RACHEL N. SLAYBAUGH

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EXPERIENCE & ACCOMPLISHMENTS

Lawrence Berkeley National Laboratory Jan. 2021 – present
Division Director *Berkeley, CA*

- Managing the Cyclotron Road division to translate hard science into positive societal impact
- Division hosts a 2-year fellowship program welcoming ∼10 new hard tech innovators per year to turn their technology concept into a product (∼$6M/year)
- Manage expectations and deliverables across Department of Energy, LBNL, and Activate.org (our partner organization) leadership

University of California, Berkeley Jan. 2014 - present
Associate Professor of Nuclear Engineering *Berkeley, CA*

- Developing numerical methods for neutral particle transport with an emphasis on supercomputing and advanced architectures; specialization in deterministic, Monte Carlo, and hybrid methods
- Managed optimization, thermal fluids, and cryptography and anomaly detection projects
- Applications in reactor design, shielding, and nuclear security and nonproliferation
- Founded the Nuclear Innovation Bootcamp, which brings diverse students from around the world to learn skills essential to innovation in nuclear energy
- Frequent invited speaker on innovation in the nuclear energy sector
- Won >$2.5M as principal investigator (PI) and >$26M awarded as co-PI
- Published 25 journal publications, 44 refereed conference proceedings, 3 technical reports, 2 book chapters, 5 open source pieces of software, and 2 policy pieces
- Graduated 8 PhD and 6 MS students; research adviser for 1 assistant project scientist, 1 postdoctoral scholar, 1 visiting scholar, and 14 undergraduate students
- Created course where Berkeley students do hands on science experiments at under-served elementary schools in Oakland

Advanced Research Projects Agency – Energy Oct. 2017 – Nov. 2020
Program Director *Washington, DC*

- Created programs supporting development of enabling technologies for advanced nuclear fission reactors, $95M across 28 teams: MEITNER, the Nuclear OPEN+ cohort, LISE, and GEMINA
- Managed TERRA and ROOTS Programs, supporting research for sensing and data analytics for above- and below-ground plant outcomes (∼$90M across 18 teams)
- Managed FOCUS Program, supporting research for solar technologies that combine photovoltaic and concentrated solar power technologies (∼$12M across 4 teams)

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 and developed new resonance factor for variance reduction in Monte Carlo
- Qualified these methods and software for use in shield design to dramatically reduce time and improve accuracy in design calculations

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

- Dissertation: "Acceleration Methods for Massively Parallel Deterministic Transport" where I added 3 new methods to Denovo, software from Oak Ridge National Laboratory, that are still used
- Developed two Monte Carlo source sampling methods for arbitrarily shaped plasma sources

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

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

LEADERSHIP & 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
Berkeley Innovation & Entrepreneurship Council	2021-present
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
Berkeley Energy and Resources Collaborative (BERC), Advisory Board Member	2017-2021
Nuclear Energy Advisory Committee (a U.S. FACA), Appointed Member	2016-2017
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
other Past Chair / Vice Chair	NEED Comm, Professional Divisions Comm, Student Sections Comm, Professional Women in ANS

Reviewer for Canadian Innovation Fund, US DOE Technology Commercialization Fund, and a number of journals and technical conferences

COMPUTER SKILLS

Languages	C++, Python, Fortran 90/95/2003
Versioning and Testing	git, svn, cvs, CTest, GoogleTest, nose, TravisCI
Tools	EC2, Doxygen, LaTeX, MathCAD, Mathematica, shell, vim, bash, Emacs, Jupyter, Trilinos, LAPACK, MPI, Valgrind, cmake