ROBERT ANGELO BORRELLI
ASSOCIATE PROFESSOR · UNIVERSITY OF IDAHO · IDAHO FALLS CENTER FOR HIGHER EDUCATION
NUCLEAR ENGINEERING AND INDUSTRIAL MANAGEMENT DEPARTMENT
CENTER FOR ADVANCED ENERGY STUDIES · 995 MK SIMPSON BOULEVARD · IDAHO FALLS ID 83401
RBORRELLI@UIDAHO.EDU · @THEDOCTORRAB · 208.533.8122

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 · Department of Nuclear Engineering · Postdoctorate Researcher 2009-12

The University of Tokyo · Department of Nuclear Engineering/Management · Research Associate 2007-09

SELECTED AWARDED PROJECTS

(1) 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. 2021.05.01 - 2022.04.30 **$82,962**.

(2) R. A. Borrelli (PI) - University of Idaho, Mark. D. DeHart (co-PI) - Idaho National Laboratory. Application and enhancement of MAMMOTH depletion capabilities. **$33,521.** 2020.01.13 - 2020.12.31

(3) 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. **$285,763.** 2019.10.01 - 2020.09.30

(4) 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. **$160,690.** 2018.10.01-2022.01.31

(5) 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

(6) 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) *Redfoot, Emma K., *Verner, Kelley M., Borrelli, R. A., 2022. Applying analytic hierarchy process to industrial process design in a nuclear renewable hybrid energy system. Progress in Nuclear Energy 145, 104083.

(2) *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.

(3) *Mena, Pedro, Borrelli, R. A., Kerby, Leslie, 2021. Nuclear reactor transient diagnostics using classification and AutoML. Nuclear Technology , 10.1080/00295450.2021.1905470.

(4) 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.

(5) *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.

(6) *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.

(7) *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.

(8) *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.

(9) *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.

(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 · Nuclear Engineering Program
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 - Fuel Cycle and Waste Management Division
(3) American Nuclear Society: Executive Committee - Nuclear Nonproliferation Policy Division
(4) Idaho Section of the American Nuclear Society: Coordinator - Smoke Detector Donation Program