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Measuring Neutron Cross Sections on Argon with the CAPTAIN detector

CAPTAIN (Cryogenic Apparatus for Precision tests of Argon Interactions with Neutrinos) is a five tons liquid Argon Time Projection Chamber currently being built at Los Alamos National Laboratory. The detector is designed to make measurements of scientific importance to long-baseline neutrino physics and physics topics that will be explored by large underground detectors. The first stage of the program involves impinging a well-characterized neutron beam on the detector to take neutron data in a liquid Argon TPC for the first time. CAPTAIN will take advantage of the proximity of the Los Alamos Neutron Science Center (LANSCE) to the CAPTAIN commissioning hall. LANSCE has a beam line with a well-characterized neutron energy spectrum with an endpoint close to 800 MeV kinetic energy. This poster provides a discussion of the physics measurements that CAPTAIN will perform in the LANSCE neutron beam.

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