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# CrystaLiZe: Towards a neutrino-limited dark matter search with Crystal Xenon

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We present the Crystal Xenon Time Projection Chamber (CXe TPC), a novel particle detector technology as a proposed upgrade to existing LXe TPCs, or as a standalone next-generation particle detector. The dominant background in current LXe dark matter searches is beta decays from radon contamination, which has proven to be ubiquitous, long-lived, and extremely soluble in liquid xenon. Foundational tests at the sub-kg scale have shown that CXe offers a factor 500x mitigation of Rn progeny, allowing for a dark matter search with neutrino interactions as the leading background, while preserving the benefits of LXe as a detection medium. This presentation will provide an overview of the operating principles of a CXe TPC and current work to demonstrate the scalability of this technology, including results from a 10kg-scale crystal Xe detector.

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