

## Michael E. Dunn, Ph.D.

Nuclear Data and Criticality Safety Group Leader  
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### EDUCATION

*University of Tennessee, Knoxville TN*  
**Doctor of Philosophy** in Nuclear Engineering, Nuclear Criticality Safety,  
December 1996  
Dissertation title: “Development of a Continuous-Energy Version of the Monte Carlo Code KENO V.a”

*University of Tennessee, Knoxville TN*  
**Master of Science** in Nuclear Engineering, Nuclear Criticality Safety, August 1994  
Thesis title: “Nuclear Criticality Safety Evaluation of the <sup>233</sup>U Inventory at the Oak Ridge National Laboratory Using ENDF/B-V Cross Sections”

*University of Tennessee, Knoxville TN*  
**Bachelor of Science** in Nuclear Engineering, August 1992, **Top graduate in the College of Engineering**

### EXPERIENCE

- 10/03—present
- UT-Battelle, Oak Ridge National Laboratory (ORNL), Oak Ridge, TN**  
*Nuclear Data and Criticality Safety Group Leader (August 2009—present)*  
*Reactor Analysis Group Leader (Acting October 2008—August 2009)*  
*Nuclear Data Group Leader (October 2003—August 2009)*
- Line and program management for ORNL nuclear data, criticality safety, and reactor analysis work elements
    - Management of key nuclear data program elements: cross-section measurements and facility operations at the Oak Ridge Electron Linear Accelerator (ORELA) facility, nuclear data evaluations, SAMMY software nuclear modeling development, and AMPX cross-section processing software and nuclear data library development
    - ORNL Task Manager for NNSA Nuclear Criticality Safety Program (NCSP)
    - Project management for key sponsors that include NNSA, DOE Office of Nuclear Energy, Office of Science, and U.S. Nuclear Regulatory Commission
    - Manage projects and technical work tasks involving NCS issues for DOE and NRC licensing applications
    - Establish and manage domestic and international collaboration to support ORNL methods and data development activities
  - Technical and programmatic interface with ORNL nuclear groups such as

Radiation Transport, Nuclear Security Modeling, Reactor Physics, RSICC, etc.; includes interactions with ORNL organizations outside RNSD: Physics Division, Fusion Division, SNS, and HFIR

- Software development team member for SCALE radiation transport package
- Developed continuous-energy version of CE-KENO Monte Carlo code and supporting cross-section processing modules

12/97—10/03

*Research & Development Staff Member*

- Perform nuclear criticality safety (NCS) analyses and provide NCS consulting support for various nuclear applications at facilities inside and outside the DOE complex
- Experience in validation of NCS software and cross-section libraries for nuclear applications including the ORNL-developed Sensitivity and Uncertainty (S/U) methods
- Software development for SCALE system and AMPX cross-section processing system
- Extensive experience with the development and implementation of radiation transport and nuclear data processing methods
- Provide nuclear data support for ORNL radiation transport methods development and application including the production of continuous-energy and multigroup cross-section libraries for nuclear applications

**Lockheed Martin Utility Services, Paducah Gaseous Diffusion Plant (PGDP), Paducah, KY**

10/96 - 12/97

*Nuclear Criticality Safety Engineer*

- Responsible for various criticality safety evaluations and approvals for fissile material operations at PGDP
- Provided NCS support for daily production operations involved with the gaseous diffusion process
- Significant experience working with craft and operations personnel on daily basis to support NCS on process floor
- Validated NCS software for production use
- Coordinated project for criticality accident alarm system (CAAS) detector placement in PGDP laboratory facility
- Performed engineering tasks in support of the plant transition from DOE to NRC regulatory oversight
- Significant regulatory licensing experience under both DOE and NRC
- Performed 10 CFR 76.68 plant change reviews (PCR)
- Coordinated development of training modules for software validation and KENO V.a calculations

**University of Tennessee, Knoxville, Department of Nuclear Engineering, Knoxville, TN**

8/92 - 10/96

*DOE Fellow/Graduate Research Assistant*

- Dissertation topic involved the development of a continuous energy version of the criticality safety code KENO V.a using point MCNP cross sections
- Code and cross-section validations for NCS analyses
- NCS analyses of the stored  $^{233}\text{U}$  inventory at ORNL Molten Salt Reactor and Building 3019

- Performed gamma heating and shielding analysis of the spent fuel storage pool of the proposed Advance Neutron Source Reactor

## **KEY PROFESSIONAL LEADERSHIP ACCOMPLISHMENTS**

- Selected by NNSA/NCSP Manager to serve on six member team to establish critical experiments collaboration between the United States and France (2008—2009)
- Member of the NNSA/NCSP Nuclear Data Advisory Group (NDAG)
- LANL Nuclear Program Advisory Committee (NPAC) member for the Los Alamos Neutron Science Center (LANSCE) facility responsible for reviewing/approving experiments for the LANSCE facility
- Member of the DOE/NE Fuel Cycle Research and Development (FCR&D) Physics Working Group
- Organized and planned July 2005 workshop for the ORELA facility that resulted in NNSA FY2006 investment of refurbishment funds to restart ORELA—accelerator restarted in FY2006 and continued operation through September 2009
- Led effort to secure National Historic Landmark designation for ORELA facility; organized and planned March 2007 ceremony at ORNL to recognize ORELA facility—ceremony attended by key NNSA sponsors
- Requested by DOE Office of Science Office of Nuclear Physics to organize session on Nuclear Data Measurements for the August 2006 Workshop to identify basic science needs to support advanced nuclear fuel cycle development—contributed to measurement report used to develop 2007 DOE/SC call for proposals for ONP
- Formats Chair of the Cross Section Evaluation Working Group (CSEWG) that oversees the development and maintenance of the U.S. Evaluated Nuclear Data File (ENDF/B) system (2007—present)
- Chair of Subgroup 28 “Processing Covariance Data for the Resonance Region” Organization for Economic Development Nuclear Energy Agency (OECD/NEA) Working Party on International Nuclear Data Evaluation Cooperation (WPEC)
- Member of OECD/NEA WPEC (2007—present)
- Board member of the Oak Ridge/Knoxville Section of the American Nuclear Society (2001—2004)

## **CITIZENSHIP & SECURITY CLEARANCE**

U.S. Citizen  
Possess Q-security clearance

**PUBLICATIONS** Primary author or co-author of more than 60 publications in the field of Nuclear Criticality Safety and Nuclear Engineering (list of publications available upon request)