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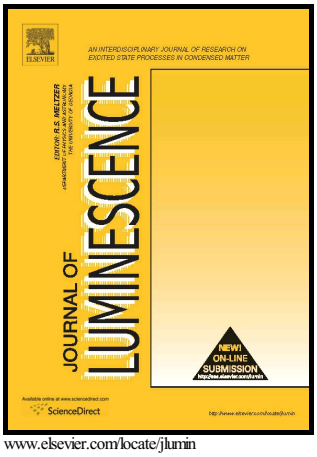
Jingtao Zhao, Lihui Huang, Tianyu Liang, Shilong Zhao, Shiqing Xu




www.elsevier.com/locate/jlumin

PII: S0022-2313(18)30980-3
DOI: https://doi.org/10.1016/j.jlumin.2018.09.045
Reference: LUMIN15928

To appear in: *Journal of Luminescence*

Received date: 4 June 2018
Revised date: 11 September 2018
Accepted date: 20 September 2018

Cite this article as: Jingtao Zhao, Lihui Huang, Tianyu Liang, Shilong Zhao and Shiqing Xu, Luminescent properties of $Eu^{3+}$ doped heavy tellurite scintillating glasses, *Journal of Luminescence,* https://doi.org/10.1016/j.jlumin.2018.09.045

# Luminescent properties of $Eu^{3+}$ doped heavy tellurite scintillating glasses

Jingtao Zhao, Lihui Huang*, Tianyu Liang, Shilong Zhao, Shiqing Xu

College of Materials Science and Engineering, China Jiliang University, Hangzhou 310018, China

*Corresponding author: Tel.: +86-571-86835781. E-mail address: huanglihui010@sina.com

**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$^3$ to 6.05 g/cm$^3$. 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:** $Eu^{3+}$; 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[1-6]. However, the low light yield and the low density restrict scintillating glass's application and development. As is