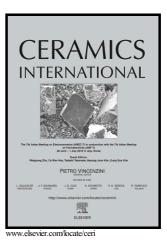
## Author's Accepted Manuscript

Dielectric, ferroelectric, and photoluminescent properties of Sm-doped  $Bi_4Ti_3O_{12}$  thin films synthesized by sol-gel method

Xingru Du, Wenhua Huang, Shuai He, T. Santhosh Kumar, Aize Hao, Ni Qin, Dinghua Bao



 PII:
 S0272-8842(18)31915-1

 DOI:
 https://doi.org/10.1016/j.ceramint.2018.07.174

 Reference:
 CERI18896

To appear in: Ceramics International

Received date: 21 June 2018 Accepted date: 19 July 2018

Cite this article as: Xingru Du, Wenhua Huang, Shuai He, T. Santhosh Kumar, Aize Hao, Ni Qin and Dinghua Bao, Dielectric, ferroelectric, and photoluminescent properties of Sm-doped  $Bi_4Ti_3O_{12}$  thin films synthesized by sol-gel method, *Ceramics International*, https://doi.org/10.1016/j.ceramint.2018.07.174

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

#### **ACCEPTED MANUSCRIPT**

# Dielectric, ferroelectric, and photoluminescent properties of

### Sm-doped $Bi_4Ti_3O_{12}$ thin films synthesized by sol-gel method

Xingru Du, Wenhua Huang, Shuai He, T. Santhosh Kumar, Aize Hao, Ni Qin\*, Dinghua Bao\*

State Key Laboratory of Optoelectronic Materials and Technologies, School of Materials Science and Engineering, Sun Yat-Sen University, Guangzhou 510275, China

#### Abstract

We report on the structure, dielectric, ferroelectric, and photoluminescent properties of  $\text{Sm}^{3+}$ -doped Bi<sub>4</sub>Ti<sub>3</sub>O<sub>12</sub> thin films which were prepared on fused silica and Pt/Ti/SiO<sub>2</sub>/Si substrates by sol-gel method. The X-ray diffraction analysis confirmed that the Bi<sub>4-x</sub>Sm<sub>x</sub>Ti<sub>3</sub>O<sub>12</sub> (BSmT) thin films were well crystallized in layered perovskite structure without any secondary phase. Raman spectra indicated that the structure of BSmT thin films was significantly distorted because of the Sm<sup>3+</sup> doping. An appropriate doping amount of Sm<sup>3+</sup> ions leads to obvious enhancement in ferroelectric and dielectric properties of BSmT thin films due to structure distortion and reduction in defects. In addition, the BSmT thin films also show orange-red color emission at 601 nm and long florescence lifetime (> 0.6 ms). This study indicated that lead-free BSmT thin films, which are featuring good electrical and photoluminescent properties, may have potential applications in integrated optoelectronic devices.

**Keywords**: BSmT thin film; dielectric; ferroelectric; photoluminescence; lifetime \* E-mail: qinni2@mail.sysu.edu.cn, stsbdh@mail.sysu.edu.cn Download English Version:

# https://daneshyari.com/en/article/10155404

Download Persian Version:

https://daneshyari.com/article/10155404

Daneshyari.com