Radiation Induced Attenuation of Space-grade Polarization-Maintaining Optical Fibers in the UV-Visible Domains

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Abstract

We investigate the radiation-induced attenuation (RIA) in a Panda polarization-maintaining optical fiber optimized to ensure single-mode operation in the visible spectrum. The fiber was subjected to steady state X-rays runs up to 3 kGy(SiO2), with variations in temperature and dose rate. Spectral analysis of the RIA was conducted, and a Gaussian decomposition model was employed to identify and characterize the predominant radiation-induced color centers impacting this spectral domain.

Keywords: UV, Visible, RIA, Gaussian deconvolution, PM, Fiber, PSC, Fiber

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