

Abstract Submitted
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Investigation of the use of high-pressure xenon detectors in ion beam analysis. ARTHUR K. PALLONE, Murray State University, JOHN DEREK DEMAREE, U.S. Army Research Laboratory, AL BEYERLE, Mirmar Sensor — Ion beam analysis (IBA) provides nondestructive compositional information. Three major requirements for detectors used in IBA are high efficiency, great resolution, and high signal to noise ratio (SNR). The standard detector used in γ -photon based IBA techniques is the thallium-doped sodium iodide - NaI(Tl) – scintillator. High-pressure xenon detectors (HPXe) present certain advantages over NaI(Tl) and other detector types for IBA conditions. The performance of a 1.5-inch diameter by 3-inch long high-pressure xenon (HPXe) detector is investigated at energies useful to IBA. The performance is compared to theoretical predictions. Recommendations are then made for a physically larger HPXe system for IBA.

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