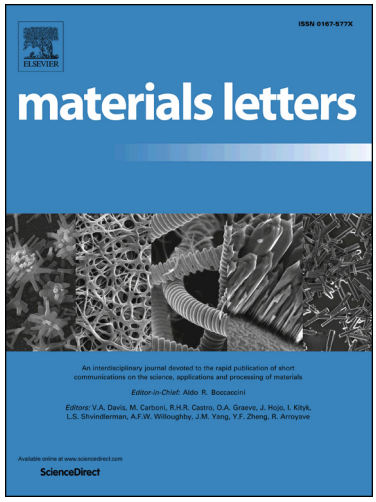
Accepted Manuscript



Multiferroic properties of bilayered $BiFeO_3/CoFe_2O_4$ Nano-hollowspheres

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PII: S0167-577X(17)31295-8
DOI: http://dx.doi.org/10.1016/j.matlet.2017.08.097
Reference: MLBLUE 23074

To appear in: *Materials Letters*

Received Date: 2 June 2017
Revised Date: 21 August 2017
Accepted Date: 23 August 2017

Please cite this article as: M. Alam, S. Talukdar, K. Mandal, Multiferroic properties of bilayered $BiFeO_3/CoFe_2O_4$ Nano-hollowspheres, *Materials Letters* (2017), doi: http://dx.doi.org/10.1016/j.matlet.2017.08.097

Multiferroic properties of bilayered $BiFeO_3/CoFe_2O_4$ Nano-hollowspheres

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Abstract

Here, we reported the synthesis of bilayered $BiFeO_3/CoFe_2O_4$ Nano-hollow spheres (NHSs) by depositing a $BiFeO_3$ (BFO) layer of thickness ~20 nm on $CoFe_2O_4$ (CFO) nano-hollow spheres surface of diameter ~250 nm and investigated their electric, magnetic and magnetoelectric properties in view of their applications in electronic and magnetic devices. The nano-composites exhibit better properties compared to their individual counterpart. The maximum polarization in CFO/BFO NHSs is found to be 2.1 $\mu C/cm^2$ at a frequency 50 Hz. Magnetic measurements show the saturation magnetization to be 30.1 emu/g with high value of remnant magnetization(17.9 emu/g), and coercivity(1320 Oe). Its magnetoelectric coefficient, α_{ME} at 1 kHz is estimated to be ~8.6 mV/cmOe.

Keywards: Magnetic Materials, Electrical properties, Nanoparticles.

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