

BRADLEY T. REARDEN, Ph.D.

Oak Ridge National Laboratory
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EDUCATION:

1989-1999

Texas A&M University, College Station, TX

Doctor of Philosophy in Nuclear Engineering, December 1999

Dissertation title: "Development of SAMS: A Sensitivity Analysis Module for the SCALE Code System"

Master of Science in Nuclear Engineering, August 1995

Thesis title: "Engineering Analysis of a Power Upgrade for the Texas A&M Nuclear Science Center Reactor"

Bachelor of Science in Nuclear Engineering, May 1993

EXPERIENCE:

12/99-present

Oak Ridge National Laboratory – Reactor and Nuclear Systems Division

08/09-present

SCALE Project Leader

- SCALE is a nuclear modeling and simulation suite developed with the sponsorship of the U.S. Department of Energy and the Nuclear Regulatory Commission and is used by regulators, licensees and researchers for nuclear criticality safety, reactor physics, radiation shielding, and sensitivity and uncertainty analysis in 40 nations. Duties of the SCALE Project Leader include:
 - Providing vision for computational capabilities and interfaces
 - Interfacing with sponsors and end users
 - Coordinating staff, project, and funding resources
 - Coordinating software development, maintenance, and testing activities of approximately 40 staff members
 - Developing and implementing quality assurance, configuration management, and deployment strategies and associated infrastructure
 - Coordinating approximately 10 weeks of training courses per year
 - Coordinating content of SCALE newsletter and website
 - Responding to requests from sponsors and users via e-mail helpline and website

01/06-08/09

Senior Research and Development Staff

12/99-12/05

Research and Development Staff

Led state-of-the-art software development and application studies for nuclear safety analysis by developing work areas, interacting with sponsors, establishing contracts, managing tasks and budgets, and guiding efforts of multiple staff members within the following roles:

- Primary developer and code manager of SCALE/TSUNAMI sensitivity and uncertainty (S/U) analysis software for nuclear criticality safety and reactor analysis.
 - Managed project tasks and guided development efforts of multiple staff members to enhance existing capabilities and add new SCALE/TSUNAMI codes, data, and documentation.
 - Developed Javapeño plotting package for displaying data from several SCALE codes.
 - Developed interactive output for SCALE codes.
 - Lead development of GUIs for SCALE input, interactive visualization of Monte Carlo geometries, and V&V activities.
 - Coordinated the release of SCALE/TSUNAMI data through the Organization for Economic Cooperation and Development, Nuclear Energy Agency.
 - Managed tasks and coordinated staff efforts between ORNL and Argonne National Laboratory to utilize ANL's OpenAD/F automatic differentiation tools in SCALE/TSUNAMI software.
 - Developed and documented numerous SCALE/TSUNAMI components.
- ORNL lead for studies using sensitivity and uncertainty analysis techniques.
 - Leading multi-year project with Atomic Energy of Canada, Limited (AECL) to provide S/U data to support criticality and reactor physics code validation of the ACR-1000 reactor.
 - Collaborated with AREVA and SNL on US DOE Nuclear Energy Research Initiative (NERI) project to design, assemble and analyze benchmark experiments for UO₂ reactor fuel with enrichments ≥ 5 wt% ²³⁵U.

- Collaborated with Duke, Cogema, Stone and Webster in use of S/U techniques to identify applicable experiments for criticality code validation studies for the Mixed-Oxide Fuel Fabrication Facility.
- Collaborated with Toshiba Corporation of Japan in use of S/U techniques to assess the use of Toshiba's NCA facility for criticality and reactor physics validation of advanced BWR fuel.
- Participated in numerous S/U studies for criticality safety at DOE sites – ORNL, INL, Hanford, SRNL.
- TSUNAMI training courses
 - Lead instructor of multi-day training courses taught domestically and internationally for end users, regulators and developers in theory and application of SCALE/TSUNAMI S/U techniques for criticality safety and reactor physics uncertainty quantification and code validation.

