TRIUMF Advanced Rare Isotope Laboratory (ARIEL)

Contribution ID: **33** Type: **Contributed poster presentation**

Injection of Radiochronometers into Early Solar System Meteoritic Materials at ASPIRE

Proof that our Early Solar System (ESS) was irradiated with short-lived radionluclides (SLR's) from an external supernovae is well-evidenced by the fossil presence of ^{26}Al, ^{41}Ca, ^{60}Fe and other SLR's in ancient geologic and meteoritic phases. Many of these SLR's (i.e. ^{26}Al) find significance as radiometric clocks that record the formation of ESS solids and the timings of planetary body assembly. However, a major uncertainty in irradiation models is the absence of experimental data. SLR beams and their analogs can be produced by the new ARIEL facility. These SLR's will be used at ASPIRE (the AStrochemical & Planetary materials IRradiation Experiment) at TRIUMF to benchmark cross-section reactions in the ESS against existing irradiation models. This contribution discusses upcoming plans at ASPIRE to leverage exotic ARIEL SLR beams, to better understand fundamental issues in ESS chronometry and partitioning of radioisotopes into meteoritic phases like calcium-aluminum-rich inclusions (CAIs), chondrules, and other materials.

Primary author: CHARLES, Christopher (TRIUMF)

Presenter: CHARLES, Christopher (TRIUMF)

Session Classification: Reception & Poster Session