

**I. PERSONAL DATA**

Name: Guillermo Ivan Maldonado  
(Work) University of Tennessee  
Department of Nuclear Engineering  
311 Pasqua Engineering Building  
Knoxville, TN 37996-2300  
Tel: 865-974-7562, Fax: 865-974-0668  
e-Mail: Ivan.Maldonado@utk.edu

**II. 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

**III. ACADEMIC EXPERIENCE**

Associate Professor, Department of Nuclear Engineering, University of Tennessee, 2007-Present  
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

**IV. INDUSTRIAL AND OTHER NON-ACADEMIC EXPERIENCE**

Joint Faculty Appointment, UT/Battelle Oak Ridge National Laboratory, Nuclear Science and Technology 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

**V. HONORS AND AWARDS**

2010 Chair, ANS Reactor Physics Division (June'10-June'11)  
2009 Vice Chair, ANS Reactor Physics Division  
2008 Treasurer, ANS Reactor Physics Division  
2007 Secretary, 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  
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 Program Committee  
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, Award for Excellence in Service  
1996 Miller Faculty Teaching Fellowship  
1995/96 ISU Engr Student Council Outstanding Engineering Professor  
1995 Who's Who in Science and Engineering  
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

**VI. 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, S09, S10)  
NE 611 Selected Topics in Reactor Theory (F08)  
NE 571 Reactor Theory and Design (F09)

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 (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)

**VII. TECHNICAL PRESENTATIONS AND INVITED TALKS**

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.

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)

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.

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).

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, 2009.

G.I. Maldonado, "UT ANS Student Chapter Meeting," Jan. 22, 2009.

G.I. Maldonado, "ORNL Summer Student Seminar Series," Jun. 26, 2008.

G.I. Maldonado, "UT NE Department Advisory Board Showcase," Apr. 28, 2008.

G.I. Maldonado "A View into the Future of Nuclear Fuel Management Optimization," University of Tennessee Colloquium, Nov. 28, 2007.  
Nuclear Highlights from the US-Canada Task Force's Report on the 2003 Blackout, UC/OSU Joint Seminar, June 2004.

Final Report Summary on the August 14 Blackout, presented to the Cincinnati Radiation Society, April 2004.

Interim Report Summary on the August 14 Blackout, presented to the SW Ohio Chapter of the Association of Energy Engineers, December 2003.

Within Bundle Lattice Loading Optimization, UCNRE Seminar, February 2002.

**G. Ivan Maldonado**

**Academic Vita**

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).

American Nuclear Society, National and Topical Meetings (1992-Present).

ISU Dept. of Mathematics, PDE Seminar, "Non-Linear Nodal Diffusion Generalized Perturbation Theory to Nuclear Reload Optimization," April, 1996.

ISU Advisory Committee Mtg., Research Showcase, April, 1994.

Nuclear Engineering Seminar, North Carolina State University, Jan. 1993.

FORMOSA-P software workshop, Electricité de-France, Paris, Apr. 1993.

**VIII. EXTENSION/OUTREACH ACTIVITIES**

Membership in Advisory Boards

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

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 teacher to obtain Big-10 DOE INIE grant to fund radiation laboratory equipment.

ISU Hispanics of Today (HOT) Conference Panelist (Workshop: "Is a Career in Academics for you?"), March 1998.

ISU Hispanics of Today (HOT) Conference Performer (played guitar and sang Spanish songs at the main luncheon), March 1998.

