

K40 Backgrounds in the SNO+ Neutrino Detector

Tuesday 16 August 2022 10:00 (12 minutes)

SNO+ is a scintillator filled neutrino detector located 2 km underground at SNOLAB. The primary goal of the SNO+ experiment is to search for neutrino-less double beta decay (0νββ). The rarity of this phenomenon necessitates a high level of sensitivity making background analysis crucial. In this presentation, I will outline the methods used to find and characterize K40 backgrounds in SNO+—a signal that is notoriously difficult to measure given its statistical rarity. The methods used in this analysis exploit the structural symmetry of the hold-down ropes about the SNO+ detector to make a data-direct measure of the K40 background. This measurement can then be used to quantify the K40 background from other sources such as the Acrylic Vessel (AV) and the scintillator inside the detector.

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Session Classification: Session V