- 01/98 – 12/99 Oak Ridge National Laboratory – Computational Physics and Engineering Division – Nuclear Engineering Applications Section – Reactor and Fuel Cycle Analysis Group
Postgraduate Research Associate – Oak Ridge Institute for Science and Education
 Developed a three-dimensional sensitivity analysis package that includes enhanced versions of the KENO Monte Carlo code and supporting SCALE sequence. Performed sensitivity analyses for criticality safety applications using state-of-the-art evaluation tools recently developed for the SCALE code system.
- 08/95 – 01/98 Texas A&M University - Department of Nuclear Engineering
Graduate Research Assistant
 Performed non-proliferation engineering analyses in conjunction with DOE's Amarillo National Resource Center for Plutonium. Projects included the design of a mixed-oxide fuel irradiation experiment and analysis of mixed-oxide fuel assemblies.
- 04/94 - 08/95 Texas A&M University - Nuclear Science Center
Graduate Research Assistant
 Performed reactor analysis licensing calculations and completed documentation to support a 50% power up rate of TRIGA reactor with an HEU core and to support the conversion of the core from HEU to LEU fuel.
- 06/93 - 08/93 Savannah River Site - Scientific Computations Division - Radiation Shielding Group
Graduate Researcher – Oak Ridge Institute for Science and Education
 Contributed to the development of an input processor for a multi-dimensional neutron transport code.
- 06/91 - 08/91,
 06/92 - 08/92 Texas Utilities - Reactor Engineering - Reactor Physics
Summer Internship (two consecutive summers)
 Various projects included the generation of core following reports and the development of a one-dimensional neutron diffusion model to predict axial power profiles of the Commanche Peak Steam Electric Station.

CITIZENSHIP & SECURITY CLEARANCE:

US Citizen
 Department of Energy Q-level security clearance

HONORS & ACTIVITIES:

- **Professional Development**
 - **University of Tennessee – College of Business Administration Center for Executive Education – Engineer/Scientist as a Manager Program, 2007.**
- **Awards**
 - **American Nuclear Society - Landis Young Member Engineering Achievement Award - 2007**
 - **U.S. Department of Energy – Office of Science – Undergraduate Research Programs – Outstanding Mentor Award, 2004 and 2007.**
 - **Oak Ridge Institute for Science and Education – Outstanding Mentor Award, 2007.**
 - **ORNL Nuclear Science and Technology Division – Scientific and Technical Awards for Release of SCALE 5 and Development of S/U Methods – 2004**
 - **UT-Battelle Awards Night – Outstanding Accomplishment in Science and Technology – Early Career Award for Engineering Accomplishment – Finalist 2003**
 - **Society for Technical Communications – South Carolina STC 2002 Technical Publications Competition – Merit**
 - **Institute for Nuclear Power Operations - Graduate Fellowship Recipient - 1993-1994**

- **Reviewer**
 - *Nuclear Science and Engineering*
 - *Journal of Heat Transfer*
 - *Nuclear Instruments and Methods in Physics Research Section A*
 - Numerous conferences and topical meetings

- **American Nuclear Society**
 - Member since 1989
 - **Nuclear Criticality Safety Division** – Chair 2010-2011, Vice Chair 2009-2010, Secretary 2007–2009, Program Committee Member 2001-present
 - **Oak Ridge/Knoxville Local Section** – Chair 2006–2007; Vice Chair/Chair Elect 2005-2006; Arrangements Committee Chair 2004-2005
 - **Young Members Group** – Treasurer 2006–2008.
 - **Texas A&M Student Branch** - Vice President, 1991-1992

- **International Collaboration**
 - **Organization for Economic Cooperation and Development, Nuclear Energy Agency** – Participant in international expert groups: Working Party for Nuclear Criticality Safety, Working Party on Scientific Issues of Reactor Systems, and Working Party on International Nuclear Data Evaluation Co-operation

- **Conference Leadership**
 - Invited speaker at several domestic and international conferences
 - **PHSYOR 2012** – Nuclear Criticality Safety Track Leader
 - **MC 2005 and 2007 Topical Meetings** – Technical Program Committee Member
 - **2005 NCS D Topical Meeting** – Technical Program Committee Member
 - **IYNC 2000** – Technical Program Committee Member
 - **International Forum - Youth and the Plutonium Challenge** - Obninsk, Russia, Co-Chairman, July, 1998
 - **American Nuclear Society Central Regional Student Conference** – Co-chairman, 1992

