

Abstract Submitted
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Nuclear recoil measurements with the ARIS experiment ALDEN FAN, Stanford Univ, ARIS COLLABORATION — As direct dark matter searches become increasingly sensitive, it is important to fully characterize the target of the search. The goal of the Argon Recoil Ionization and Scintillation (ARIS) experiment is to quantify information related to the scintillation and ionization energy scale, quenching factor, ion recombination probability, and scintillation time response of nuclear recoils, as expected from WIMPs, in liquid argon. A time projection chamber with an active mass of 0.5 kg of liquid argon and capable of full 3D position reconstruction was exposed to an inverse kinematic neutron beam at the Institut de Physique Nucleaire dOrsay in France. A scan of nuclear recoil energies was performed through coincidence with a set of neutron detectors to quantify properties of nuclear recoils in liquid argon at various electric fields. The difference in ionization and scintillation response with differing recoil track angle to the electric field was also studied. The preliminary results of the experiment will be presented.

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