ROBERT ANGELO BORRELLI
ASSOCIATE PROFESSOR
University of Idaho · Idaho Falls Center for Higher Education
Department of Nuclear Engineering and Industrial Management
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EDUCATION

University of California – Berkeley
Doctor of Philosophy – Nuclear Engineering *2006*
Worcester Polytechnic Institute
Master of Science – Civil & Environmental Engineering *1999*
Bachelor of Science – Mechanical Engineering with high distinction *1996*

RESEARCH & PROFESSIONAL EXPERIENCE

University of Idaho · Idaho Falls Center for Higher Education *2015–*
Nuclear Engineering & Industrial Management
Associate Professor *2021–*
Affiliate – Energy Policy Institute Boise State University *2019–*
State of Idaho Professional Engineer – Faculty Restricted *2019–*
University of California-Berkeley · Nuclear Engineering
Postdoctorate Researcher *2009-12*
University of Tokyo · Nuclear Engineering & Management
Research Associate *2007–09*

SELECTED GRANTS & CONTRACTS AWARDED

(1) Sean McBride (PI) - Idaho State University, Dakota Roberson (co-PI), R. A. Borrelli (co-PI), Constantinos Kolias (co-PI) - University of Idaho. Industrial Cyber Security Research and Training Laboratory. National Institute of Standards and Technology. **$2,875,000**. 2024.08.01 - 2026.07.31. [*non-competitive*]

(2) Michael Haney (PI), R. A. Borrelli (co-PI), Dakota Roberson (co-PI), Constantinos Kolias (co-PI) - University of Idaho, Ben Lampe (co-PI), Sean McBride (co-PI) - Idaho State University. Secure Cyberspace and Resilient Industrial Systems Workforce Development. Idaho Global Entrepreneurial Mission Initiative · Higher Education Research Council. **$700,000.** 2024.07.01 - 2025.06.30. [*Borrelli PI 2024.07.01*]

(3) Kathleen Araújo (PI), Cassie Koerner (co-PI) - Boise State University, Stephanie Malin (co-PI) - Colorado State University, Daniel Cardenas (co-PI) - National Tribal Energy Association, R. A. Borrelli (co-PI) - University of Idaho, Weston Eaton (co-PI), Temple Stoellinger (Senior Personnel), Steven Smutko (Senior Personnel), Rachael Budowle (Senior Personnel) - University of Wyoming, Majia Nadesan (co-PI) - Arizona State University, Julia Haggerty (co-PI), Lee Spangler (Senior Personnel) - Montana State University, Denia Djokić (co-PI) University of Michigan, Sarah Robey (co-PI) - Idaho State University. Common ground: Legitimacy in consent-based siting for interim nuclear waste storage. United States Department of Energy Consent-Based Siting for Interim Storage Program - Community Engagement Opportunities. **$2,000,000.** 2023.08.01 - 2025.07.31.

(4) Andrew Kliskey (PI) - Idaho EPSCoR Director, Karla Eitel (co-PI), Alistair Smith (co-PI) - University of Idaho, Donna Lybecker (co-PI) - Idaho State University, Kathleen Araújo (co-PI) Boise State University. RII Track-1: Idaho Community-engaged Resilience for Energy-Water Systems (I-CREWS). National

Science Foundation EPSCoR. **$24,000,000.** 2023.09.01 - 2028.08.31.[1,2,3]

(5) Michael Haney (PI), R. A. Borrelli (co-PI), Dakota Roberson (co-PI), Constantinos Kolias (co-PI) - University of Idaho, Ben Lampe (co-PI), Sean McBride (co-PI) - Idaho State University. Secure Cyberspace and Resilient Industrial Systems Workforce Development. Idaho Global Entrepreneurial Mission (IGEM) – Higher Education Research Council **$700,000.** 2023.07.01 - 2024.06.30.

(6) Michael Haney (PI), R. A. Borrelli (co-PI), Dakota Roberson (co-PI), Constantinos Kolias (co-PI) - University of Idaho, Ben Lampe (co-PI), Sean McBride (co-PI) - Idaho State University. Secure Cyberspace and Resilient Industrial Systems Workforce Development. Idaho Global Entrepreneurial Mission (IGEM) – Higher Education Research Council **$693,000.** 2022.07.01 - 2023.06.30.

(7) R. A. Borrelli (PI), Michael Haney (co-PI) - University of Idaho. Cyber-informed design, education, and training for cyberthreat resiliency with real-time nuclear reactor simulation. University of Idaho. Operation: Resubmission Support. **$34,122.** 2022.04.30 - 2022.09.30.

(8) Thomas A. Ulrich (PI) - Idaho National Laboratory, R. A. Borrelli (co-PI) - University of Idaho. User evaluation of the NuScale simulator at the Center for Advanced Energy Studies. CAES programmatic funding. **$50,000.** 2022.03.01 - 2022.09.30.

(9) R. A. Borrelli (PI), Jason Barnes (Senior Adviser) - University of Idaho. Experimental determination of interactions between the radiation fields of Dragonfly's MMRTG and Titan's environment. Idaho NASA EPSCoR Research Initiation Grant. **$82,962**. 2021.05.01 - 2022.04.30.

