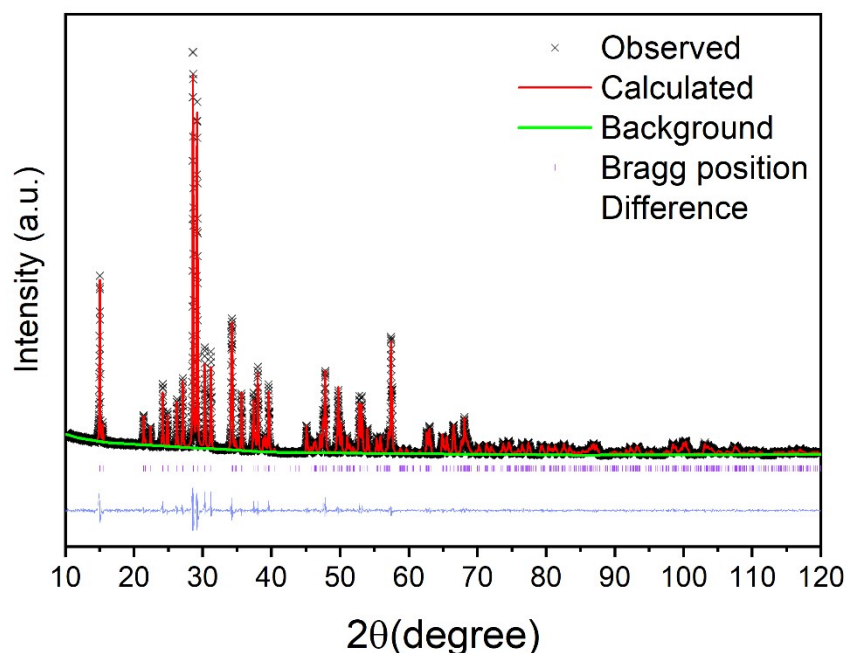


## Supporting Information

### Flexible thermosensitive films based on shallow-trap persistent luminescence for high-resolution texture imaging of fingerprints even through latex gloves

Shenghui Zheng,<sup>ab</sup> Junpeng Shi,<sup>c</sup> Xiaodan Wang,<sup>ab</sup> Xiaoyan Fu,<sup>d\*</sup> Hongyong Fan,<sup>ab</sup> and Hongwu Zhang<sup>ae\*</sup>

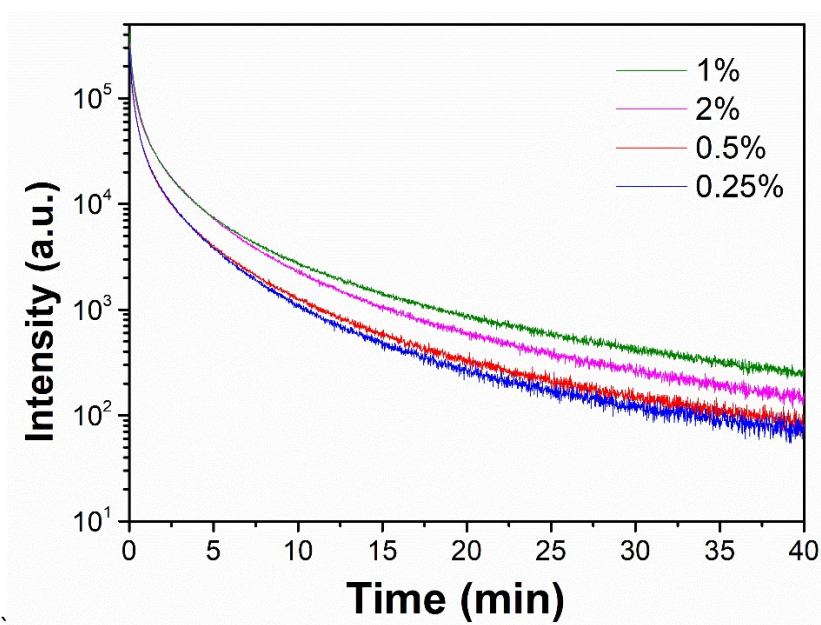
- <sup>a</sup> Key Lab of Urban Pollutant Conversion, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen, 361021, China. E-mail: hwzhang@iue.ac.cn
- <sup>b</sup> University of Chinese Academy of Sciences, No. 19A Yuquan Road, Beijing 100049, China.
- <sup>c</sup> Key Laboratory of Design and Assembly of Functional Nanostructures, Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, Fuzhou 350002, China
- <sup>d</sup> College of Materials Science and Engineering, Key Laboratory of Functional Materials and Applications of Fujian Province, Xiamen University of Technology, Xiamen 361024, China. E-mail: fuxiaoyan@xmut.edu.cn
- <sup>e</sup> School of Chemistry and Material Sciences, Ludong University, Yantai 264025, China



