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Progress in Barium tagging at the single atom/ion level for nEXO

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The ability to detect or "tag" the 136Ba daughter of 136Xe double beta decay in the nEXO liquid xenon TPC has the potential to eliminate essentially all background in the a second phase of nEXO operation. Several promising techniques for barium tagging are being developed within the nEXO collaboration. These include capturing the single 136Ba ion/atom in solid xenon on a cryogenic probe and detecting it by laser spectroscopy and capturing the single 136Ba on a conducting probe and detecting it by laser ablation and resonance ionization spectroscopy. The extraction of the 136Ba+ ion from the TPC and capture and detection in an ion trap is also being explored. Recent progress in barium tagging at the single ion/atom level will be presented.

Primary authors: CHAMBERS, Chris (Colorado State University); FAIRBANK, Bill (Colorado State University)

Presenter: CHAMBERS, Chris (Colorado State University)

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