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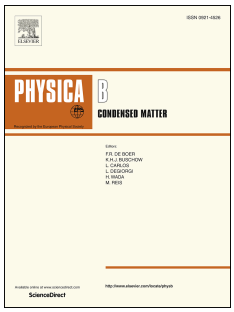

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Radioluminescence and thermally-stimulated luminescence properties of Pr:$CaSiO_3$ crystals

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Abstract

We investigated the photoluminescence (PL), radioluminescence (RL) and thermally-stimulated luminescence (TSL) properties of Pr:$CaSiO_3$ crystals grown by the floating zone method. In both the PL and RL spectra, a broad emission band are observed around 300 nm due to the 5d-4f transitions of Pr^{3+}, whose decay time constants are 16-20 ns and 140-260 ns. In TSL, multiple glow peaks are observed over 50-250 °C, and the response intensity increases linearly proportional to the X-ray dose.