- **Honor Societies**
 - **Alpha Nu Sigma** – Member Since 1992
 - Texas A&M Student Branch – President 1993–1994, Vice President 1992–1993
 - **Tau Beta Pi** – Member Since 1993
 - Texas A&M Student Branch - Treasurer 1993–1994

PUBLICATIONS:

Refereed Journal Articles

- J. A. Roberts, B. T. Rearden, and P. H. Wilson, "Determination and Application of Partial Biases in Criticality Safety Validation," *Nucl. Sci. Eng.* **173**, 43–57 (2013).
- B. T. Rearden, M. L. Williams, M. A. Jessee, D. E. Mueller, and D. A. Wiarda, "Sensitivity and Uncertainty Analysis Capabilities and Data in SCALE," *Nucl. Technol.* **174**(2), 236-288 (2011).
- S. Goluoglu, L. M. Petrie, Jr., M. E. Dunn, D. F. Hollenbach, and B. T. Rearden, "Monte Carlo Criticality Methods and Analysis Capabilities in SCALE," *Nucl. Technol.* **174**(2), 214-235 (2011).
- B. T. Rearden and D. E. Mueller, "Recent Use of Covariance Data for Criticality Safety Assessment," *Nuclear Data Sheets*, **109**, Issue 12, 2739-2744 (2008).
- M. L. Williams and B.T. Rearden, "SCALE-6 Sensitivity/Uncertainty Methods and Covariance Data," *Nuclear Data Sheets*, **109**, Issue 12, 2796-2800 (2008).
- B. T. Rearden, W. J. Anderson, and G. A. Harms, "Use of Sensitivity and Uncertainty Analysis in the Design of Reactor Physics and Criticality Benchmark Experiments for Advanced Nuclear Fuel," *Nucl. Technol.*, **151**, 133-158 (2005).
- B. L. Broadhead, B. T. Rearden, C. M. Hopper, J. J. Wagschal, and C. V. Parks, "Sensitivity- and Uncertainty-Based Criticality Safety Validation Techniques," *Nucl. Sci. Eng.* **146**, 340-366 (2004).
- B. T. Rearden, "Perturbation Theory Eigenvalue Sensitivity Analysis with Monte Carlo Techniques," *Nucl. Sci. Eng.* **146**, 367-382 (2004).
- K. R. Elam and B. T. Rearden, "Use of Sensitivity and Uncertainty Analysis to Select Benchmark Experiments for the Validation of Computer Codes and Data," *Nucl. Sci. Eng.* **145**, 196-212 (2003).

Technical Reports

- W. J. Marshall and B. T. Rearden, *Criticality Safety Validation of Scale 6.1*, ORNL/TM-2011/450, Oak Ridge National Laboratory, Oak Ridge, Tenn., November 2011.
- B. T. Rearden and R. A. Lefebvre, *Getting Started with VIBE as a DICE Plug-in Module*, ORNL/TM-2010/60, Oak Ridge National Laboratory, Oak Ridge, Tenn., August 2010.
- D. E. Mueller, B. T. Rearden, and D. F. Hollenbach, *Application of the SCALE TSUNAMI Tools for the Validation of Criticality Safety Calculations Involving ^{233}U* , ORNL/TM-2008/196, Oak Ridge National Laboratory, Oak Ridge, Tenn., January 2009.
- B. T. Rearden, D. E. Mueller, S. M. Bowman, R. D. Busch, and S. J. Emerson, *TSUNAMI Primer: A Primer for Sensitivity/Uncertainty Calculations with SCALE*, ORNL/TM-2009/027, Oak Ridge National Laboratory, Oak Ridge, Tenn., January 2009.
- J. R. Parry, J. D. Bess, B. T. Rearden, and G. A. Harms, *Assessment of Zero Power Critical Experiments and Needs for a Fission Surface Power System*, INL/EXT-08-14678, Idaho National Laboratory, September 2008.
- L. C. Leal, D. Wiarda, B. T. Rearden, and H. Derrien, *^{233}U Cross-Section and Covariance Data Update for SCALE 5.1 Libraries*, ORNL/TM-2007/115, UT-Battelle, LLC, Oak Ridge National Laboratory, February 2008.
- B. T. Rearden and M.L. Williams, *TSUNAMI Sensitivity and Uncertainty Analysis of ZED-2 Experiments*, Letter Report to Julian Lebenhaft, Manager Reactor Physics & Systems, Office of the Chief Engineer, Atomic Energy of Canada, Ltd, September 2006.
- S. Goluoglu, K. R. Elam, B. T. Rearden, B. L. Broadhead, and C. M. Hopper, *Sensitivity Analysis Applied to the Validation of the ^{10}B Capture Reaction in Nuclear Fuel Casks*, NUREG/CR-6845 (ORNL/TM-2004/48), UT-Battelle, LLC, Oak Ridge National Laboratory, August 2004.

