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DEPARTMENT OF NUCLEAR ENGINEERING AND INDUSTRIAL MANAGEMENT
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EDUCATION AND TRAINING

University of California-Berkeley • Doctor of Philosophy • Nuclear Engineering 2006
 Worcester Polytechnic Institute • Master of Science • Civil/Environmental Engineering 1999
 Worcester Polytechnic Institute • Bachelor of Science • Mechanical/Nuclear Engineering 1996

RESEARCH AND PROFESSIONAL EXPERIENCE

University of Idaho • Idaho Falls Center for Higher Education
Nuclear Engineering and Industrial Management Department

Associate Professor	May 2021 -
Assistant Professor	July 2015 - May 2021
Coordinator - NPP Decommissioning and Used Fuel Management Certificate	August 2019 -
Affiliate - Boise State University Energy Policy Institute	August 2019 -
State of Idaho Professional Engineer, Faculty Restricted	October 2019 -
University of California-Berkeley • Postdoctorate Researcher	2009-12
The University of Tokyo • Research Associate	2007-09

SELECTED AWARDED PROJECTS

- (1) 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. Department of Energy Scientific Infrastructure Support for Consolidated Innovative Nuclear Research. **\$321,525**. 2019.10.01 - 2022.09.30
- (2) 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. **\$161,690**. 2018.10.01-2022.01.31
- (3) 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
- (4) R. A. Borrelli (PI), Lee Ostrom (Senior Advisor) - University of Idaho, Stephen G. Johnson (Senior Advisor) - Idaho National Laboratory. Performance assessment of americium as fuel in radioisotope thermoelectric generators for deep space exploration. Idaho NASA EPSCoR Research Initiation Grant. **\$55,000**. 2017.08.01-2018.04.30

RELEVANT PUBLICATIONS

*STUDENTS

- (1) *Tacke, Jonathan, Borrelli, R. A., Roberson, Dakota, 2021. Advanced frequency-domain compensator design for subsystems within a nuclear generating station. Progress in Nuclear Energy 140, 103914.
- (2) *Mena, Pedro, Borrelli, R. A., Kerby, Leslie, 2021. Nuclear reactor transient diagnostics using classification and AutoML. Nuclear Technology, 10.1080/00295450.2021.1905470.

- (3) Borrelli, R. A., Delligatti, Mark S., Heidrich, Brenden J., 2020. Borated aluminum cask design for onsite intermediate storage - Preliminary neutronics design and certification analysis. Nuclear Engineering and Design 363, 10.1016/j.nucengdes.2020.110666.
- (4) *Carter, John P., Borrelli, R. A., 2020. Neutron physics study of an integral molten salt reactor using Monte Carlo N-Particle code. Nuclear Engineering and Design 365, 10.1016/j.nucengdes.2020.110718.
- (5) *Widdicombe, Teyen, Borrelli, R. A., 2020. MCNP modelling of radiation effects of the Dragonfly mission's RTG on Titan. Acta Astronautica, 10.1016/j.actaastro.2020.12.033.
- (6) *Christensen, Joseph, Borrelli, R. A., 2020. Nuclear criticality safety aspects for the future of HALEU: Evaluating heterogeneity in intermediate-enrichment uranium using critical benchmark experiments. Nuclear Science and Engineering, 10.1080/00295639.2020.1819143.
- (7) *Peterson, John, Haney, Michael, Borrelli, R. A., 2019. An overview of methodologies for cyber security vulnerability assessments conducted in nuclear power plants. Nuclear Engineering and Design 346, 75.
- (8) *Lee, Jieun, Borrelli, R. A., 2019. Sensitivity analysis and application of advanced nuclear accounting methodologies on the high reliability safeguards model: Use of discrete event simulation for material throughput in fuel fabrication. Nuclear Engineering and Design 345, 183.
- (9) *Lee, Jieun, *Shigrekar, Amey, Borrelli, R. A., 2019. Hazard and operability analysis of a pyro-processing facility. Nuclear Engineering and Design 348, 131.
- (10) *Redfoot, Emma K., Borrelli, R. A., 2018. Analysis of nuclear renewable hybrid energy systems modeling and nuclear fuel cycle simulators. Nuclear Technology 204, 249.

RELEVANT COURSES TAUGHT

University of Idaho - Idaho Falls Center for Higher Education

NE527: Nuclear material storage, transport, disposal

NE535: Nuclear Criticality Safety I & II

TM529: Risk Assessment

NE450: Principles of Nuclear Engineering

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) University of Idaho: Faculty Advisor - American Nuclear Society University of Idaho Student Section
- (2) American Nuclear Society: Executive Committee - Nuclear Nonproliferation Policy Division
- (3) Idaho Section of the American Nuclear Society: Coordinator - Smoke Detector Donation Program