

Douglas E. Peplow
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Areas of technical expertise include: Monte Carlo code development, variance reduction, development of hybrid Monte Carlo/deterministic methods for shielding calculations, application of hybrid methods to difficult shielding problems. Currently active in: the application of radiation transport calculations to nuclear security and non-proliferation problems. Past areas of interest have included medical applications of radiation transport, facility vulnerability calculations and other defense-related applications of radiation transport and nuclear decay calculations.

Education

Ph.D.	Mar 1999	Nuclear Engineering	NC State University, Raleigh, NC
M.S.	Dec 1993	Nuclear Engineering	NC State University, Raleigh, NC
B.S.	May 1991	Physics, <i>Summa Cum Laude</i>	Western Illinois University, Macomb, IL

Professional Experience

Senior Research and Development Staff Member (Nuclear Engineer), Oak Ridge National Laboratory
10/2006 - present Reactor and Nuclear Systems (and its predecessors)

Leadership role in projects: NA-22 Modeling and Simulation Tool to Improve Urban Search Planning; NA-42 Advanced Multi-Dimensional Forward and Inverse Modeling; NRC Fluence Shielding, Methods, and Data for HTGRs; ORNL Seed Project on Advanced Variance Reduction Methods for Active Interrogation Modeling; lead developer of Monaco/MAVRIC in SCALE 6, SCALE 6.1 and SCALE 6.2; NA-22 Systematic Assessment of Neutron & Gamma-ray Backgrounds Relevant to Operational Modeling; DTRA PWR Facility Dose Modeling; DTRA Nuclear Vulnerability Analyses with MCNP.

Contributor in projects: DTRA Cherenkov/Glass Forensic Neutron Detector – developed analysis software and GUI; NA-22 Activation Foil Integrated Detector System (AFIDS) – analysis and demonstration; LDRD on Revolutionary Radiation Transport; NA-22 Methods development for ADVANTG (angular CADIS); USAF, Air Force Technical Applications Center project; Other classified projects; SCALE – various testing of nuclear data libraries; Member of the SCALE Leadership Team.

Research and Development Staff Member (Nuclear Engineer), Oak Ridge National Laboratory
9/1999 – 9/2006 Nuclear Science and Technology Division (and its predecessors)

Lead developer in projects: Monaco/MAVRIC in SCALE, the first production code system to use automated hybrid variance reduction; VISAC (Visual Interactive Site Analysis Code) analysis code and GUI for DTRA Nuclear Facilities Vulnerability Analysis project.

Contributor in projects: NA-22 Activation Foil Integrated Detector System (AFIDS) for nuclear weapon attribution – GUI development; Medical physics projects including NIH grants and ORNL SEED project with UNC; Revised and benchmarked HFIR MCNP model; Explored radiation damage modeling in film for Kodak.

Postdoctoral Research Associate, North Carolina State University
3/1999 – 9/1999 Department of Nuclear Engineering
Differential sampling in Monte Carlo applied to mammography image simulation.

Professional Organizations

American Nuclear Society
Member, 1991-current
Mathematics & Computation Division Treasurer, 2005-2006
Radiation Protection and Shielding Division Executive Committee, 2011-2014
RPSD 2014 Conference treasurer
Sigma Xi, 1994-2007
American Society for Engineering Education, 1994-2007

Awards

Significant Event Award, for Support to DOE in response to the crisis at Fukushima, 2011
UT-Battelle Award – Team Accomplishment, Engineering Research and Development, 2010
Nuclear Science & Technology Division Scientific and Technical Award, December 2006
American Nuclear Society Mark Mills Award, 1999
Alpha Nu Sigma, the nuclear engineering honor society (NCSU), 1995
National Science Foundation Engineering Education Scholar, 1995
Graduate Student Certificate for Outstanding Teaching (NCSU), 1994, 1995, 1996
Nuclear Engineering Teaching Fellow (NCSU), 1994-1996
Preparing the Professoriate (NCSU), 1994-1995
Sigma Xi, the Scientific Research Society (NCSU), 1994
Institute of Nuclear Power Operations Graduate Fellowship (NCSU), 1991
Dean's Fellowship (NCSU), 1991
Sigma Pi Sigma physics honor society (WIU), 1991
Walter Eller physics scholarship (WIU), 1991
Phi Kappa Phi honor society (WIU), 1991
Foundation Scholarship (WIU), 1988
Eagle Scout, Boy Scouts of America, 1986

Publications and Presentations

Complete list of publications and presentations, including abstracts and several full papers, is publicly available at: <http://web.ornl.gov/~5pe/papers.html>.