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

**G. Ivan Maldonado**

**Academic Vita**

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, LEAD program (1994-99)

**IX. 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)

**XII. STUDENT MENTORSHIP**

Major Professor (UT):

Galloway, Jack (Ph.D. est. March 2010)  
Ph.D.: "Boiling Water Reactor Core Simulation with Generalized Isotopic Inventory Tracking for Actinide Management"  
Hernandez, Hermilo (Ph.D. est. May 2010)  
Ph.D.: "Robust Parallel Algorithms for Minor Actinide Transmutation Rate Maximization in combined Within-Lattice and Within-Core Environments"  
Dixon, David (M.S., May 2009, Ph.D., est. 2011)  
M.S. Project: "A Powerful and Affordable Computational Infrastructure for Nuclear Engineering Education and Research"  
Banfield, James (M.S. est. May 2010, Ph.D., est. May 2012)  
Mervin, Brenden (M.S. est. May 2010)  
Hart, Shane (M.S. est. May 2010)  
Chandler, David (Ph.D. est. 2011)  
Parker, Susan (Ph.D. est. May 2012)  
Lastres, Oscar (M.S. est. 2011)  
Juarez, Carlos (M.S., Dec. 2008) – Co-advised with Dr. Ron Pevey.  
M.S. 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"

Major Professor (UC):

Burdo, Jim (Ph.D., March 2010)  
PhD Thesis: "Uncertainty Analysis of PWR Spent Fuel Isotopics for Pin Diversion Scenarios"  
Galloway, Jack (MS, Fall 2006, Ph.D. est. 2009 – transferred to UT)  
MS Project: "BWR Fuel Assembly Development for Minor Actinide Recycling"  
Hernandez, Hermilo (MS, Fall 2006, Ph.D. est. 2009 – transferred to UT)  
MS Project: "Optimization Objectives and Constraints for Minor Actinide Transmutation Rate Maximization."  
Spataru, Alina (MS, Summer 2006)  
MS Project: "Optimization Techniques and GUI Interface for BWR Core Shuffle During Refueling"  
He, Tao (MS, Summer 2006)  
MS Project: "Fission Chamber Design for Pin Diversion Assessment in PWR Spent Fuel Bundle"  
Xoubi, Ned (Ph.D., Fall 2005)  
PhD Thesis: "Characterization of Exposure-Dependent Eigenvalue Drift Using Monte Carlo Based Nuclear Fuel Management"

**G. Ivan Maldonado****Academic Vita**

Erighin, Madalina (M.S., Summer 2005)  
MS Project: "MCNP5-based Depletion Studies of Boiling Water Reactor Lattices to Recycle Americium"  
Muhurri, Raj (MS, Fall 2004)  
MS Project: "Power Uprate and Cycle Extension for the Perry Nuclear Power Plant"  
Usman, Muhammad (MS, Dec. 2007) –Co-Advisor  
Pullano, Nathan (MS, Dec. 2007) –Co-Advisor  
Madhavan, Varunkumar (MS, Dec. 2007) –Co-Advisor  
Bhatt, Santosh (MS, Dec. 2007) –Co-Advisor

**Major Professor (ISU):**

Zheng, Jie (Ph.D., Fall 1999)  
Thesis: "Application of Linear Superposition Methods to Within-Lattice Loading Design Optimization of LWR Nuclear Fuel Assemblies."  
Kondapalli, Naveen (M.S., Fall 1999)  
Thesis: "Online Higher-Order Error Correction of Nonlinear Diffusion Generalized Perturbation Theory Using Neural Networks."  
Cardenas, Jose (M.S., Summer 1999)  
Thesis: "Finite Element Perturbation Theory Applied to Nonlinear Heat Conduction."  
McClain, Ben (M.S., Summer 1999)  
Thesis: "Finite Element Simulation of Chip Formation in Orthogonal Metal Cutting Using the Lagrangian Formulation in DYNA3D"  
Rawat, Abhinav (M.S., Summer 1998)  
Thesis: "Predicting Perturbation Theory Errors in Nuclear Core Power Distributions Using Artificial Neural Networks."  
Lysenko, Michael G. (M.S., Spring 1998)  
Thesis: "Prediction and Error Correction of Neutron Diffusion Eigenvalues Using Artificial Neural Networks."  
Thean, Wooi (M.S., Spring 1998)  
Thesis: "Finite Element Analysis of Chip Formation in Grooved Tool Metal Cutting."  
Guo, Tong (M.S., Fall 1997)  
Thesis: "Within-lattice Nuclear Fuel Assembly Loading Optimization by Simulated Annealing."  
Vidyadharan, Rakesh (M.S., Fall 1997)  
Thesis: "Modeling and Analysis of a Vuilleumier Heat Pump System."

