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Cherenkov Source for PMT Calibrations TANNER KAPTANOGLU, University of California, Berkeley, SNO+ AT UC BERKELEY COLLABORATION — My research is focused on building a deployable source for PMT calibrations in the SNO+ detector. I work for the SNO+ group at UC Berkeley headed by Gabriel Orebi Gann. SNO+ is an addition to the SNO project, and its main goal is to search for neutrinoless double beta decay. The detector will be monitored by over 9500 photomultiplier tubes (PMTs). In order to characterize the PMTs, several calibration sources are being constructed. One of which, the Cherenkov Source, will provide a well-understood source of non-isotropic light for calibrating the detector response. My goal is to design and construct multiple aspects of the Cherenkov Source. However, there are multiple questions that arose with its design. How do we keep the scintillation light inside the Cherenkov source so it does not contaminate calibration? How do we properly build the Cherenkov source: a hollow acrylic sphere with a neck? Can we maintain a clean source throughout these processes? These are some of the problems I have been working on, and will continue to work on, until the deployment of the source. Additionally, I have worked to accurately simulate the physics inside the source, mainly the energy deposition of alphas.

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