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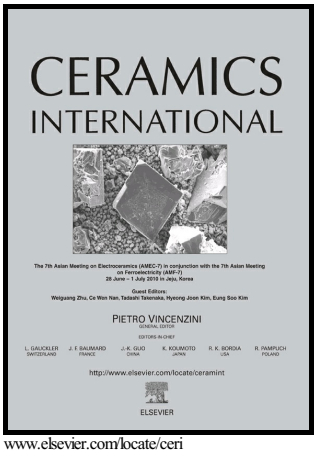

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Dielectric, ferroelectric properties and photoconductivity effect of sol-gel grown $SrTiO_3/BaTiO_3$ thin film heterostructure

Chunli Diao[1,2], Hanxing Liu[1*], Hua Hao[1], Minghe Cao[1], Zhonghua Yao[1], Haiwu Zheng[2]

[1]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China*

[2]*School of Physics and Electronics, Henan University, Kaifeng 475004, China*

[*]**lhxhp@whut.edu.cn**

Abstract:

$SrTiO_3/BaTiO_3$ (ST/BT) thin-film heterostructure was deposited on $Pt/Ti/SiO_2/Si(100)$ substrate by spin-coating. X-ray diffraction pattern shows that the heterostructure is a perovskite structure composed of ST and BT without any impurity peaks. The dielectric constant and loss of the heterostructure at 10 kHz are 704 and 0.024, respectively. The electric-field dependence of dielectric response was investigated and the tunability of the sample under 200kV/cm applied field is 21.5%. Compared with pure ST thin film, the polarization-electric field loops of ST/BT heterostructure display high polarization and good symmetry, which could be attributed to the introduction of BT with high dielectric constant and inhibition of the potential pitfalls movement for high barrier at ST/BT interface. Moreover, the heterostructure

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