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Precision Measurement of Nuclear Recoils in Liquid Argon with the ARIS Experiment BEN SCHLITZER, TESSA JOHNSON, EMILIJA PANTIC, UC Davis, ARIS COLLABORATION — One of the unique challenges facing direct dark matter searches is the characterization of the target particle signal. The goal of the Argon Recoil Ionization and Scintillation (ARIS) experiment is to measure the response of nuclear recoils in liquid argon (as expected from WIMPs) by quantifying the scintillation and ionization energy scale, quenching factor, ion recombination probability, and scintillation time response. A time projection chamber with an active mass of ˜0.5 kg of liquid argon was exposed to a highly columnated inverse kinematic neutron beam at the Institut de Physique Nucleaire d'Orsay in France. A scan of nuclear recoil energies was performed at various electric fields. Present status of the experiment will be presented.

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