan (MS, December 2011). Project #1: "Analysis of Decay Heat in Liquid Salt Reactors." Project #2: "Uranium-Based Fully Ceramic Micro-Encapsulated Fuel in Light Water Reactors." – *Project#1 Co-Advised with Prof. L. Miller*
10. Gentry, Cole (MS, May 2012), Thesis: "An Investigation of the use of Ceramic Microencapsulated Fuel for Transuranic Waste Recycling in PWRs."
11. Phillippe, Aaron (MS, July 2012). Thesis: "A Validation Study of the AMP Nuclear Fuel Performance Code."
12. Caswell, Adam (MS, May 2013). Topic: "Storage and Transportation Engineering and Used Nuclear Fuel Data and Analysis Capability Evaluations."
13. Sly, Nicholas (MS, Dec. 2013). Topic: "Benchmark, Verification and Testing of the SHIFT Monte Carlo Code."
14. Hunley, Riley (MS, May 2014). Topic: Technology Readiness Assessment Support for Molybdenum-99 Production from High Density LEU Targets at HFIR and REDC.
15. Kenner, Kelly R. (MS, July 2014). Topic: "Modeling an iPWR Startup Core Cycle with CASL's Virtual Environment for Reactor Applications."
16. Collins, Eric P. (MS, May 2014). Topic: "Advances in Modeling Control Rod Depletion."
17. Menke, Charles. (MS, Dec. 2014). Topic: "A Re-Evaluation of a PWR's At-Power Moderator Temperature Coefficient Test Following a Power Uprate."
18. Jones, Elizabeth. (MS, May 2015). Thesis: "User Perspective and Analysis of the Continuous-Energy Sensitivity Methods in SCALE 6.2 using TSUNAMI-3D."

Major Professor at UT (MS Degrees In Progress)

1. Darby, Kaitlyn H. (MS, est. Dec. 2016). Topic: TBD
2. Eckleberry, Troy. (MS, est. Dec. 2016). Topic: TBD

Postdocs and/or Research Assistant Professors Supported at UT (Active or Recent)

1. Chvala, Ondrej (Postoc Dec. 2011-Jul.2012, Research Asst. Prof. Aug.2012-present)
2. Ottinger, Keith (Postdoc Mar. 2015-Present)
3. Qiang, Zhao (Visiting Associate Prof., Harbin Engineering Univ, China, Jul'14-Jul'15)

Major Professor at UC (PhD Degrees Completed):

1. Burdo, Jim (Ph.D., March 2010). PhD Thesis: "Uncertainty Analysis of PWR Spent Fuel Isotopics for Pin Diversion Scenarios" – Co-Advised with Prof. John Christenson.
2. Xoubi, Ned (Ph.D., Fall 2005). PhD Thesis: "Characterization of Exposure-Dependent Eigenvalue Drift Using Monte Carlo Based Nuclear Fuel Management"

Major Professor at UC (MS Degrees Completed):

1. Galloway, Jack (MS, Fall 2006). MS Project: "BWR Fuel Assembly Development for Minor Actinide Recycling"
2. Hernandez, Hermilo (MS, Fall 2006). MS Project: "Optimization Objectives and Constraints for Minor Actinide Transmutation Rate Maximization."
3. Spataru, Alina (MS, Summer 2006). MS Project: "Optimization Techniques and GUI Interface for BWR Core Shuffle During Refueling"
4. He, Tao (MS, Summer 2006). MS Project: "Fission Chamber Design for Pin Diversion Assessment in PWR Spent Fuel Bundle"
5. Erighin, Madalina (M.S., Summer 2005). MS Project: "MCNP5-based Depletion Studies of Boiling Water Reactor Lattices to Recycle Americium"
6. Muhurri, Raj (MS, Fall 2004). MS Project: "Power Uprate and Cycle Extension for the Perry Nuclear Power Plant"

Major Professor at ISU (PhD Degrees Completed):

1. Zheng, Jie (Ph.D., Fall 1999). PhD Thesis: "Application of Linear Superposition Methods to Within-Lattice Loading Design Optimization of LWR Nuclear Fuel Assemblies."

