原子能科学技术 2007 41 (6): 729-733 ISSN: 1000-6931 CN: 11-2044/TL

技术及应用

多层介质/金属紫外滤光膜系的辐照损伤特性

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收稿日期 2006-7-17 修回日期 2007-2-1 网络版发布日期: 2007-11-20

摘要 利用电子束蒸发方法制备用于BaF_2晶体慢成分滤光的多层介质/金属紫外滤光膜系。在γ射线、中子和激光辐照环境中研究薄膜的损伤特性。结果表明：薄膜对γ射线和中子具有优良的耐辐照特性；在激光辐照环境中，薄膜的激光损伤阈值受多层薄膜中金属层的影响，激光入射时，最先辐照到的金属层的厚度决定了多层薄膜的耐激光辐照损伤特性。

关键词 BaF_2晶体；多层膜；介质/金属薄膜；滤光膜；辐照损伤

分类号 0484.4

Characterization of Dielectric/Metallic Multilayer UV Filter Irradiated by γ-ray, Neutron and Laser Beams

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Abstract Dielectric/metallic multilayer UV filter applied for the suppression of slow component of BaF_2 scintillator was prepared with electron beam evaporation, and the effects of γ-ray, neutron and laser beam on the filter were characterized. Results show that the performance of the filter keeps unchanged under γ-ray irradiation of 1×10^5 Gy and neutron irradiation of $4.0\times10^{13}cm^{-2}$. The damage threshold of the filter irradiated by laser beams is related to the layer which was first encountered by the laser beam, and its thickness determines the damage threshold of the filter.

Key words BaF_2 scintillator; multilayer; dielectric/metallic film; filter; irradiation damage

DOI

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