B. T. Rearden and K. R. Elam, *Investigations and Recommendations on the Use of Existing Experiments in Criticality Safety Analysis of Nuclear Fuel Cycle Facilities for Weapons-Grade Plutonium*, ORNL/TM-2001/262, UT-Battelle, LLC, Oak Ridge National Laboratory, June 2002.

C. V. Parks, B. T. Rearden, M. D. DeHart, B. L. Broadhead, and L. M. Petrie, Jr., *Final EMSP Report U.S. Department of Energy – Development of Nuclear Analysis Capabilities for DOE Waste Management Activities*, April 2001.

C. V. Parks, B. T. Rearden, M. D. DeHart, B. L. Broadhead, C. M. Hopper, and L. M. Petrie, *Annual Environmental Management Science Program (EMSP) Project Summary. Project Title: Development of Nuclear Analysis Capabilities for DOE Waste Management Activities*, ORNL/TM-2000/65, February 2000.

C. V. Parks, B. T. Rearden, M. D. DeHart, B. L. Broadhead, C. M. Hopper, and L. M. Petrie, *Annual Environmental Management Science Program (EMSP) Summary Progress Report. Project Title Development of Nuclear Analysis Capabilities for DOE Waste Management Activities*, ORNL/TM-1999/101, June 1999.

B. L. Broadhead and B. T. Rearden, “Exploratory Studies for Three-Dimensional Sensitivity Methods,” ORNL/M-6583, August 1998.

B. T. Rearden, S. O’Kelly, and T. A. Parish, *Potential Capability of the Texas A&M University Nuclear Science Center Reactor for Mixed-Oxide Fuel Rodlet Irradiations*, ANRCP-NG-ITWD-96-06, October 1996.

Full-Length Topical Papers

B. T. Rearden, *SCALE Newsletter*, **Vol. 44**, Spring 2012, May 2012.

B. T. Rearden, L. M. Petrie, D. E. Peplow, M. A. Jessee, D. Wiarda, M. L. Williams, R. A. Lefebvre, J. P. Lefebvre, I. C. Gauld, and S. Goluoglu, “Enhancements in SCALE 6.1,” *Proc. PHYSOR 2012*, Knoxville, TN, April 15-20, 2012.

C. M. Perfetti, W. R. Martin, B. T. Rearden, and M. L. Williams, “Determining Importance Weighting Functions for Contribution Theory Eigenvalue Sensitivity Coefficient Methodologies,” *Proc. PHYSOR 2012*, Knoxville, TN, April 15-20, 2012.

C. M. Perfetti, W. R. Martin, B. T. Rearden, and M. L. Williams, “Development of Continuous-Energy Eigenvalue Sensitivity Coefficient Calculation Methods in the Shift Monte Carlo Code,” *Proc. PHYSOR 2012*, Knoxville, TN, April 15-20, 2012.

M. L. Williams, D. Wiarda, H. J. Smith, M. A. Jessee, B. T. Rearden, M. Klein, W. Zwermann, and A. Pautz, “Development of a Statistical Sampling Method for Uncertainty Analysis with SCALE,” *Proc. PHYSOR 2012*, Knoxville, TN, April 15-20, 2012.

