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J Material Sci Eng 2019, Volume 8
DOI: 10.4172/2169-0022-C1-126

17th International Conference on

Emerging Materials and Nanotechnolgy

March 07-08, 2019 | Berlin, Germany

Multiferroic $BaTiO_3$-$CoFe_2O_4$ nanocomposite prepared via affordable liquid phase processes

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An affordable fabrication process for nanocomposites with considerable multiferroicity has been widely expected. Here, we report the novel and inexpensive liquid-phase fabrication process for $BaTiO_3$-$CoFe_2O_4$ (BTO-CFO) multiferroic nanocomposite. An anodization followed by hydrothermal treatment was used to fabricate BTO nanotube arrays. The nanotube arrays were filled with CFO by sol-gel spin-coating or electric-assisted magnetophoretic deposition of CFO nanoparticles prepared by a copreciptation method to obtain multiferroic nanocomposite. The nanocomposite structure was thoroughly observed with electron microscopes and the ferroic properties of the sample were evaluated.

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