

Abstract Submitted
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Removing radon from xenon by cryogenic distillation PIETER BREUR, SLAC - Natl Accelerator Lab, NEXO COLLABORATION — The nEXO experiment will search for neutrinoless double-beta decay, and to reach its final sensitivity its ultra-low background goals need to be reached. One of the leading background contributions in nEXO will be due to the decay of radon-222 in liquid xenon, emanating from all materials in contact with xenon. The baseline strategy to mitigate this background is material screening and removal using an in-line charcoal-based radon trap. We propose to investigate the possibility of doing cryogenic radon distillation as an alternative approach to the charcoal based trap. Over the last few years this new technique has shown great progress on a smaller scale in low-background dark-matter experiments. In this talk we will present the theory behind, and the possible implementation of, a 350-slpn cryogenic radon distillation column designed for nEXO with an in-line reduction factor of >100 .

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