

## Accepted Manuscript

The Synthesis and Microstructural, Optical, Magnetic Characterizations of  $m00$ -oriented Epitaxial  $\text{Bi}_2\text{Fe}_4\text{O}_9$  Thin Film by Pulsed Laser Deposition

Tiantian Wang, Hongmei Deng, Peng Shen, Jin Hong, Fangyu Yue, Liangqing Zhu, Pingxiong Yang, Junhao Chu

PII: S0167-577X(17)30906-0

DOI: <http://dx.doi.org/10.1016/j.matlet.2017.06.024>

Reference: MLBLUE 22736

To appear in: *Materials Letters*

Received Date: 3 May 2017

Revised Date: 5 June 2017

Accepted Date: 5 June 2017



Please cite this article as: T. Wang, H. Deng, P. Shen, J. Hong, F. Yue, L. Zhu, P. Yang, J. Chu, The Synthesis and Microstructural, Optical, Magnetic Characterizations of  $m00$ -oriented Epitaxial  $\text{Bi}_2\text{Fe}_4\text{O}_9$  Thin Film by Pulsed Laser Deposition, *Materials Letters* (2017), doi: <http://dx.doi.org/10.1016/j.matlet.2017.06.024>

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 proof before it is published in its final 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.

**The Synthesis and Microstructural, Optical, Magnetic  
Characterizations of  $m00$ -oriented Epitaxial  $\text{Bi}_2\text{Fe}_4\text{O}_9$  Thin Film by  
Pulsed Laser Deposition**

Tiantian Wang<sup>1</sup>, Hongmei Deng<sup>2</sup>, Peng Shen<sup>1</sup>, Jin Hong<sup>1</sup>, Fangyu Yue<sup>1</sup>,  
Liangqing Zhu<sup>1,\*</sup>, Pingxiong Yang<sup>1,\*</sup>, Junhao Chu<sup>1</sup>

<sup>1</sup>*Key Laboratory of Polar Materials and Devices, Ministry of Education,  
Department of Electronic Engineering, East China Normal University,  
Shanghai 200241, China*

<sup>2</sup>*Instrumental Analysis and Research Center, Institute of Materials,  
Shanghai University, 99 Shangda Road, Shanghai 200444, China*

**Abstract**

Mullite  $\text{Bi}_2\text{Fe}_4\text{O}_9$  single crystal epitaxial thin film has been successfully synthesized on  $\text{SrTiO}_3$  (100) substrate by pulsed laser deposition. The single crystal thin film is grown along ( $m00$ ) orientation ( $m=2, 4$ ) which is identified by X-ray diffraction. Morphology analysis shows orderly assigned grains with some small defects due to the volatilization of  $\text{Bi}_2\text{O}_3$  tested by scanning electron microscope and atomic force microscopy. The chemical composition of film is confirmed by energy dispersive X-ray spectroscopy, nearly in accord with the chemical

---

\* Corresponding author. Tel.: +86 21 54345157; fax: +86 21 54345119.

E-mail address: pxyang@ee.ecnu.edu.cn (P. Yang); lqzhu@ee.ecnu.edu.cn (L. Zhu).

Download English Version:

<https://daneshyari.com/en/article/5463792>

Download Persian Version:

<https://daneshyari.com/article/5463792>

[Daneshyari.com](https://daneshyari.com)