T. Ivanova, C. Laville, J. Dyrda, D. Mennerdahl, Y. Golovko, K. Raskach, A. Tsiboulia, G-S. Lee, S-W. Woo, A Bidaud, P. Sabouri, A. Patel, K. Bledsoe, B. Rearden, J. Gulliford, and F. Michel-Sendis, “Benchmark on Sensitivity Calculation (Phase III),” *Proc. PHYSOR 2012*, Knoxville, TN, April 15-20, 2012.

B. T. Rearden, *SCALE Newsletter*, **Vol. 43**, Summer 2011, July 2011.

B. T. Rearden, *SCALE Newsletter*, **Vol. 42**, Summer/Fall 2010, December 2010.

B. T. Rearden, L. M. Petrie, and M. L. Williams, “Advances in Sensitivity Analysis Capabilities with SCALE 6.0 and 6.1,” *Proc. SNA+MC2010*, Tokyo, Japan, October 17-21, 2010.

B. T. Rearden, C. M. Perfetti, M. L. Williams, and L. M. Petrie, “SCALE Sensitivity Calculations Using Contribution Theory,” *Proc. SNA+MC2010*, Tokyo, Japan, October 17-21, 2010.

B. T. Rearden, *SCALE Newsletter*, **Vol. 41**, Winter/Spring 2010, February 2010.

D. E. Mueller, B. T. Rearden, and D. A. Reed, “Evaluation of Fission Product Critical Experiments and Associated Biases for Burnup Credit Validation,” *Proc. International Workshop on Advances in Applications of Burnup Credit for Spent Fuel Storage, Transport, Reprocessing, and Disposition*, Cordoba, Spain, October 2009.

