

Abstract Submitted  
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**A linear ion trap for the Enriched Xenon Observatory EXO**  
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JESSE WODIN, Stanford University, EXO COLLABORATION — The Enriched  
Xenon Observatory for double beta decay attempts to answer one of the greatest  
outstanding questions in neutrino physics by performing a direct measurement of  
the majorana neutrino mass through the investigation of neutrinoless double beta  
decay ( $0\nu\beta\beta$ ) of  $^{136}\text{Xe}$ . The major advantage of Xenon as a source is the ability to  
detect the Ba ion daughter directly through laser induced fluorescence spectroscopy;  
this technique would allow for an essentially background-free measurement. First  
investigations of Ba spectroscopy were done in a hyperbolic Paul-trap. This talk  
discusses the trapping of single barium ions in buffer gasses, as well as the design  
and implementation of a linear ion trap, which allows for external loading of ions, for  
use in the Barium tagging aspect of a liquid Xenon double beta decay experiment.

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