

AmBe source calibration in the SNO+ water phase

SNO+ is a multipurpose neutrino experiment located approximately 2 km underground in SNOLAB, Sudbury, Canada. It started taking physics data in May 2017 and is currently completing its first phase, as a pure water Cherenkov detector. One physics goal of this water phase is to detect reactor antineutrinos for the first time using a pure water target. A key component of this search is the identification of the 2.2 MeV γ from the inverse beta decay neutron capturing on hydrogen. The low trigger threshold of the SNO+ detector allows for a substantial detection efficiency of these neutrons, as observed with a deployed $^{241}\text{Am}^9\text{Be}$ source. This poster presents the recent effort on the AmBe calibration and an analysis of the obtained coincident pairs of 4.4 MeV and 2.2 MeV γ s in the SNO+ detector.

Authorship annotation

for the SNO+ collaboration

Session and Location

Monday Session, Poster Wall #71 (Auditorium Gallery Right)

Poster included in proceedings:

yes

Primary author: Mr LIU, Yan (Queen's University)

Co-authors: Prof. WRIGHT, Alex (Queen's University); Mr LATORRE, Anthony (University of Chicago); Mr TAM, Benjamin (Queen's University); Mr KRAR, Brian (Queen's University); Prof. GRANT, Christopher (Boston University); Dr AUTY, David (University of Alberta); Dr CADEN, Erica (SNOLAB); Prof. BARÃO, Fernando (Laboratório de Instrumentação e Física Experimental de Partículas); Ms SEMENEC, Ingrida (Laurentian University); Ms GROVE, Jamie (Laurentian University); Mr LIDGARD, Jeffrey (University of Oxford); Prof. MANEIRA, José (Laboratório de Instrumentação e Física Experimental de Partículas); Dr SINGH, Kalpana (University of Alberta); Dr LEBANOWSKI, Logan (University of Pennsylvania); Dr MEKARSKI, Pawel (University of Alberta); Prof. SKENSVED, Peter (Queen's University); Dr BAYES, Ryan (Laurentian University); Prof. ANDRINGA, Sofia (Laboratório de Instrumentação e Física Experimental de Partículas); Dr NAE, Stefan (Laboratório de Instrumentação e Física Experimental de Partículas); Mr PEARSHING, Teal (University of California, Davis)

Presenter: Mr LIU, Yan (Queen's University)

Track Classification: Poster (participating in poster prize competition)