- B. T. Rearden, I. Duhamel, and E. Létang, “New SCALE Sensitivity/Uncertainty Capabilities Applied to Bias Estimation and to Design of MIRTE Reference Experiments,” in *Proc. 2009 NCS D Topical Meeting*, Richland, WA, August 14-16, 2009.
- B. T. Rearden, R. A. Lefebvre, A. B. Thompson, Y. Rugama, N. Soppera, M. Bossant, “The VIBE Tool of SCALE – Validation, Interpretation and Bias Estimation,” in *Proc. 2009 NCS D Topical Meeting*, Richland, WA, August 14-16, 2009.
- J. R. Parry, J. D. Bess, B. T. Rearden, and G. A. Harms, “Assessment of Zero Power Critical Experiments and Needs for a Fission Surface Power System”, *Proc. Nuclear and Emerging Technologies for Space (NETS-2009)*, Atlanta, Georgia, June 15–17, 2009.
- M. L. Williams, B. L. Broadhead, M. E. Dunn, and B. T. Rearden, “Approximate Techniques for Representing Nuclear Data Uncertainties,” *Proc. Eighth International Topical Meeting on Nuclear Applications and Utilization of Accelerators (AccApp'07)*, p. 744-751, Pocatello, Idaho, July 30-August 2, 2007.
- B. T. Rearden, “Criticality Code Validation Exercises with TSUNAMI,” *Proc. 8th International Conference on Nuclear Criticality Safety*, p. 84-88, St. Petersburg, Russia, May 28-June 1, 2007.
- B. T. Rearden and M. L. Williams, “Eigenvalue Contribution Estimator for Sensitivity Calculations with TSUNAMI-3D,” *Proc. 8th International Conference on Nuclear Criticality Safety*, p. 408-412, St. Petersburg, Russia, May 28-June 1, 2007.
- S. M. Bowman, B. T. Rearden, and J. E. Horwedel, “GeeWiz Integrated Visualization Interface for SCALE 5.1,” *Proc. 8th International Conference on Nuclear Criticality Safety*, p. 12-16, St. Petersburg, Russia, May 28-June 1, 2007.
- S. M. Bowman, M. D. DeHart, M. E. Dunn, S. Goluoglu, J. E. Horwedel, L. M. Petrie, Jr., B. T. Rearden, and M. L. Williams, “New Criticality Safety Analysis Capabilities in SCALE 5.1,” *Proc. 8th International Conference on Nuclear Criticality Safety*, p. 403-407, St. Petersburg, Russia, May 28-June 1, 2007.
- B. T. Rearden and J. E. Horwedel, “Automatic Differentiation with Code Coupling and Applications to SCALE Modules,” to be published in *Proc. M&C+SNA 2007*, Monterey, CA, April 15-19, 2007.
- D. E. Mueller and B. T. Rearden, “Sensitivity Coefficient Generation for a Burnup Credit Cask Model using TSUNAMI-3D,” in *Proc. 2005 NCS D Topical Meeting*, Knoxville, TN, September 19-22, 2005.
- S. M. Bowman, B. T. Rearden, and J. E. Horwedel, “Complete User Visualization Interface for KENO,” in *Proc. 2005 NCS D Topical Meeting*, Knoxville, TN, September 19-22, 2005.
- B. T. Rearden, “Improvements in KENO V.a to Support TSUNAMI-3D Sensitivity Calculations,” in *The Monte Carlo Method: Versatility Unbounded in a Dynamic Computing World*, Chattanooga, Tennessee, April 17-21, 2005.
- S. M. Bowman, B. T. Rearden, and J. E. Horwedel, “Integrated Interactive Visualization for KENO,” in *The Monte Carlo Method: Versatility Unbounded in a Dynamic Computing World*, Chattanooga, Tennessee, April 17-21, 2005.
- B. T. Rearden, C. M. Hopper, and K. R. Elam, “TSUNAMI Analysis of the Applicability of Proposed Experiments to Reactor-Grade and Weapons-Grade Mixed Oxide Systems,” pp. 125–132 in *Proc. International Symposium NUCEF2005*, Tokai, Japan, February 9-10, 2005.
- B. T. Rearden, C. M. Hopper, K. R. Elam, S. Goluoglu, and C. V. Parks, “Applications of the TSUNAMI Sensitivity and Uncertainty Analysis Methodology,” pp. 61-66 in *Proc. 7th International Conference on Nuclear Criticality Safety (ICNC2003)*, Tokai-mura, Japan, October 20-24, 2003.
- S. M. Bowman, D. F. Hollenbach, M. D. DeHart, B. T. Rearden, I. C. Gauld, and S. Goluoglu, “SCALE 5: Powerful New Criticality Safety Analysis Tools,” pp. 447-453 in *Proc. 7th International Conference on Nuclear Criticality Safety (ICNC2003)*, Tokai-mura, Japan, October 20-24, 2003.
- W. J. Anderson, M. Saglam, B. T. Rearden, and R. Smith, “Reactor Physics and Criticality Benchmark Evaluations for Advanced Nuclear Fuel: Experiment Analysis Comparison Report,” 09-03.pdf in *Proc.*

American Nuclear Society, Advances in Nuclear Society, Advances in Nuclear Fuel Management III, Hilton Head, SC, October 5-8, 2003.

M. E. Dunn and B. T. Rearden, "Application of Sensitivity and Uncertainty Analysis Methods to a Validation Study for Weapons-Grade Mixed-Oxide Fuel," 35666.pdf in *Proc. 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, Reno, NV, November 11-15, 2001.

B. T. Rearden, "Sensitivity and Uncertainty Analysis for Nuclear Criticality Safety Using KENO in the SCALE Code System," in *Proc. Monte Carlo Radiation Physics, Particle Transport Simulation Applications*, Lisbon, Portugal, October 23-26, 2000.

B. T. Rearden, "SAMS: A Sensitivity Analysis Module for Criticality Safety Analysis Using Monte Carlo Techniques," 122.pdf in *Proc. PHYSOR 2000, ANS International Topical Meeting on Advances in Reactor Physics and Mathematics and Computation into the Next Millennium*, Pittsburgh, PA, May 7-12, 2000.

B. L. Broadhead, R. L. Childs, and B. T. Rearden, "Computational Methods for Sensitivity and Uncertainty Analysis in Criticality Safety," pp. 57-65 in *Proc. ICNC'99, Sixth International Conference on Nuclear Criticality Safety*, Vol. I, Palais des Congrès, Versailles, FRANCE, September 20-24, 1999.

