



Contribution ID: 148

Type: Oral

Hydrogen doping in liquid xenon TPCs (HydroX) at SLAC

Wednesday, 8 November 2023 13:50 (20 minutes)

Liquid xenon time projection chambers (TPCs) are leading the search for particle dark matter with mass greater than 5 GeV. HydroX is a proposed upgrade to enhance their sensitivity to masses as low as 10s of MeV, by doping the xenon with a light element such as hydrogen. The dopant nucleus provides a better kinematic match for lighter particles, but its presence may interfere with signal generation in xenon. This talk will give an overview of the HydroX test system at SLAC, which aims to study the production of light signals in xenon-hydrogen gas mixtures. Construction is nearly complete on the system, which includes a TPC instrumented with 32 PMTs, a test vessel for material compatibility studies, and a hydrogen-compatible gas circulation and recovery system.

Early Career

Yes

Primary author: AMES, Drew (SLAC)

Presenter: AMES, Drew (SLAC)

Session Classification: RDC1

Track Classification: RDC Parallel Sessions: RDC1: Noble Element Detectors