

Abstract Submitted
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Radiochromic film sensitivity calibrations using ion beams from a Pelletron accelerator T.M. FILKINS, JESSICA STEIDLE, R.J. WARD, C.G. FREEMAN, S.J. 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. The optical density of the film increases with increasing absorbed dose. RCF is convenient to use because it requires no chemical processing and can be scanned using commercially available document scanners. RCF is used frequently in medical applications, but is also used in a variety of diagnostics in high energy density physics. The film consists of a single or double layer of radiation-sensitive organic microcrystal monomers placed onto a polyester backing. GafchromicTM manufactures a large number of different types of RCF, and new types of film frequently replace older products. In this study, the sensitivity of several types of RCF to ion beams of different energies was measured. Ion beams produced by the SUNY Geneseo 1.7 MV Pelletron accelerator were directed into a target chamber where they scattered off of a gold foil. A sample of RCF was exposed to the scattered ions. The fluence of incident particles on the film was measured using a surface barrier detector. Results of these calibrations will be presented. This work was funded in part by a grant from the DOE through the Laboratory for Laser Energetics.

Charles Freeman
SUNY Geneseo

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