B. T. Rearden, S. O'Kelly, and T. A. Parish, "Potential Capability of the Texas A&M Nuclear Science Center Reactor for Mixed-Oxide Fuel Rodlet Irradiations," *Proc. American Nuclear Society Topical Meeting - Advances in Nuclear Fuel Management II*, Myrtle Beach, SC, March 23-26, 1997.

Conference Summaries

B. T. Rearden and W. J. Marshall, "Examination of Validation Outlier Cases Using the Sensitivity and Uncertainty Analysis Tools of SCALE 6.1," *Trans. Am. Nucl. Soc.* **106**, 461-464 (2012).

W. J. Marshall and B. T. Rearden, "Criticality Safety Validation of SCALE 6.1 with ENDF/B-VII.0 Libraries," *Trans. Am. Nucl. Soc.* **106**, 456-460 (2012).

B. T. Rearden, D. A. Reed, R. A. Lefebvre, D. E. Mueller, and W. J. Marshall, "SCALE/TSUNAMI Sensitivity Data for ICSBEP Evaluations," *Proc. ICNC 2011*, Edinburgh, U.K., September 19-22, 2011.

B. T. Rearden, L. M. Petrie, D. E. Peplow, M. A. Jessee, D. Wiarda, M. L. Williams, R. A. Lefebvre, J. P. Lefebvre, I. C. Gauld, and S. Goluoglu, "SCALE 6.1 Enhancements for Nuclear Criticality Safety," *Proc. ICNC 2011*, Edinburgh, U.K., September 19-22, 2011.

B. T. Rearden and D. E. Mueller, "Uncertainty Quantification Techniques of SCALE/TSUNAMI," *Trans. Am. Nucl. Soc.* **104**, 371-373 (2011).

M. L. Williams and B. T. Rearden, "Self-Shielding Effects for Uncertainty Analysis," *Trans. Am. Nucl. Soc.* **104**, 799-801 (2011).

J. D. Bess, K. C. Bledsoe, and B. T. Rearden, "Evaluation of HEU-Beryllium Benchmark Experiments to Improve Computational Analysis of Space Reactors," *Proc. Nuclear and Emergency Technologies for Space 2011*, Paper 3485, Albuquerque, NM, February 7-10, 2011.

B. T. Rearden, "Enhancements in SCALE 6.1," *Trans. Am. Nucl. Soc.* **103**, 412-414 (2010).

B. T. Rearden and D. E. Mueller, "Bias Assessment of ^{233}U Systems Using SCALE TSURFER," *Trans. Am. Nucl. Soc.* **102**, 307-311 (2010).

B. T. Rearden, "Verification Methods for the SCALE Code System," *Proc. Verification and Validation for Nuclear Systems Analysis Workshop II*, North Myrtle Beach, SC, May 24-28, 2010.

T. Ivanova, F. Fernex, E. Kolbe, A. Vasiliev, G. S. Lee, S. W. Woo, D. Mennerdahl, Y. Nagaya, J.-C. Neuber, A. Hofer, B. Rearden, D. Mueller, Y. Rugama, A. Santamarina, C. Venard, A. Tsiboulia, Y. Golovko, "OECD/NEA Expert Group on Uncertainty Analysis for Criticality Safety Assessment: Current Activities," *Proc. PHYSOR 2010, Advances in Reactor Physics to Power the Nuclear Renaissance*, Sheraton Station Square Hotel, Pittsburgh, PA, May 9-14, 2010.

