



**Computational Research Leadership
Council
(CRLC)
Virtual Seminar
at
University of Alaska Anchorage**

Friday, February 17, 2023

12 PM

Using Supercomputers to Understand Our World

with

Anshu Dubey

Argonne National Laboratory

[Pre-register](#) to receive
Zoom link.



We humans have been curious about the world around us and have been trying to understand what makes it tick throughout our history. Supercomputers are among the more recent (relatively) tools that have been deployed for this purpose. We express what we wish to understand in terms of a mathematical model, then we devise methods for solving the model, next we translate those methods into scientific software that can run on supercomputers, and then we analyze those results to get insights. In this seminar Dr. Dubey presents one such software that was developed for understanding how stars explode and become supernova. However, its use has not remained limited to stellar explosions. It has gone on to help understand how bubbles form during boiling, how blood flows through devices such as pacemakers, how vibrations from earthquakes impact rods in nuclear reactors, and many other such challenges. She will discuss how one software can be used for such diverse applications, what it takes to build such a software, and how one uses it to simulate the phenomena of interest on supercomputers.