

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Development of an RIS probe for barium tagging for EXO KARL
TWELKER, Stanford University, EXO COLLABORATION — Resonance Ionization Spectroscopy (RIS) has been shown to be a highly efficient method of selective ionization. We are investigating RIS as part of a high-efficiency single ion transport method to retrieve barium ions produced in double beta decay of xenon-136 and inject them in a ion trap where they are identified via optical spectroscopy. Highly efficient Ba-tagging would substantially reduce the background due to radioactive impurities in very large double-beta decay experiments, which limits the current generation of experiments. RIS is used to re-ionize the Ba atoms after they are desorbed from the substrate on which they had been captured.

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Date submitted: 09 Jul 2010

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