- D. E. Mueller and B. T. Rearden, "SCALE TSUNAMI Analysis of Critical Experiments for the Validation of ^{233}U System," *Trans. Am. Nucl. Soc.* **101**, 455-459 (2009).
- B. T. Rearden and D. E. Mueller, "Using Cross-Section Uncertainty Data to Estimate Biases," *Trans. Am. Nucl. Soc.* **99**, 389-390 (2008).
- A. M. Fleckenstein and B. T. Rearden, "Extensible SCALE Intelligent Text Editor - ExSITE," *Trans. Am. Nucl. Soc.* **98**, 223-226 (2008).
- B. T. Rearden, "TSUNAMI Sensitivity and Uncertainty Analysis Capabilities in SCALE 5.1," *Trans. Am. Nucl. Soc.* **97**, 604-605 (2007).
- B. T. Rearden and M. L. Williams, "Overview of the SCALE TSUNAMI Sensitivity and Uncertainty Analysis Tools," *Trans. Am. Nucl. Soc.* **96**, 535-537 (2007).
- A. M. Fleckenstein and B. T. Rearden, "Multigroup Cross Section and Cross Section Covariance Data Visualization with Javapeño," *Trans. Am. Nucl. Soc.* **95**, 292-295 (2006).
- B. T. Rearden, "A Criticality Code Validation Exercise for a LEU Lattice," *Trans. Am. Nucl. Soc.* **95**, 381-386 (2006).
- B. T. Rearden and J. E. Horwedel, "Automatic Differentiation to Couple SCALE Modules Using GRESS 90--Part II: Application," *Trans. Am. Nucl. Soc.* **95**, 702-705 (2006).
- B. T. Rearden, M. L. Williams and J. E. Horwedel, "Advances in the TSUNAMI Sensitivity and Uncertainty Analysis Codes Beyond SCALE 5," *Trans. Am. Nucl. Soc.* **92**, 760-762 (2005).
- S. Goluoglu, K. R. Elam, B. T. Rearden, B. L. Broadhead, C. M. Hopper, and C.V. Parks, "Validation of the 10B Capture Reaction in Nuclear Fuel Casks with Sensitivity Analysis," *Trans. Am. Nucl. Soc.* **89**, 134-135 (2003).
- S. Goluoglu, C. M. Hopper, and B. T. Rearden, "Extended Interpretation of Sensitivity Data for Benchmark Areas of Applicability," *Trans. Am. Nucl. Soc.* **88**, 77-79 (2003).
- S. M. Bowman, D. F. Hollenbach, M. D. DeHart, B. T. Rearden, I. C. Gauld and S. Goluoglu, "An Overview of What's New in SCALE 5," *Trans. Am. Nucl. Soc.* **87**, 265-268 (2002).
- D. F. Hollenbach, L. M. Petrie, B. T. Rearden, and S. M. Bowman, "KENO Postprocessor Analysis and Plotting Capabilities," *Trans. Am. Nucl. Soc.* **87**, 270-272 (2002).
- B. T. Rearden and D. E. Peplow, "Comparison of Sensitivity Analysis Techniques in Monte Carlo Codes for Multi-Region Criticality Calculations," *Trans. Am. Nucl. Soc.* **85**, 163-165 (2001).
- B. L. Broadhead and B. T. Rearden, "Foundations for Sensitivity Based Criticality Validation Techniques," *Trans. Am. Nucl. Soc.* **83**, 93-95 (2000).
- B. T. Rearden and R. L. Childs, "Prototypical Sensitivity and Uncertainty Analysis Codes for Criticality Safety with the SCALE Code System," *Trans. Am. Nucl. Soc.* **83**, 98-100 (2000).
- B. T. Rearden, C. M. Hopper, K. R. Elam, B. L. Broadhead, and P. B. Fox, "Prototypic Applications of Sensitivity and Uncertainty Analysis for Experiment Needs," *Trans. Am. Nucl. Soc.* **83**, 103-107 (2000).
- B. L. Broadhead, C. M. Hopper, K. R. Elam, B. T. Rearden, and R. L. Childs, "Criticality Safety Applications of S/U Validation Methods," *Trans. Am. Nucl. Soc.* **83**, 107-113 (2000).
- B. T. Rearden, T. A. Parish, and W. S. Charlton, "Generation of Two-Group Cross Sections for WG-MOX Fuel Using MCNP," *Trans. Am. Nucl. Soc.*, **77**, 323 (1997).
- B. T. Rearden, "An Engineering Analysis of a Power Upgrade for the Texas A&M Nuclear Science Center Reactor," *Trans. Am. Nucl. Soc.*, **73**, 411 (1995).