Major Professor at ISU (MS Degrees Completed):

1. Kondapalli, Naveen (M.S., Fall 1999). MS Thesis: "Online Higher-Order Error Correction of Nonlinear Diffusion Generalized Perturbation Theory Using Neural Networks."
2. Cardenas, Jose (M.S., Summer 1999). MS Thesis: "Finite Element Perturbation Theory Applied to Nonlinear Heat Conduction."

3. McClain, Ben (M.S., Summer 1999). MS Thesis: "Finite Element Simulation of Chip Formation in Orthogonal Metal Cutting Using the Lagrangian Formulation in DYNA3D"
4. Rawat, Abhinav (M.S., Summer 1998). MS Thesis: “Predicting Perturbation Theory Errors in Nuclear Core Power Distributions Using Artificial Neural Networks.”
5. Lysenko, Michael G. (M.S., Spring 1998). MS Thesis: “Prediction and Error Correction of Neutron Diffusion Eigenvalues Using Artificial Neural Networks.”
6. Thean, Wooi (M.S., Spring 1998). MS Thesis: “Finite Element Analysis of Chip Formation in Grooved Tool Metal Cutting.”
7. Guo, Tong (M.S., Fall 1997). MS Thesis: “Within-lattice Nuclear Fuel Assembly Loading Optimization by Simulated Annealing.”
8. Vidyadharan, Rakesh (M.S., Fall 1997). MS Thesis: “Modeling and Analysis of a Vuilleumier Heat Pump System.”

Past Undergraduate Research Assistants:

1. Labbosiere-Hickman, Travis (Summer 2015)
2. Darby, Kaitlyn (Summer 2015)
3. Ratliff, Hunter (UT, Summer 2014)
4. Harris, David (UT, Summer 2014)
5. Bell, Jared (UT, Summer 2014)
6. Jones, Elizabeth (UT, Spring and Summer 2014)
7. Hamblin, David (UT, 2013)
8. Cantrell, James (UT, 2012)
9. Menke, Charlie (UT, 2012)
10. McFarland, Micah (UT, 2011)
11. Chavers, Johnathan (UT, Fall 2008, Spring 2009)
12. Vermillion, David (UT, Fall 2008, Spring 2009)
13. Massie, Mark (UT, Fall 2007, Spring-Summer 2008)
14. Greifenkamp, Tom (UC, Via Co-Op at ORNL, Sept’07-Mar.’08.)
15. Mora, Pablo (UC, Fall 2006, Winter 2007)
16. Knecht, Kyle (UC, Spring 2006, Co-Op Rotation at UCNRE)
17. Maurer, Justin (UC, Spring 2006)
18. Saucier, Jennifer (UC, Summer 2005)
19. Markland, Jeffrey (UC, Summer 2005)
20. Klee, Eric (ISU, 1997-99)

K. EXTENSION/OUTREACH ACTIVITIES

Membership in Advisory Boards

- Member, Florida International University’s Nuclear Board of Advisors for Science, Engineering and Medicine (NBA SEM) (2013-Present)
- Personal Service Consultant, US Nuclear Regulatory Commission’s Advisory Committee on Reactor Safeguards (ACRS) (2008-Present)
- Member, Nuclear Safety Committee, IES Utilities Duane Arnold Energy Center, Palo, IA (Three-year Appointment 1997-99).

