

Abstract Submitted  
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**Imaging of single barium atoms in solid xenon for nEXO**<sup>1</sup> JAMES TODD, CHRIS CHAMBERS, TIM WALTON, DANIELLE HARRIS, DAVID FAIRBANK, WILLIAM FAIRBANK JR., Colorado State University, NEXO COLLABORATION — Neutrinoless double beta decay has become of interest in recent decades to prove whether the neutrino is its own anti particle. Experiments in enriched liquid Xenon in EXO-200 are ongoing. To achieve a greater sensitivity, a much larger next generation double beta decay experiment, nEXO, is planned. Searches for neutrinoless double beta decay in nEXO can be improved through barium tagging. In liquid  $^{136}\text{Xe}$ , double beta decay leaves a daughter  $^{136}\text{Ba}$  atom. If this daughter is identified and tagged, the only remaining background in the nEXO detector is 2nbb decay. A test apparatus with a  $\text{Ba}^+$  ion beam has been used to deposit a small number of Ba atoms in the area of a fixed laser beam. Images down to the level of a single Ba atom in the laser beam have been observed.

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