

**SUSY 2024**

**Theory meets Experiment**

**Madrid**

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## **Status of the Short-Baseline Near Detector at Fermilab**

*Thursday 13 June 2024 15:25 (20 minutes)*

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, as part of the Short-Baseline Neutrino (SBN) Program. The detector is currently being commissioned and is expected to take neutrino data this year. SBND is characterized by superb imaging capabilities and will record over a million neutrino interactions per year. Thanks to its unique combination of measurement resolution and statistics, SBND will carry out a rich program of neutrino interaction measurements and novel searches for physics beyond the Standard Model (BSM). It will enable the potential of the overall SBN sterile neutrino program by performing a precise characterization of the unoscillated event rate, and constraining BNB flux and neutrino-argon cross-section systematic uncertainties. In this talk, the physics reach, current status, and future prospects of SBND are discussed.

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**Session Classification:** Joint Session: Flavour/Neutrinos/Dark Matter

**Track Classification:** Flavour physics and neutrinos