



# PHYSICS AND ASTRONOMY COLLOQUIUM (Online)

**Dr. Anton Wallner**

HZDR (Helmholtz-Zentrum Dresden-Rossendorf) &  
Australian National University

**“Nearby supernovae and the r-process – interstellar  
Fe-  
-sea archives”**

## Abstract

“<sup>4</sup>Myr) and <sup>244</sup>Pu (81 Myr); both can be measured with Accelerator Mass Spectrometry (AMS) with high sensitivity. Since 20 years searches in deep-sea archives for minute traces of such radionuclides have been conducted. AMS measurements demonstrate now clearly a global <sup>60</sup>Fe influx and is evidence for exposure of Earth to recent (<10 Myr) supernova explosions. Recent detection of ISM-<sup>244</sup>Pu in deep-sea archives complements the positive detection of interstellar and supernova-produced <sup>60</sup>Fe. In contrast to <sup>60</sup>Fe, <sup>244</sup>Pu is exclusively produced by the r process. Presence of the radioactive <sup>244</sup>Pu in the ISM can thus place strong constraints on r-process frequency and production yields over the last few 100 Myr. The new data link supernovae and r process signatures in the ISM for the last 11 Myr.”

Wednesday, October 13, 2021

3:30 p.m.

via Zoom: <https://uvic.zoom.us/j/81377096640>