- Member, ISU College of Engineering's Leadership in Engineering and Academic Diversity (LEAD) program Advisory Board (1994-99)

Mentoring and Other Outreach Activities

- Expert Commentator: CNN-Español, UNIVISION (TV and Radio), and NTN24 on Fukushima Nuclear Accident (March and April of 2011)
- Administrator, US NRC Scholarships and Fellowships to Enhance Excellence and Diversity at UT Nuclear Engineering (2008-Present)
- NASA-MUST Program, Mentor to UT Student - Jesus Sanchez (2009)
- MNE-ACCEND Program, University of Cincinnati, Associate Director. Recruitment, Mentoring, and Program administration (2003-2007)
- McNair Program, Mentor to UC Student - Terrance McGuire (2006-07).
- Tuskegee-UC Bridge Scholar Program, Associate Coordinator (2004-07).
- Gallatin High School, Warsaw, KY (11/11/2004). Reviewed presentations by students on Chernobyl and Three Mile Island and lectured on nuclear energy
- The Seven Hills School, Cincinnati, Ohio (Feb/2006). Lectures provided on nuclear energy and promoted educational and professional opportunities in nuclear engineering. Collaborated with HS teacher to obtain Big-10 DOE INIE grant to fund radiation laboratory equipment.
- LEAD/College Bound Minority Engineering Quiz Bowl Academy, Motivational Speaker and Volunteer, July 1997.
- Minority Student Affairs, Faculty Mentor, January 1998.
- Planning Committee and Advisor, SHPE Midwestern Regional Student Leadership Development Forum, November 1996 (22 Universities).
- Planning Committee and Advisor, Des Moines Area High Schools Hispanic Student Conference, Sponsored by SHPE-ISU (1996,1997).
- Volunteer, 6th Annual Minority Engineering Quiz Bowl, ISU LEAD, April 1996. Participant, SME Quiz Bowl, March 1996.
- Mentor, Adventures in Supercomputing (AiS), sponsored by DOE, for Gilbert Junior High School TAG students: Aaron Jones, Aaron Nordyke, Spring'96
- Participant, ASME Student-Professor Design Competition, Sept. 1995
- Dinner with a Professor, Pi Tau Sigma, Mech. Engr. Honor Society, Sept. 1995
- Honored Guest, Master of Ceremonies, SHPE Banquet, Spring 1995
- Faculty Mentor, Early Success Program (ESP) (1995)
- Faculty Mentor, LEAdership through Engineering Diversity program (1994-99)

L. PATENTS/COPYRIGHTS

Co-author and royalty recipient of copyrighted software: FORMOSA-P and FORMOSA-B: PWR and BWR Nuclear Fuel Management Optimization software (NC State University, Electric Power Research Center, 1991)

M. PROFESSIONAL ACTIVITIES

Professional Society Offices and Committees

- Track Leader, Reactor Physics and Analysis, 2016 International Congress on Advances in Nuclear Power Plants (ICAPP'16), San Francisco, CA (May 2016).
- Session Chair, Reactor Physics Div, ANS Annual Mtg, San Antonio, TX, Jun 2015.
- Track Leader, Reactor Physics and Analysis, 2015 International Congress on Advances in Nuclear Power Plants (ICAPP'15).

