

**THOMAS M. MILLER**  
**Nuclear Science and Technology Division**  
**Oak Ridge National Laboratory**

---

**P.O. Box 2008, MS 6170**  
**Oak Ridge, TN 37831**  
**865-574-9909**  
**millertm@ornl.gov**

**EDUCATION**

Ph.D. Nuclear Engineering, University of Tennessee, Knoxville, TN, 2004  
M.S. Nuclear Engineering, University of Tennessee, Knoxville, TN, 2001  
B.S. Nuclear Engineering, University of Tennessee, Knoxville, TN, 1999

**EXPERIENCE**

Oct. 06 – Present      **Oak Ridge National Laboratory** Oak Ridge, TN  
Research and Development Staff Member  
Working on a number of projects involving nuclear criticality safety,  
radiation shielding, and detector design.

Feb. 05 – Oct. 06      **BETTIS ATOMIC POWER LABORATORY** West Mifflin, PA  
Senior Engineer B  
Used  $S_N$  and Monte Carlo codes to design shielding for the U. S. Naval  
Reactors Program, developed tools to create high order arbitrarily biased quadratures,  
and was the Bettis lead shielding design engineer for NASA's JIMO/Prometheus Project.

Aug. 99 – Dec. 04      **UNIVERSITY OF TENNESSEE** Knoxville, TN  
Graduate Research Assistant  
- Ph.D. dissertation, which was sponsored by NASA's Marshal Space Flight Center in  
Huntsville, Alabama, involved creating an event generator to model the particle  
production of nucleus-nucleus collisions for nuclei as heavy as lead with energies up to  
22.5 GeV. This event generator was then incorporated into the code HETC to create  
HETC-HEDS.  
- M.S. thesis, in the Applied Physics Group in the Computational Physics  
and Engineering Division of ORNL, involved performing bulk shielding design  
calculations with  $S_N$  and Monte Carlo methods for the Spallation Neutron Source (SNS)  
around the mercury target and along the neutron beam lines. This work assisted in the  
design of the neutron beam line shutters and uninstrumented neutron beam line plugs.

**PROFESSIONAL ORGANIZATIONS**

American Nuclear Society 10/97-present  
American Nuclear Society Oak Ridge/Knoxville local Section 11/06-present  
Health Physics Society 12/01-present

## PUBLICATIONS

### Ph.D. Dissertation

Miller, Thomas Martin, Comprehensive Cross Section Database Development for Generalized Three Dimensional Radiation Transport, Ph.D. Dissertation, University of Tennessee, Knoxville (2004).

### M.S. Thesis

Miller, Thomas Martin, Radiation Transport Analysis in Support of the Spallation Neutron Source Target Station Neutron Beam Line Shutters, MS Thesis, University of Tennessee, Knoxville (2001).

### Peer Reviewed Journals

- 1) Townsend, L. W., D. L. Stephens Jr., J. L. Hoff, E. N. Zapp, H. M. Moussa, T. M. Miller, C. E. Campbell, T. F. Nichols, "The Carrington Event: Possible Doses to Crews in Space from a Comparable Event," *Advances in Space Research*, **38**, pp. 226 – 231 (2006).
- 2) Townsend, L. W., T. M. Miller, and T. A. Gabriel, "HETC Radiation Transport Code Development for Cosmic Ray Shielding Applications in Space", *Radiation Protection Dosimetry*, **116**, p. 135 (2005).
- 3) Atwell, W., L. W. Townsend, T. M. Miller, and C. E. Campbell, "A Reassessment of Galileo Radiation Exposures in the Jupiter Magnetosphere", *Radiation Protection Dosimetry*, **116**, p. 220 (2005).
- 4) Miller, T. M. and L. W. Townsend, "Comprehensive Cross Section Database Development for Generalized Three Dimensional Radiation Transport," *Nuclear Science and Engineering*, **149**, p. 65 (2005).
- 5) Miller, T. M. and L. W. Townsend, "Double Differential Heavy Ion Production Cross Sections", *Radiation Protection Dosimetry*, **110**, p. 53 (2004).
- 6) Miller, T. M. and L. W. Townsend, "Double Differential Light Ion Production Cross Sections", *Radiation Protection Dosimetry*, **110**, p. 57 (2004).

