

RACHEL N. SLAYBAUGH

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Department of Nuclear Engineering ◊ University of California, Berkeley

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EDUCATION

Ph.D.	University of Wisconsin–Madison , Nuclear Engineering and Engineering Physics with a certificate in Energy Analysis and Policy	2011
M.S.	University of Wisconsin–Madison , Nuclear Engineering and Engineering Physics	2008
B.S.	Pennsylvania State University , Nuclear Engineering	2006

RESEARCH EXPERIENCE

Lawrence Berkeley National Laboratory <i>Division Director</i>	Jan. 2021 – present <i>Berkeley, CA</i>
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- Managing the Cyclotron Road division to translate hard science into positive societal impact
- Expanding the division’s mission to support even more deployment of innovative technologies

University of California, Berkeley <i>Associate Professor of Nuclear Engineering</i>	Jan. 2014 - present <i>Berkeley, CA</i>
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- Developing 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

Advanced Research Projects Agency – Energy <i>Program Director</i>	Oct. 2017 – Nov. 2020 <i>Washington, DC</i>
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- Director for MEITNER, the Nuclear OPEN+ cohort, LISE, and GEMINA Programs, supporting research for enabling technologies for advanced nuclear fission reactors
- Director for TERRA and ROOTS Programs, supporting research for sensing and data analytics for above- and below-ground plant outcomes
- Director for FOCUS Program, supporting research for solar technologies that combine photovoltaic and concentrated solar power technologies

Bettis Laboratory <i>Senior Engineer in the Shield Design and Development group</i>	Mar. 2012 - Aug. 2014 <i>West Mifflin, PA</i>
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- 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 shielding

University of Wisconsin–Madison <i>Research Assistant / Rickover Fellow</i>	Sept. 2006 - Nov. 2011 <i>Madison, WI</i>
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- Dissertation: “Acceleration Methods for Massively Parallel Deterministic Transport”
- Developed two Monte Carlo source sampling methods for arbitrarily shaped plasma sources

Penn State Breazeale Reactor <i>Reactor Operator</i>	Aug. 2003 - Apr. 2006 <i>University Park, PA</i>
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- NRC licensed Reactor Operator for TRIGA Mark III reactor
- Analyzed core burn-up anomaly; calibrated gamma irradiation facilities

SELECTED PUBLICATIONS

- Suzanne Baker, Jessica Lovering, **Rachel Slaybaugh**, and Denia Djokic. “A Policy Pathway for Nuclear Justice.” Policy Report for Good Energy Collective. April 27, 2021.
- R. Martineau, D. Andrs, R. Carlsen, D. Gaston, J. Hansel, F. Kong, A. Lindsay, C. Permann, A. Slaughter, E. Merzari, R. Hu, A. *Novak*, **R. Slaybaugh**. “Multiphysics for Nuclear Energy Applications Using a Cohesive Computational Framework.” *Nuclear Engineering and Design*. **367** (2020) 1107512.
- Rachel Slaybaugh**, Joel Fetter, Curt Nehr Korn, Geoffrey Short. “Generating Electricity Managed by Intelligent Nuclear Assets (GEMINA).” Funding Opportunity No. DE-FOA-002174. (Oct 2019)
- Madicken Munk*, **Rachel Slaybaugh**, “Review of Hybrid Methods for Deep-Penetration Neutron Transport.” *Nuclear Science and Engineering*. **193**:10 (2019) 1055-1089.
- James E. Bevins*, **R.N. Slaybaugh**. “Gnowee: A Metaheuristic Optimization Algorithm for Solving Engineering Problems Containing Continuous and Discrete Design Parameters.” *Nuclear Technology*. **205**:4 (2019) 542-562.
- R.N. Slaybaugh**, *M. Ramirez-Zweiger*, Tara Pandya, Steven Hamilton, T.M. Evans. “Eigenvalue Solvers for Modeling Nuclear Reactors on Leadership Class Machines,” *Nuclear Science and Engineering*. **190** (2017) 31-44.
- Jeffery B. Greenblatt, Nicholas R. Brown, **Rachel Slaybaugh**, Theresa Wilks, Emma Stewart, and Sean T. McCoy. “The Future of Low-Carbon Electricity,” *Annual Review of Environment and Resources*. **42** (2017) 289-316.

PROFESSIONAL SERVICE

Boards and Leadership

National Academies of Science member of the Committee on Laying the Foundations for New and Advanced Nuclear Reactors in the United States	2020-2022
Biden-Harris Transition Team	2020
Good Energy Collective, Founding Board Chair	2020-present
Pennsylvania State University, Nuclear Alumni Advisory Council	2020-2021
Nuclear Science and Engineering Editorial Advisory Board	2020-present
University of Michigan, NERS Department Advisory Board	2019-2021
Nuclear Energy Advisory Committee (a U.S. FACA), Appointed Member	2016-2017
Senior Fellow of the Breakthrough Institute	2017-present
American Nuclear Society, Board of Directors	2007-2009

Software and Computing

Berkeley Institute for Data Science	Senior Fellow; Advisory Board Member
Berkeley Research Computing	User Advisory Group
The Hacker Within	UCB Faculty Advisor 2014-2017; UW co-founder 2009
Software & Data Carpentry	Instructor since 2013

American Nuclear Society

Math and Comp. Division	Chair rotation 2016-2019, Exec. Comm. 2013-2016
Rad. Protection and Shielding Div.	Exec. Comm. 2015-2018
Young Members Group	Exec. Comm. 2014-2017
other Past Chair / Vice Chair	NEED Comm, Professional Divisions Comm, Student Sections Comm, Professional Women in ANS

Reviewer for Canadian Innovation Fund and US DOE Technology Commercialization Fund