

Abstract Submitted  
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**Development of barium tagging technology for EXO MARIA MONTERO DIEZ**, Stanford University, EXO COLLABORATION — The Enriched Xenon Observatory (EXO) is a series of experiments designed to search for the neutrinoless double beta decay of Xenon-136. The first experiment, known as EXO-200, is comprised of a liquid xenon TPC containing 200 kg of xenon enriched to 80% in Xenon-136 and is nearing completion. To suppress possible radioactive backgrounds, the EXO collaboration is also pursuing the development of a new technique to identify the production of the barium daughter ions produced by double beta decay. For this purpose, a linear radio-frequency ion trap has been constructed. Individual barium ions are trapped in this helium or argon buffer gas-filled trap and observed with a high signal-to-noise ratio by resonance fluorescence. Furthermore, two ion transfer methods are under parallel development, both involving the capture and transport of the ions on the surface of a specially designed tip. This talk will present the results obtained in the trapping of single buffer gas-cooled barium ions and the transfer of ions using a cryogenic tip, and our plans for an ion transfer tip using resonance ionization spectroscopy.

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