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Latest developments in silica-based thermoluminescence spectrometry and dosimetry (Article)

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Abstract

Using irradiated doped-**silica** preforms from which fibres for **thermoluminescence dosimetry** applications can be fabricated we have carried out a range of luminescence studies, the TL yield of the fibre systems offering many advantages over conventional passive **dosimetry** types. **In** this paper we investigate such media, showing emission spectra for irradiated preforms and the TL response of glass beads following irradiation to an ^{241}Am–Be neutron source located **in** a tank of water, the glass fibres and beads offering the advantage of being able to be placed directly into liquid. The outcomes from these and other lines of research are intended to inform development of doped **silica** radiation dosimeters of versatile utility, extending from environmental evaluations through to clinical and industrial applications. © 2015 Elsevier Ltd

Author keywords

Dosimetry; Ge-doped **silica** fibre; Glass beads TLDs; **Thermoluminescence**

Indexed keywords

Engineering controlled terms: Dosimetry; Emission spectroscopy; Fibers; Germanium; Glass; Granular materials; Industrial research; Neutron irradiation; Neutron sources; Preforming; **Silica**

Am-Be neutron source; Environmental evaluation; Ge-doped **silica**; Glass bead; **Latest** development; Luminescence studies; Radiation dosimeters; **Thermoluminescence dosimetry**

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