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Scintillator Measurements for SNO+ TANNER KAPTANOGLU, Univ of Pennsylvania, SNO+ COLLABORATION — SNO+ is a neutrino detector located 2km underground in the SNOLAB facility with the primary goal of searching for neutrinoless double beta decay. The detector will be filled with a liquid scintillator target primarily composed of linear alkyl benzene (LAB). As charged particles travel through the detector the LAB produces scintillation light which is detected by almost ten thousand PMTs. The LAB is loaded with Te130, an isotope known to undergo double beta decay. Additionally, the LAB is mixed with an additional fluor and wavelength shifter to improve the light output and shift the light to a wavelength regime in which the PMTs are maximally efficient. The precise scintillator optics drastically affect the ultimate sensitivity of SNO+. I will present work being done to measure the optical properties of the SNO+ scintillator cocktail. The measured properties are used as input to a scintillation model that allows us to extrapolate to the SNO+ scale and ultimately predict the sensitivity of the experiment. Additionally, I will present measurements done to characterize the R5912 PMT, a candidate PMT for the second phase of SNO+ that provides better light collection, improved charge resolution, and a narrower spread in timing.

Tanner Kaptanoglu
Univ of Pennsylvania

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