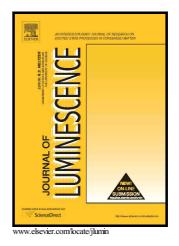
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# Luminescent properties of Eu<sup>3+</sup> doped heavy tellurite scintillating glasses

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#### Abstract:

 $Eu^{3+}$  doped tellurite scintillating glasses were prepared by the conventional melt-quenching method. The physical and luminescent properties of glasses were investigated by DTA, density, transmittance spectra, photoluminescence spectra, and X-ray excited luminescence (XEL) spectra. The densities of the glasses are in the range from 5.89 g/cm<sup>3</sup> to 6.05 g/cm<sup>3</sup>. The glasses exhibit intense red emissions upon 393 nm light and X-ray excitations. The maximum integral XEL intensity of the glasses is about 6 % of that of commercial  $Bi_4Ge_3O_{12}$  (BGO) scintillating crystal. The results reveal that  $Eu^{3+}$  doped tellurite glass could be a scintillator candidate used in X-ray detection field.

Keywords: Eu<sup>3+</sup>; Tellurite glass; Scintillating glass; Luminescence

#### 1. Introduction

Recently, rare-earth doped high density glass scintillator shows great promising application in X-ray detection compared with scintillator ceramics or crystals due to its low cost, large-volume production, and easy shaping of elements<sup>[1-6]</sup>. However, the low light yield and the low density restrict scintillating glass's application and development. As is

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