

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

In-Vivo Proton Therapy Dosimetry Using Scintillating Fiber Technology ASHLEY CETNAR, Grove City College, PAUL GUEYE, Hampton University — Proton therapy is a cancer treatment modality that uses high-energy proton beams to irradiate cancerous cells while minimizing the radiation to healthy tissue. Because of its Bragg peak distribution, a proton is more efficient in localizing doses than conventional x-ray therapy. When the protons interact within the body, there are many reactions that induce secondary radiation. To date, there is still no accurate device available that is capable of measuring the beam profile and effective dose delivery during the treatment. This research focused on the use of scintillating fibers technology to measure the secondary emitted radiation exiting a water phantom tank and the delivery system bombarded by proton beams. A realistic Geant4 Monte Carlo simulation was also developed to provide additional information to further optimize our prototype. This poster presents the results obtained from preliminary experimental and simulated studies for a possible real time radiation detection system using scintillating fibers.

Ashley Cetnar
Grove City College

Date submitted: 17 Nov 2010

Electronic form version 1.4