

Daniel K. Sluder, PE

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Purpose

I'm a licensed nuclear engineer currently working as a nuclear safety analyst at the Advanced Test Reactor. I have a background in nuclear physics and am a former National Nuclear Security Administration Graduate Fellow. Much of my work is centered around failure modes and effects analysis, probabilistic accident analysis, and radiological consequence analysis.

Professional Experience

Senior Nuclear Safety Analyst

Advanced Test Reactor

07/2024-
Present

As a nuclear safety analyst at the ATR my primary focus is on dose consequence analysis and probabilistic risk assessment (PRA). I perform failure modes and effects analysis on complex systems and used risk informed insights in the nuclear design process. I also focus on fuel protection criteria and material interactions during failure scenarios.

Senior Experiment Engineer/Experiment Safety Analyst

Advanced Test Reactor

11/2018-
07/2024

As an experiment engineer at the ATR, I participated in a wide variety of projects, operations, and experiments. My accomplishments range from leading a laboratory directed research and development research team as principle investigator, to working on a variety of nuclear experiment design teams. I also led teams in the creation of ATR's experiment irradiation and safety standard, as well as an improved experiment shipping process. I was a key contributor to critical ATR activities following the 2021 core internals changeout and helped conduct a study of the impact of acrylic plastic on ATR driver fuel, as well as performed an independent assessor role for nuclear testing. Much of my work has been focused on experiment safety analyses, which has provided experience/training in nuclear safety basis activities, dose analysis software (RSAC), ORIGEN, and RELAP.

Content Coordinator

Metaculus.com

3/2020-
9/2020

Metaculus is a prediction solicitation and aggregation engine that has gamified probabilistic forecasting. As a content coordinator for Metaculus I created a collaboration with researchers at the University of Massachusetts to forecast the path of the COVID-19 pandemic and inform the CDC. This project helped inform the CDC for decision making in the early pandemic. Additionally, I worked on product management and development. I wrote product specifications and analyzed customer behavior using Google Analytics. I also authored and developed quantifiable and resolvable forecasting questions.

NNSA Graduate Fellow

National Nuclear Security Administration

6/2018-
11/2018

As an NNSA Graduate Fellow I served as Assistant Federal Project Director and risk subject matter expert on the NNSA Complex project at Kirtland Air Force Base. This involved a high degree of project planning and management, budgeting, and risk assessment. As part of this role I wrote a Monte Carlo risk simulator that made use of basic forecasting techniques to extremize team predictions. In addition, I attended the Defense Nuclear Weapons School and achieved Basic Nuclear Weapons and Nuclear Incident Response certifications.

Publicly Accessible Work

- D. K. Sluder, et. al., “Interaction of Polymethyl Methacrylate with Boehmite Filmed Aluminum Cladding under Gamma Irradiation,” *Nucl. Sci. Eng.*, October 15, 2024.
- D. K. Sluder, et. al., “Safety Considerations for Advanced Material Irradiation at the Advanced Test Reactor,” *Trans. Am. Nucl. Soc.*, June, 2024. [Hyperlink](#).
- D. K. Sluder, “ShowerMax: An Electromagnetic Calorimeter for Independent Measurement of the Parity-Violating Asymmetry in Moller Scattering,” Thesis, Idaho State University, May, 2018. [Hyperlink](#).
- C. L. Smith, et. al., “Progress for the Industry Application External Hazard Analyses Early Demonstration,” Idaho National Laboratory, September, 2015. [Hyperlink](#).

Education

Nuclear Engineering, PhD North Carolina State University Research Focus: Probabilistic Safety Assessment	2024-present
Physics, M.S. Idaho State University Thesis Topic: Electromagnetic Calorimetry	2016-2018
Physics, B.A. Idaho State University	2013-2016
Mechanical Engineering, B.S. Idaho State University	2009-2016

Training & Certifications

Licensed Professional Engineer – Nuclear Engineering State of Idaho	2023
Laboratory Operations Supervisor Academy Battelle Memorial Institute	2023
Dose Consequence Analyst Idaho National Laboratory	2022
Selection of Pumps and Valves American Society of Mechanical Engineers	2019
Radiological Worker II Idaho National Laboratory	2019
Nuclear Incidence Response Defense Nuclear Weapons School	2018