

Abstract Submitted  
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**The  $^{136}\text{Xe}(n, n'\gamma)^{136}\text{Xe}$  Reaction at 8 MeV** JOSHUA BRADT<sup>1</sup>,  
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GOODEN<sup>3</sup>, North Carolina State University — An experiment was performed to  
look for  $\gamma$ -ray lines due to neutron inelastic scattering on  $^{136}\text{Xe}$  in order to identify  
potential background lines in the region of interest for neutrinoless double-beta de-  
cay searches like EXO and KamLAND-Zen. One clear line at 2414.7 keV was found  
which KamLAND-Zen cannot distinguish from the predicted neutrinoless double-  
beta decay signal at 2458 keV. In addition, a GEANT4 computer simulation of the  
60 % HPGe detectors used in our experiment was developed to model the detectors'  
efficiencies at various energies and distances from a radiation source, and we began  
to extend this simulation to model our entire experiment.

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