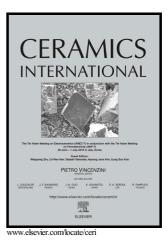
Author's Accepted Manuscript

Crystal structure refinement, enhanced magnetic and dielectric properties of $Na_{0.5}Bi_{0.5}TiO_3$ modified $Bi_{0.8}Ba_{0.2}FeO_3$ ceramics

Kavita Kaswan, Ashish Agarwal, Sujata Sanghi, Manisha Rangi, Sandhaya Jangra, Ajay Kumar



 PII:
 S0272-8842(16)32398-7

 DOI:
 http://dx.doi.org/10.1016/j.ceramint.2016.12.128

 Reference:
 CERI14438

To appear in: Ceramics International

Received date: 7 August 2016 Revised date: 28 December 2016 Accepted date: 28 December 2016

Cite this article as: Kavita Kaswan, Ashish Agarwal, Sujata Sanghi, Manisha Rangi, Sandhaya Jangra and Ajay Kumar, Crystal structure refinement, enhanced magnetic and dielectric properties of $Na_{0.5}Bi_{0.5}TiO_3$ modified $Bi_{0.8}Ba_{0.2}FeO$ c e r a m i c s , *Ceramics International* http://dx.doi.org/10.1016/j.ceramint.2016.12.128

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable 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

Crystal structure refinement, enhanced magnetic and dielectric properties

of Na_{0.5}Bi_{0.5}TiO₃ modified Bi_{0.8}Ba_{0.2}FeO₃ ceramics

Kavita Kaswan¹, Ashish Agarwal¹, Sujata Sanghi^{1*}, Manisha Rangi¹, Sandhaya Jangra¹, Ajay Kumar²

¹Department of Physics, Guru Jambheshwar University of Science & Technology, Hisar-

125001 (Haryana), India

²Department of Metallurgical and Materials Engineering, Indian Institute of Technology

Madras, Chennai-600036, India

sutkash@yahoo.com (S. Sanghi)

*Corresponding author. Tel.: +91-1662-263384; Fax: +91-1662-276240.

Abstract

(1-x) Na_{0.5}Bi_{0.5}TiO₃ – x (Bi_{0.8}Ba_{0.2}FeO₃) (x = 0.5, 0.6, 0.7, and 0.8) ceramics were synthesized via solid state reaction method. Powder X – ray diffraction investigations performed at room temperature along with Rietveld analysis show all the composites to exhibit a rhombohedral distorted perovskite structure, described by space group R3c. Rietveld refinement confirmed a good agreement between observed and calculated intensities and a low value of goodness of fit (χ^2). Magnetic measurements were carried out at room temperature up to a field of 6 kOe. Magnetic properties of BBFO modified NBT ceramics are improved with a significant opening in the M – H hysteresis loop at room temperature. Remanent magnetization and coercive field increased with increase of BBFO concentration. The dielectric response of these samples was analyzed in the frequency range 10 Hz – 7 M Hz at different temperatures revealing a dispersion in dielectric constant (ε') and in dissipation factor (tan δ) at lower frequencies. Both ε' and tan δ increase with increase of BBFO content. The temperature dependence of frequency exponent 's' of power law suggests that quantum mechanical tunneling (QMT) model to be applicable at lower temperature and Download English Version:

https://daneshyari.com/en/article/5439136

Download Persian Version:

https://daneshyari.com/article/5439136

Daneshyari.com