

DARWIN and the Future of Liquid Xenon Dark Matter Detectors

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Liquid xenon time projection chambers are established as a leading dark matter detector technology. LZ and XENONnT are in the midst of sweeping exciting parameter space for Weakly Interacting Massive Particles (WIMPs) and other rare particle physics phenomena. Regardless of a dark matter signal observation in the current generation of detectors, it is important to look to a future experiment that would be limited in its discovery potential by irreducible neutrino backgrounds rather than exposure. In this talk, I present the status of the DARWIN experiment, and particularly highlight the expected science reach for WIMPs, coherent elastic neutrino-nucleus scattering, and neutrinoless double beta decay. I will also give a brief introduction to the XLZD consortium and our goal to build the ultimate liquid xenon dark matter detector.

Primary author: KOPEC, Abigail (UC San Diego)

Presenter: KOPEC, Abigail (UC San Diego)

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