**Idaho State University
Physics Colloquium**

***Exploring Rapid Radiochemical Separations and Novel Isotope Production Pathways***

Dr. Mathew Snow
[Idaho National Laboratory](https://inl.gov/research-program/nuclear-nonproliferation/)

With novel nuclear science applications continuously emerging in today’s society, the ability to design simple, tunable radiochemical separation approaches that can be tailored to meet the specific needs of a given research effort is of high value to the modern researcher. Rapid, tunable separations are of particular value to the rare isotope community, where the ability to rapidly isolate different elements in high purity is essential to supporting numerous applications including fundamental nuclear data science, medical isotope production, and address national security challenges. This presentation will provide an overview of novel radioisotope production and rapid chemical separation techniques that have been developed jointly by Idaho National Laboratory and the Idaho Accelerator Center over the past few years. Examples of new isotope production and chemical separation approaches to be discussed range from simple binary systems such as the isolation of short-lived, accelerator produced Sc-47 for medical applications, to more complex separations such as the isolation of individual lanthanide and fission product isotopes from highly complex uranium/short-lived fission samples.

**Monday, March 8 2021**
**Via Zoom(**[**https://isu.zoom.us/j/85293200472**](https://isu.zoom.us/j/85293200472)**)
4:00 – 4:50 pm**