

Dark matter search with crystalline xenon

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Direct dark matter search experiments aim to detect rare events when a candidate dark matter particle scatters off a target. Ultra-low background is essential for such an effort. State-of-the-art liquid xenon time projection chambers (TPC) employ various effective methods to suppress and discriminate against background signals. The dominant background remaining is the Pb beta decay from the Rn chain, which limits our discovery sensitivity. A crystalline xenon TPC is a promising novel technology for next-generation dark matter search, as it could exclude and tag radon-chain backgrounds while maintaining the instrumental benefits of liquid xenon TPC. This talk will discuss instrumental performance as well as recent results to demonstrate the radon exclusion power of crystalline xenon with respect to liquid xenon.

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