- Technical Program Chair, 2015 ANFM V Topical Meeting
- Track Leader, Reactor Physics and Analysis, 2013 International Congress on Advances in Nuclear Power Plants (ICAPP'13).
- General Chair, PHYSOR 2012, Knoxville, TN (2010-2012)
- Track Leader, ASME 2011 Small Modular Reactor Symposium, Washington, DC, Sep. 28-30, 2011.
- Track Leader, Reactor Physics and Analysis, 2011 International Congress on Advances in Nuclear Power Plants (ICAPP'11).
- Division Chair, American Nuclear Society Reactor Physics Division (2010-2011)
- Track Leader, Reactor Physics and Analysis, 2010 International Congress on Advances in Nuclear Power Plants (ICAPP'10).
- Technical Program Committee, PHYSOR 2010, Pittsburgh, PA
- Technical Program Chair, 2009 ANFM IV Topical Meeting
- Vice Chair / Chair Elect, ANS Reactor Physics Division, 2009-2010
- Technical Program Committee, PHYSOR 2008, Interlaken, Switzerland.
- Treasurer, ANS Reactor Physics Division, 2008
- Secretary, ANS Reactor Physics Division, 2007
- Chair, ANS Reactor Physics Division's Program Committee. 2003-2006. Coordination and planning of paper reviews, session/track scheduling for the division at annual meetings. Evaluation of topical meeting selections such as PHYSOR, ANFM, others. Recruiting members for the RPD Program Committee nationally and internationally.
- Technical Program Committee, 2006 PHYSOR Meeting, Vancouver, Canada.
- Organizer, Chair, and Moderator. Panel on LWR Nuclear Fuel Performance and Reliability (Participants: GE/GNF, Westinghouse, AREVA, FENOC, Constellation, Duke Power), Annual ANS Mtg., Pittsburgh, PA (June 2004).
- International Program Committee and Technical Paper Reviewer. International Conference on Mathematics and Computation, Reactor Physics, and Environmental Analysis (M&C'99), Madrid, Spain (Sep. 1999)
- ANS Reactor Physics Division Executive Committee (1999-2000)
- Technical Program Chair, Organizer, and Reviewer. Electronic technical paper review of the American Nuclear Society (ANS) Reactor Physics Division (RPD), 1999 ANS Summer Meeting, Boston, MA (Jan. 1999)
- Technical Program Chair, Organizer, and Reviewer. First electronic technical paper review of the American Nuclear Society (ANS) Reactor Physics Division (RPD), 1998 ANS Winter Meeting, Washington, DC (Jul. 1998)
- Special Technical Session Organizer, Technical Paper Reviewer, and Session Chair, American Nuclear Society (ANS) Reactor Physics Division (RPD), 1998 ANS Annual Meeting, Nashville, TN (Jun. 1998)
- Program Committee Member, ANS Reactor Physics Division (1997-99)
- Member, ANS RPD Subcommittee on Electronic Reviews (1997-99)
- Judge, ANS Student Design Contest (1995, 1996, 1997)
- Judge, ANS RPD Best Paper Award, Winter Meeting (1997)
- Technical Program Committee Member and Technical Paper Reviewer, ANS Mathematics and Computation Division, International Topical Meeting on Mathematical Methods and Supercomputing in Nuclear Applications '97 (M&C+SNA '97), Saratoga Springs, NY (Oct. 1997)
- Technical Program Committee Member and Technical Paper Reviewer Advances in Nuclear Fuel Management II, Myrtle Beach, SC (Mar. 1997)

- Technical Operating Committee Member, ANS Fuel Cycle and Waste Management Division (1995-98)
- ANS Program Committee Member, Univ. Working Conference, Philadelphia, PA, "Meeting the Challenge of Nuclear Engineering Education," (Jun. 1995)

Reviewer

- Reviewer, Research Infrastructure Grants, Department of Research and Development, Ministry of Education, Czech Republic (2014)
- Reviewer, US DOE NEUP Scholarship Program (2009-present)
- Reviewer, US DOE NA-22 Schubert Project Review (GA Tech, 2011)
- Reviewer and Panelist, US NRC Minority Serving Institutions Program (2011)
- Reviewer, US NRC Scholarship and Fellowship Program (2009-present)
- Guest Managing Editor, Progress in Nuclear Energy Journal. Special issue on Advances in Nuclear Fuel Management (2009-2010).
- Reviewer, Nuclear Engineering and Design Journal.
- Reviewer, Mathematics and Computational Science Committee, Exploratory Research (ER) component of the Laboratory-Directed Research and Development (LDRD) program at LANL (2006).
- Reviewer, MC2005 (Avignon) Nuclear Science & Engineering Special Issue
- Reviewer, ANS Nuclear Science and Engineering Journal
- Reviewer, ANS Nuclear Technology Journal
- Reviewer, Progress in Nuclear Energy
- Reviewer, Annals of Nuclear Energy
- Reviewer, IEEE Transactions on Neural Networks Journal
- Proposal Reviewer, Department of Energy, NERI Program
- Proposal Reviewer, Department of Energy, NEER Program
- Proposal Reviewer, US Civilian Research and Development Foundation
- Reviewer, IEEE Transactions on Circuits and Systems
- Technical Paper Reviewer, ASME Design Automation Conference
- Technical Paper Reviewer, American Nuclear Society Transactions

