

R. Blake Wilkerson

CONTACT INFORMATION

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WORK EXPERIENCE

<i>Current</i> OCT 2020	Oak Ridge National Laboratory <i>Technical Professional Staff Member</i> Perform radiation dose modeling for Department of Energy's surplus plutonium disposition project. Implement advanced variance reduction techniques to improve statistical uncertainty of dose response models. Model reactor material activation using the Scale suite including variance reduction transport in MAVRIC coupled to Origen activation analysis.
OCT 2020 JUN 2018	Los Alamos National Laboratory <i>Staff R&D Engineer</i> Lead group work on multi-physics modeling of special purpose reactor concepts with expertise on MOOSE-based tools. Utilize multiple Monte Carlo tools to perform reactivity analysis for novel reactor design concepts. Generate Monte Carlo flux-weighted cross sections in MCNP and OpenMC for deterministic transport in the Rattlesnake tool. Couple thermal-mechanical Abaqus models to MCNP for analysis of high leakage critical reactor concepts. Construct and execute Bison fuels performance models for ternary UPuZr fuel. Perform reactivity analysis for novel reactor design concepts in Monte Carlo transport tools.
JAN 2017 -JUN 2018	Los Alamos National Laboratory <i>Post-Masters Student</i> Designed and analyzed both domestic and space reactor concepts. Created unique UPuZr power correlations for the Bison fuels performance code. Evaluated ENDF nuclear cross sections data in NJOY for use in MCNP at numerous temperatures for space application.
AUG 2014 -DEC 2017	University of Tennessee, Knoxville <i>Nuclear Graduate Research Assistant</i> Led development on a broad-area search algorithm for aerial radiological detection using a Bayesian approach to probability space. Implemented MCNP gamma flux data for localization of possible source isotopes in search area. Coordinated the integration of source code between the Bayesian processor, radiation detection system, and unmanned aerial system.
MAY 2014 -DEC 2014	Oak Ridge National Laboratory <i>Nuclear Engineering Science and Learning Synthesis Internship</i> Worked in the Reactor and Nuclear Systems Division. Investigated the opportunities for standardization in the Used Fuel Management System. Performed data processing to determine the financial and logistical effects of variable size nuclear canisters on used fuel disposal system.

EDUCATION

DEC 2016 | University of Tennessee, Knoxville
Master of Science in NUCLEAR ENGINEERING
Honors: *Summa Cum Laude*

MAY 2015 | University of Tennessee, Knoxville
Bachelor of Science in NUCLEAR ENGINEERING
Honors: *Magna Cum Laude*

ENGINEERING SKILLS

SOFTWARE	MCNP	ADVANTG	Scale	OpenMC	Bison
CODING LANGUAGES	Python	C/C++	FORTRAN		

PUBLICATIONS

Wilkerson, Robert Blake, "A Bayesian Approach to Aerial Localization of Radioactive Sources" Master's Thesis, University of Tennessee, 2016.

Mehta, V. K., Cooper, M. W., Wilkerson, R. B., Kotlyar, D., Rao, D. V., & Vogel, S. C. (2021). Evaluation of Yttrium Hydride (δ -YH_{2-x}) Thermal Neutron Scattering Laws and Thermophysical Properties. *Nuclear Science and Engineering*, 195(6), 563-577.

Trellue, Holly Renee, Vogel, Sven C., Long, Alexander Makenzie, Mehta, Vedant Kiritkumar, Armstrong, Jerawan Chudoung, Mckinney, Gregg Walter, Shivprasad, Aditya Prahlad, Luther, Erik Paul, Cooper, Michael William Donald, Wilkerson, Robert Blake, Payne, Joshua Estes, Carver, Dale Travis, Rising, Michael Evan, Bull, Jeffrey S., and Kulesza, Joel A. Demonstration of Advanced Experimental and Theoretical Characterization of Hydrogen Dynamics and Associated Behavior in Advanced Reactors. United States: N. p., 2021. Web. doi:10.2172/1784682.

R. B. Wilkerson, G. W. McKinney, C. J. Josey, M. E. Blood, J. D. Galloway, J. C. Armstrong, H. R. Trellue, "Advances in MCNP for Reactor Calculations", American Nuclear Society Summer Meeting, Jun 8-11, 2020.

Matthews, Christopher, Wilkerson, Robert Blake, Johns, Russell Craig, Trellue, Holly Renee, and Martineau, Richard C. Task 1: Evaluation of M&S tools for micro-reactor concepts. United States: N. p., 2019. Web. doi:10.2172/1505953.

Kim, Seung Jun, Mario Reyes Naranjo, and Robert Blake Wilkerson. The ARGUS Solution Reactor and Molybdenum Production: A Summary Report Based on Open Literature. No. LA-UR-18-29657. Los Alamos National Lab.(LANL), Los Alamos, NM (United States), 2018.

Jarrell, J., Joseph, R., Howard, R., Hale, R., Petersen, G., Wilkerson, B., ... & Kalinina, E. (2014). Initial Standardized Canister System Evaluation. FCRD-NFST-2014-000084 Rev. 0.