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**Liquid Xenon Techniques for Dark Matter Detection.** AARON MANALAYSAY, University of Florida, XENON COLLABORATION — The XENON10 experiment will search for cold dark matter in the form of WIMPs with an expected sensitivity of $\sigma \sim 2 \times 10^{-44}\text{cm}^2$ at the Gran Sasso Underground Lab in Italy. The detector measures energy deposition in liquid xenon simultaneously in the form of scintillation and ionization which allows for nuclear recoil discrimination. A dual-phase (liquid and gas) design is utilized for charge-signal amplification which is a new technique that is still under development. At UF, we have built a smaller, 1kg version of this detector to test the concept, specifically using a neutron beam to measure the ionization and scintillation yields of nuclear recoils down to 10 keV recoil energies. We present the status of XENON10, along with the initial results of our detector and expectations based on Monte Carlo simulations.

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