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(U*) POS-J86 – K40 Backgrounds in the SNO+ Neutrino Detector

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SNO+ is a neutrino detector located 2 km underground at the deep clean lab facility - SNOLAB, in Vale's Creighton Mine, in Sudbury ON. The primary goal of the SNO+ experiment is to search for an extremely rare, hypothesized phenomenon, neutrino-less double beta decay (0vbb) - the discovery of which will have a multitude of major implications in fundamental physics. Given the rarity of this phenomenon, it is paramount that all backgrounds in the detector be carefully measured and understood. In this poster, I will show the importance of background analysis and detail the method used to find a rate for K40 backgrounds –a signal that is especially difficult to measure. The techniques used in this analysis allowed for the first-ever estimate of the K40 background made directly from data taken with a detector partially filled with liquid organic scintillator.

Author: RAVI, Parmesh (University of Waterloo)

Presenter: RAVI, Parmesh (University of Waterloo)

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