

Abstract Submitted  
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**Using Atom Trap Trace Analysis for Radioactive Krypton Background Analysis**<sup>1</sup> BENJAMIN MILES, CHAD ORZEL, Union College Dept. of Physics and Astronomy — We will measure very accurately the concentration of krypton in a mixture of noble gases by using the Atom Trap Trace Analysis (ATTA) method to trap and count single krypton atoms. Such measurements are critical for the new generation of neutrino and dark matter detectors that use liquid noble gases (xenon or neon) as a scintillation medium. Beta decay of the rare isotope  $^{85}\text{Kr}$  is a significant source of background counts in such detectors, which can tolerate krypton contamination only at the  $10^{-15}$  level. We estimate that the ATTA method can detect Kr/Rg levels as low as  $3 \times 10^{-14}$  in just 3 hours, considerably faster than more conventional techniques. We will discuss recent progress toward the use of ATTA to measure krypton contamination in neon or xenon.

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