

Abstract Submitted
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EBT-XD Radiochromic Film Sensitivity Calibrations Using Proton Beams from a Pelletron Accelerator¹ BARAK STOCKLER, SUNY Geneseo, ALEXANDER GRUN, Gettysburg, GUNNAR BROWN, MATTHEW KLEIN, JACOB WOOD, ANTHONY COOPER, RYAN WARD, CHARLIE FREEMAN, STEPHEN PADALINO, SUNY Geneseo, S.P. REGAN, T.C. SANGSTER, Laboratory for Laser Energetics — Radiochromic film (RCF) is a transparent detector film that permanently changes color following exposure to ionizing radiation. RCF is used frequently in medical applications, but also has been used in a variety of high energy density physics diagnostics. RCF is convenient to use because it requires no chemical processing and can be scanned using commercially available document scanners. In this study, the sensitivity of GafchromicTM EBT-XD RCF to protons and x-rays was measured. Proton beams produced by the SUNY Geneseo Pelletron accelerator were directed into an evacuated target chamber where they scattered off a thin gold foil. The scattered protons were incident on a sample of RCF which subtended a range of angles around the scattering center. A new analysis method, which relies on the variation in scattered proton fluence as a function of scattering angle in accordance with the Rutherford scattering law, is currently being developed to speed up the proton calibrations. Samples of RCF were also exposed to x-ray radiation using an X-RAD 160 x-ray irradiator, allowing the sensitivity of RCF to X-rays to be measured.

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