### Full Conference Papers

- 1) Miller, T. M., L. W. Townsend, and T. A. Gabriel, "Heavy Ion Collision Event Generator for the 3D Monte Carlo Transport Code HETC", *Proceedings of the 11<sup>th</sup> International Conference on Nuclear Reaction Mechanisms*, Varenna, Italy, June 2006, (2006).
- 2) Townsend, L. W., T. M. Miller, and C. E. Campbell, "Predictions of Fragment Fluences from High-Energy Iron Interaction with ISS Wall Targets," *Proceeding of the Space Nuclear Conference 2005*, San Diego, California, June 2005, (2005).
- 3) Atwell, W, W. Bartholet, M. Cloudsley, B. Anderson, J. Wilson, J. Nealy, T. Miller, L. Townsend, "Radiation Exposure Estimates for Manned Exploratory Missions Utilizing Selected Shielding Materials," *Proceeding of the Space Nuclear Conference 2005*, San Diego, California, June 2005, (2005).
- 4) Miller, T. M., L. W. Townsend, T. A. Gabriel, and T. Handler, "HETC-HEDS Radiation Transport Code Development and Benchmarking for Cosmic Ray Shielding Application in Space," *Proceedings of the Monte Carlo 2005 Topical Meeting*, Chattanooga, Tennessee, April 2005, (2005)
- 5) Miller, T. M., L. W. Townsend, "Comprehensive Cross Section Database Development for Generalized Three Dimensional Radiation Transport Codes: Report of Completion of Phase I" *Proceedings of the Monte Carlo 2005 Topical Meeting*, Chattanooga, Tennessee, April 2005, (2005)

- 6) Atwell, W., L. W. Townsend, T. M. Miller, and C. E. Campbell, "A Reassessment of Galileo Radiation Exposures in the Jupiter Magnetosphere," *Proceeding of the 10<sup>th</sup> International Conference on Radiation Shielding and the 13<sup>th</sup> Radiation Protection and Shielding Topical Meeting*, Funchal, Madeira Island, Portugal, May 2004 (2004).
- 7) Townsend, L. W., T. M. Miller, and T. A. Gabriel, "HETC Radiation Transport Code Development for Cosmic Ray Shielding Applications in Space," *Proceeding of the 10<sup>th</sup> International Conference on Radiation Shielding and the 13<sup>th</sup> Radiation Protection and Shielding Topical Meeting*, Funchal, Madeira Island, Portugal, May 2004 (2004).
- 8) Miller, T. M., L. W. Townsend, "Comprehensive Cross Section Database Development for Generalized Three Dimensional Radiation Transport Codes: A Status Report" *Proceeding of the Nuclear Mathematical and Computational Sciences Topical Meeting*, Gatlinburg, Tennessee, April 2003, p. 106 (2003)
- 9) Townsend, L. W., T. M. Miller, and T. A. Gabriel, "Modifications to the HETC Radiation Transport Code for Space Radiation Shielding Applications: A Status Report," *Proceedings of the 12<sup>th</sup> Biennial Radiation Protection and Shielding Division Topical Meeting*, Santa Fe, New Mexico, April 2002, p. 37 (2002).
- 10) Miller, T. M., R. E. Pevey, R. A. Lillie, and J. O. Johnson, "Radiation Transport Analyses in Support of the SNS Target Station Neutron Beam Line Shutters Title I Design," *Radiation Protection for our National Priorities Medicine, the Environment, and the Legacy*, Spokane, Washington, September 2000, pp. 141 – 147 (2000)

#### **Conference Summaries**

- 1) Miller, Thomas M., Leonard Nugent, "Shielding Design of CTI Inc.'s P-39 Positron Emission Tomography Scanner," *Transactions of the American Nuclear Society*, **87**, p. 196 (2002)