Abstract Submitted
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Development of a technique for imaging single Ba atoms in solid xenon by laser scanning[1] DANIELLE HARRIS, CHRIS CHAMBERS, DAVID FAIRBANK, JAMES TODD, TIM WALTON, WILLIAM FAIRBANK JR., Colorado State University, NEXO COLLABORATION — We are developing a method of barium tagging for the nEXO double beta decay experiment that may allow for elimination of all backgrounds except a very small contribution from two-neutrino double beta decay. In this method, a barium ion is frozen with some surrounding xenon on a cold probe that is inserted into LXe. This ion, or atom if it is neutralized, is then detected by matrix isolation spectroscopy in the solid xenon matrix on the probe. We have imaged single barium atoms in a solid xenon matrix using a fixed laser technique and are modifying our experimental set up to instead scan an area for a single barium ion. Progress on single barium atom imaging using a scanning technique will be reported.

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