(10) Richard N. Christensen (PI), R. A. Borrelli, Michael G. McKellar, Michael Haney, David Arcilesi (co-PIs) - University of Idaho, Richard Jacobson (co-PI) Idaho State University. NuScale Simulator at the Center for Advanced Energy Studies. United States Department of Energy Scientific Infrastructure Support for Consolidated Innovative Nuclear Research. **$321,525.** 2019.10.01 - 2022.09.30. [*PI - NuScale Simulator Laboratory - 2022.01.07*]

(11) R. A. Borrelli (PI) - University of Idaho, Dennis D. Keiser, Jr., (co-PI) - Idaho National Laboratory. Graduate Research Assistantship: Connecting U-Mo Fuel Processing, Microstructure, and Irradiation Performance. **$127,866.** 2018.10.01-2021.05.31.

(12) R. A. Borrelli (PI), Richard N. Christensen (co-PI) - University of Idaho, Brian J. Jaques (co-PI) - Boise State University, Piyush Sabharwall (co-PI) - Idaho National Laboratory, Mark Delligatti (co-PI) - Table Rock, LLC, Sakae Casting USA, LLC (co-PI). Modeling and design of borated aluminium cask for used fuel cooling. Idaho Global Entrepreneurial Mission (IGEM) - Idaho Commerce. **$237,898.** 2018.01.01-2019.05.31.

Relevant Publications

(1) Koffi Anderson Koffi, Kyle Lucke, Elijah Danquah Darko, Tollan Berhanu, R. A. Borrelli, Constantinos Kolias (2025). AgentRed: Towards an Agent-Based Approach to Network Red Team Assessment Automation. Algorithms Artificial Intelligence in Modern Cybersecurity: Changes, Applications and Challenges, 10.3390/a19010043.

(2) Cassie Koerner, R. A. Borrelli (2025). A Collaborative-Based Siting case study Yucca Mountain siting: The Willrich report predictions. Washington, D. C.: Proc., American Nuclear Society Winter Meeting.

(3) R. A. Borrelli, Kathleen Araújo, Cassie Koerner, Denia Djokić (2024). Consent based siting for Spent Nuclear Fuel – The Common Ground Consortium Focus on Research and Public Conversations. Las Vegas, Nevada: Proc., American Nuclear Society Annual Meeting.

(4) Nathan Manwaring, Matt Johnson, R. A. Borrelli (2024). At-power Subcritical Multiplication in the Advanced Test Reactor during Nuclear Requalification Testing. Nuclear Engineering and Design 426, 113399.

[1]Technical Writing Team.
[2]University of Idaho Research Team.
[3]Modeling Group Lead

(5) Sam J. Root, Porter Throckmorton, Jonathan Tacke, Jacob Benjamin, Michael Haney, R. A. Borrelli (2023). Cyber Hardening of Nuclear Power Plants with Real-time Nuclear Reactor Operation — 1. Preliminary Operational Testing. Progress in Nuclear Energy 162, 104742.
(6) Teyen Widdicombe, R. A. Borrelli (2023). Experimental Determination of Interaction Between the Radiation Fields of Dragonfly's MMRTG and Titan's Environment II: Gamma Induced Atmospheric Conductivity. Acta Astronautica 208, 91.
(7) Pedro Mena, R. A. Borrelli, Leslie Kerby (2022). Survey of markets for nuclear power in Western North America. International Journal of Energy, Environment, and Economics 29, 17.
(8) Joseph Christensen, R. A. Borrelli (2022). Evaluations of the effect of heterogeneity in HALEU systems using modified critical benchmarks. Nuclear Science and Engineering 196, 1333.
(9) Emma K. Redfoot, Kelley M. Verner, R. A. Borrelli (2022). Applying analytic hierarchy process to industrial process design in a nuclear renewable hybrid energy system. Progress in Nuclear Energy 145, 104083.
(10) Jonathan Tacke, R. A. Borrelli, Dakota Roberson (2021). Advanced frequency-domain compensator design for subsystems within a nuclear generating station. Progress in Nuclear Energy 140, 103914.

Relevant Courses Taught

University of Idaho · Idaho Falls Center for Higher Education
Nuclear Engineering & Industrial Management
NE529: Risk Assessment
NE535: Nuclear Criticality Safety I & II
NE585: Nuclear Fuel Cycle Analysis
NE587: Nuclear Power Plant Decommissioning
University of California–Berkeley · Department of Nuclear Engineering
NE92: Issues in Nuclear Science and Engineering
NE375: Teaching Techniques in Nuclear Engineering
E124: Ethics and the Impact of Technology on Society
The University of Tokyo · Department of Nuclear Engineering/Management
Technical English for Scientists
Diablo Valley Community College (CA) · Department of Architecture and Engineering
ENGIN110: Introduction to Engineering

Synergistic Activities

(1) **American Nuclear Society**
National Program Screening Subcommittee — *2022–*
Fuel Cycle & Waste Management Division — *2015–*
Student Sections Committee — *2015–*
(2) **Idaho Section of the American Nuclear Society**
Treasurer — *2022–*
Board of Directors — *2018; 2020*
Community Service — *2015–*
(3) **University of Idaho**
Faculty Senate – College of Engineering — *2024–27*
Faculty Advisor – American Nuclear Society Student Section — *2015–*