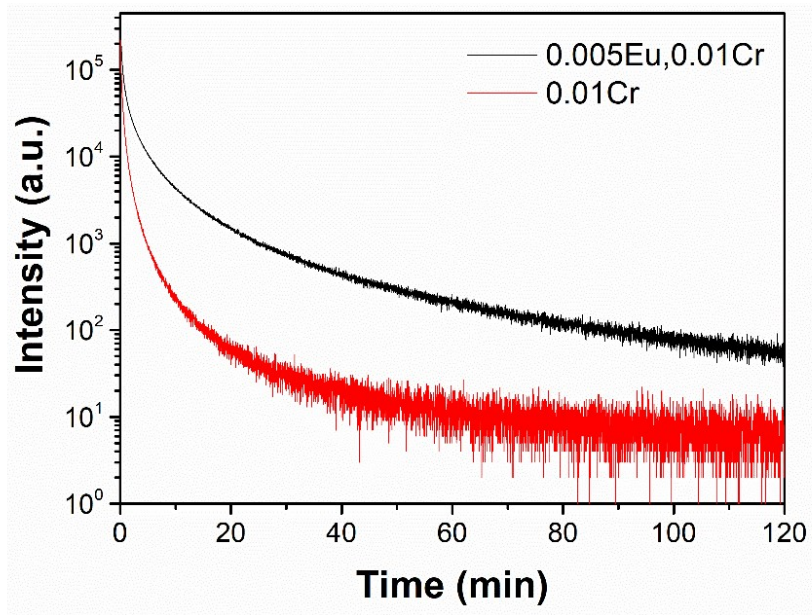
**Fig. S1** Rietveld refinement of  $\text{Bi}_{1.98}\text{Ga}_{3.99}\text{O}_9:2\%\text{Eu}^{3+},1\%\text{Cr}^{3+}$  at RT. The Rietveld refinement was analysis using the general structure analysis system (GSAS).<sup>[1,2]</sup> The refinement results converged to  $R_p = 4.38\%$  and  $R_{wp} = 5.91\%$ .

Table S1. The refinement parameters of  $\text{Bi}_2\text{Ga}_4\text{O}_9$ ,  $\text{Bi}_2\text{Ga}_{3.99}\text{O}_9:1\%\text{Cr}^{3+}$  and  $\text{Bi}_{1.98}\text{Ga}_4\text{O}_9:2\%\text{Eu}^{3+},1\%\text{Cr}^{3+}$  phosphors.

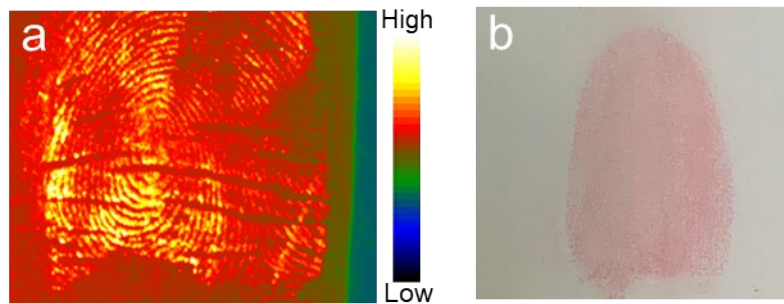
Formula	$\text{Bi}_2\text{Ga}_4\text{O}_9$	$\text{Bi}_2\text{Ga}_{3.99}\text{O}_9:1\%\text{Cr}^{3+}$	$\text{Bi}_{1.98}\text{Ga}_4\text{O}_9:2\%\text{Eu}^{3+},1\%\text{Cr}^{3+}$
Space group	Pbam	Pbam	Pbam
a (Å)	7.932	7.928	7.925
b (Å)	8.312	8.309	8.302
c (Å)	5.913	5.910	5.896
$\alpha=\beta=\gamma$ (°)	90	90	90
Cell volume (Å <sup>3</sup> )	389.698	389.314	387.918
R <sub>p</sub> (%)	4.50	4.87	4.38
R <sub>wp</sub> (%)	6.33	6.52	5.91



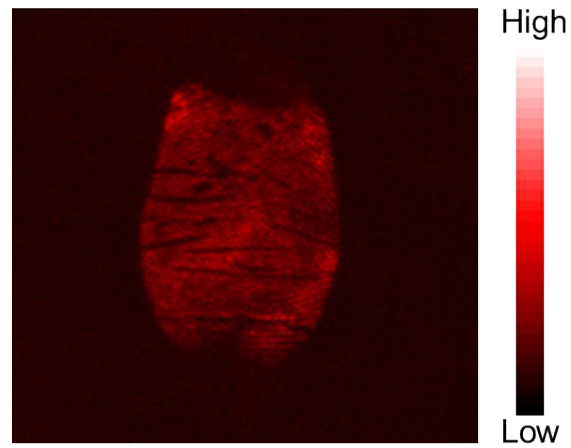
**Fig. S2** The PersL decay curves of BGO with different  $\text{Cr}^{3+}$  concentration after 254 nm charging for 2 min.



**Fig. S3** The PersL decay curve of  $\text{Bi}_2\text{Ga}_4\text{O}_9:1\%\text{Cr}^{3+}$  and  $\text{Bi}_2\text{Ga}_4\text{O}_9:0.5\%\text{Eu}^{3+}, 1\%\text{Cr}^{3+}$ .



**Fig. S4** The detection results of fingerprints covered by latex gloves. (a) BGO films. (b) red stamp pad.



**Fig. S5** The fingerprint recorded result on smooth BGO-film without surface conical arrays.

#### References

- [1] B. H. Toby, R. B. Von Dreele, *J. Appl. Crystallogr.* **2013**, 46, 544.
- [2] B. H. Toby, *J. Appl. Crystallogr.* **2001**, 34, 210.