Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Single atom barium sources for EXO barium tagging development YUNG-RUEY YEN, University of Maryland, EXO COLLABORATION — Barium tagging, the extraction and identification of the ^{136}Xe double beta decay daughter product, would allow the Enriched Xenon Observatory (EXO) experiment to eliminate almost all backgrounds. The collaboration has made much progress in developing an ion probe to extract a barium ion from either liquid or gas xenon and an ion trap to identify a single barium ion. Yet the true efficiencies of these methods cannot be known until a source of single barium ions is available. I will talk about the Ba source R&D efforts of the EXO collaboration; they include 1) using the alpha recoil of ^{148}Gd on a thin layer of BaF_2, 2) using an electrostatic gate to select single atoms from a Ba ion beam, and 3) using chemistry to isolate ^{137}Cs which then beta decays to Ba^+.

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Date submitted: 23 Oct 2009 Electronic form version 1.4