

Abstract Submitted
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Neutron Energy Distribution of an AmBe Source at the MGH Proton Center MOLLY MCDONOUGH, DYLAN BARBAGALLO, BROOKE BOLDUC, BRIAN HASSETT, KENDRICK KOUMBA, ALEXANDRA LEEMING, PHUC MACH, LUISE SHAY, SKYLER SPANBAUER, DR. WALTER JOHNSON, JACQUELINE NYAMWANDA, Suffolk University, JOSEPH MCCORMACK, Massachusetts General Hospital, MASSACHUSETTS GENERAL HOSPITAL RADIATION ONCOLOGY DEPARTMENT AND PROTON CENTER COLLABORATION — Bubble detectors are useful tools for determining neutron radiation of both an AmBe source and a 15 MV medical linear accelerator (LINAC). Neutron bubble detectors are used to demonstrate the $1/r^2$ distribution as well as highlight the neutron fluence in the region of 250 keV to 15 MeV. To determine the energy distribution of the sources, a more sophisticated system of bubble detectors, which have different energy thresholds for bubble production, must be used. These energy dependent detectors require an external compression system, unlike the screw system used on the broad-spectrum detectors. A system of a multiple energy dependent detectors and the recompression system will allow reuse of the detectors and a variety of experiments for energy determination of the neutron spectrum. Our goal is to determine the effectiveness of polyethylene shields, in terms of the mass attenuation coefficient for different neutron energies.

Molly McDonough
Suffolk University

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