**Undergraduate Research Assistants:**

Chavers, Johnathan (UT, Fall 2008, Spring 2009)  
Vermillion, David (UT, Fall 2008, Spring 2009)  
Massie, Mark (UT, Fall 2007, Spring-Summer 2008)  
Greifenkamp, Tom (UC, Via Co-Op at ORNL, Sept'07-Mar.'08.)  
Mora, Pablo (UC, Fall 2006, Winter 2007)  
Knecht, Kyle (UC, Spring 2006, Co-Op Rotation at UCNRE)  
Maurer, Justin (UC, Spring 2006)  
Saucier, Jennifer (UC, Summer 2005)  
Markland, Jeffrey (UC, Summer 2005)  
Klee, Eric (ISU, 1997-99)

**XIII. PROFESSIONAL ACTIVITIES**

Professional Society Offices and Committees

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. Coordination and 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)

Subcommittee Member, ANS Division of Mathematics and Computation  
Subcommittee on Electronic Communications (1995-99)

**G. Ivan Maldonado**

**Academic Vita**

ANS Program Committee Member, Univ. Working Conference, Philadelphia, PA,  
"Meeting the Challenge of Nuclear Engineering Education," (Jun. 1995)

Reviewer

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.

**XIV. 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 (2007-10)

ISU COE's LEAD Program Advisory Board (1995-99)

COE Internationalization Coordinator (25% appointment, F'97)

Dean's Committee on International Programs (1997-99)

Dean's Committee on Minority Recruitment and Retention (1998-99)

Dean's Task Force on Co-op and Internship Programs (1997-99)

Department Committees

Faculty Search Committee, UT Nuclear Engineering Program (2009-10)

Faculty Search Committee, UC Nuclear Engineering Program (2005-06)

UC|21 MINE Vision and Goal Alignment Ad Hoc Committee (2005)

Library Liaison (1995-99)

CETECH Conflicts of Interest Oversight Committee (1999)

Departmental Faculty Search Committee (1997-98)

Project ME LEA/RN, Mechanical Engineering Committee on Cooperative  
Learning (1994-1997)

Curriculum Committee (1996)

Graduate Faculty Membership Committee (1995)

Faculty Advisor for Student Societies and Clubs

Faculty Advisor, Women in Nuclear, UT NE Chapter (2009-)

Faculty Advisor, American Nuclear Society, UC Chapter (2006-07)

Faculty Advisor, Society of Hispanic Professional Engineers (1994-99)

Faculty Advisor, Society of Hispanic Professional Engineers, ISU

Graduate Student Council (1997-99)

Faculty Advisor, Knights of St. Patrick (1996-98)

Faculty Advisor, World Football Club (1994)

**XV. OTHER INFORMATION**

Fluent in Spanish, proficient in French. Married to Allison A. Maldonado (1989).  
Children: Eva (1996), Nikolas and Sebastian (1998).

Coach, Durobag Bombers (U6, U8, U10 Boys and Girls Soccer) Fall/Spring (2003-06) and NK United Select U8 Boys Soccer (Spring 2006). Coach Farragut AYSO Region 128 U10 and U12 Boys (League Champions and Finalists in 2007 TN Valley Fall Invitational), Asst Coach, Knoxville FC U11 (2008). Organizer, UC Faculty and Students Lunch Soccer (2003-07). Over-30 Indoor/Outdoor A-Division Knoxville Metro Soccer League (2007-Present). Over-30 A-Division 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 and Club (1980-84).