Consulting

- US Nuclear Regulatory Commission, Personal Service Consultant to the ACRS
- International Atomic Energy Agency (IAEA), Vienna, Austria.
- MITRE Corp., Boston, MA.
- John Varanese, Columbus, OH.
- Baker & McKenzie LLP, New York, NY.
- Alliant Energy/IES Industries, Duane Arnold Energy Center, Palo, IA.
- Barker, Lemar, and Associates, Des Moines, IA.
- US Civilian Research and Development Foundation, Arlington, VA.

N. UNIVERSITY ACTIVITIES

University Committees

- Search Committee, UT Office of Sponsored Research (August 2009)
- ISU UTR-10 Nuclear Reactor Use Committee (1997-99)

College Committees

- UT COE Curriculum Committee (2007-Present)

- ISU COE's LEAD Program Advisory Board (1995-99)
- COE Internationalization Coordinator (25% appointment, F'97)
- ISU Dean's Committee on International Programs (1997-99)
- ISU Dean's Committee on Minority Recruitment and Retention (1998-99)
- ISU Dean's Task Force on Co-op and Internship Programs (1997-99)

Department Committees

- Chair, Assistant/Associate Professor Search Committee (2011-12)
- Department Head Search Committee, UT NE (2010-11)
- Faculty Search Committee, UT Nuclear Engineering Program (2009-10)
- Faculty Search Committee, UC Nuclear Engineering Program (2005-06)
- UCl21 MINE Vision and Goal Alignment Ad Hoc Committee (2005)
- ISU ME Library Liaison (1995-99)
- CETECH Conflicts of Interest Oversight Committee (1999)
- Departmental Faculty Search Committee (1997-98)
- Project ME LEA/RN, ISU ME Committee on Cooperative Learning (1994-1997)
- ISU ME Curriculum Committee (1996)
- ISU Graduate Faculty Membership Committee (1995)

Faculty Advisor for Student Societies and Clubs

- Faculty Advisor, Women in Nuclear, UT NE Chapter (2009-2015)
- Faculty Advisor, American Nuclear Society, UC Chapter (2006-07)
- Faculty Advisor, Society of Hispanic Professional Engineers (1994-99)
- Faculty Advisor, ISU Graduate Student Council (1997-99)
- Faculty Advisor, Knights of St. Patrick (1996-98)
- Faculty Advisor, World Football Club (1994)

O. OTHER INFORMATION

- Fluent in Spanish, proficient in French.
- Married to Allison A. [Hughes] Maldonado (1989) – Farragut HS Spanish Teacher.
- Children: Eva (1996), Nikolas and Sebastian (1998)
- Manager and Assistant Coach, Knoxville United Soccer Association U14B (2011)
- Coach, Farragut Middle School Soccer (6th, 7th, 8th grades)
- Coach, AYSO Region 128 U10B - Champions and Tournament Finalists (2007)
- Coach, Durobag Bombers (U6, U8, U10 Boys and Girls Soccer: 2003-06)
- UT Nuclear Engineering Intramural Soccer Team (2008-present)
- Organizer, UC Faculty and Students Lunch Soccer (2003-07)
- Over-30 and Masters Knoxville Metro Soccer League (2007-Present)
- Over-30 Co-Ed Icearium Indoor Soccer Champions (2009)
- Over-30 A-Div. SOAS Indoor Soccer Champions, Florence, KY (2004, 05, 06)
- Bronze Medal, Iowa Games Soccer (1995-97)
- Intramural Soccer Champion, NC State (1991-92)
- NC State Soccer Club (1987-92)
- University of Toledo Varsity Soccer Team and Club (1980-84)