Research Experience
Rachel N. Slaybaugh
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University of California, Berkeley   Jan. 2014 - Present
Assistant Professor of Nuclear Engineering   *Berkeley, CA*

- Researching numerical methods for neutral particle transport with an emphasis on supercomputing and advanced architectures
- Specialization in deterministic, Monte Carlo, and Hybrid methods
- Applications in reactor design, shielding, and nuclear security and nonproliferation
- Design Emphasis in Computational Science and Engineering Affiliated Faculty member
- Applied Science & Technology Faculty member

Advanced Research Projects Agency – Energy   Oct. 2017 – present
Program Director   *Washington, DC*

- Director for MEITNER Program researching enabling technologies for advanced nuclear fission reactors
- Director for FOCUS Program researching solar technologies that combine photovoltaic and concentrated solar power technologies
- Program creation and management

Bettis Laboratory   Mar. 2012 - Aug. 2014
Senior Engineer in the Shield Design and Development group   *West Mifflin, PA*

- Implemented the Forward-Weighted Consistent Adjoint Driven Importance Sampling (FW-CADIS) method for variance reduction in Monte Carlo; accredited method for use in shield design
- Developed new Resonance Factor variance reduction method for streaming through materials with space and energy self-shielding
- Built two software tools in support of using FW-CADIS for shield design
- Scientific Software Development Committee: leader in developing internal website for sharing software carpentry tools and resources

University of Wisconsin–Madison   Sept. 2006 - Nov. 2011
Research Assistant / Rickover Fellow   *Madison, WI*

- Researched "Acceleration Methods for Massively Parallel Deterministic Transport": added parallelization in the energy domain, an advanced eigenvalue solver, and a new multigrid in energy preconditioner to Denovo, developed at Oak Ridge National Lab
- Developed two Monte Carlo source sampling methods for arbitrarily shaped plasma sources; the sources are generated directly from plasma physics data

Forschungszentrum Karlsruhe (KIT)   May 2008 - Dec. 2008
Visiting Researcher   *Karlsruhe, Germany*

- Learned about the Rigorous 2 Step method for Monte Carlo geometry conversion while working in the Reactor Safety group
- Helped group incorporate the Direct Accelerated Geometry Monte Carlo (DAGMC) library into MCNP workflow

Penn State Breazeale Reactor   Aug. 2003 - Apr. 2006
Reactor Operator   *University Park, PA*

- NRC licensed Reactor Operator for TRIGA Mark III reactor
- Analyzed core burn-up anomaly; calibrated gamma irradiation facilities