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SBND Detector Status and First Results

The Short-Baseline Near Detector (SBND) is one of three liquid argon time projection chamber (LArTPC) neutrino detectors positioned along the axis of the Booster Neutrino Beam (BNB) at Fermilab, and serves as the near detector in the Short-Baseline Neutrino (SBN) Program. The detector just completed its second year of running, collecting over 6.5×10^{20} POT, equivalent to an unprecedented sample of over 5 million neutrino interactions. Initial data has demonstrated superb performance of the detector's subsystems, enabling precise tracking and calorimetric reconstruction of events. With this large statistical data set, SBND is performing multi-dimensional cross section measurements of inclusive and exclusive topologies and precise searches for beyond the Standard Model (BSM) processes. As the near detector in the SBN Program, it will enable the full potential of the joint sterile neutrino measurements program by precisely characterizing the unoscillated neutrino beam, constraining BNB flux and neutrino-argon cross-section systematic uncertainties.

In this talk, the current status of the experiment, first results from SBND's neutrino interaction program, as well as status and prospects for BSM and oscillation searches are discussed.

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