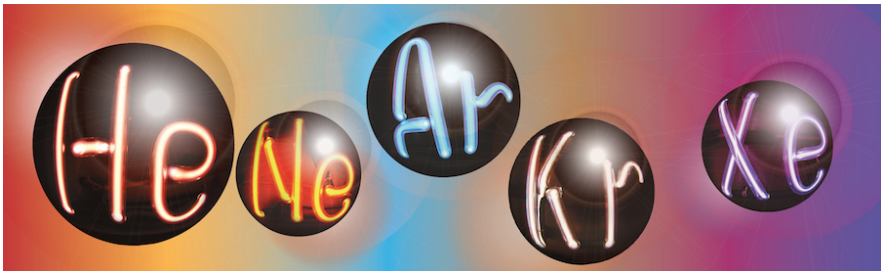


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# First signals of the X-ARAPUCA –APSAIA in SBND

*Monday 26 August 2024 18:00 (10 minutes)*

The SBND (Short Baseline Near Detector) is the near detector of the Short Baseline Neutrino Program (SBN) at Fermilab. Positioned 110 meters from the neutrino beam, the SBND will gather extensive data on neutrino-argon interactions. The SBND experiment utilizes the Liquid Argon Time Projection Chamber (LArTPC) technology for detection.

The Photon Detection System (PDS) consists of a passive element, Wavelength-Shifting Reflective plates coated with TPB at the cathode of the TPC, and two active elements: 8-inch Hamamatsu Cryogenic PMTs and the X-ARAPUCA system.

The entire X-ARAPUCA system was produced and assembled in Brazil at UNICAMP in collaboration with CTI. It comprises 192 modules, with half sensitive to vacuum ultraviolet (VUV) light and the other half to visible light. The readout system employs two types of customized electronics: APSAIA, developed with UNICAMP and CTI, and ARARA, developed in collaboration with the University of Michigan and Fermilab. The CAEN V1740 digitizer modules were provided by CIEMAT and UNICAMP.

Currently, we are in the commissioning phase of the experiment, and this work will present the first signals from the X-ARAPUCAs, including both VUV and visible readouts using the APSAIA front-end electronics.

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