Tailoring structural optical and photolumencess of pure and Fe substituted Ba0.5Sr0.5TiO3 nanofibers

Ali Omar Turky1, 2\*

1Central Metallurgical Research and Development Institute, P.O. Box: 87 Helwan, Cairo, Egypt 2Institute Européen des Membranes, UMR 5635 ENSCM UM2 CNRS, Université Montpellier 2, Place Eugène Bataillon, 34095 Montpellier, France

Corresponding author: [ali\_omar155@yahoo.com](mailto:ali_omar155@yahoo.com)

**Abstract.**

Ba0.5Sr*0.5*TiO3 nanofibers were fabricated via electrospinning combined with citrate precursor method using citric acid as a chelating agent, titanium dioxide, barium and strontium nitrate. The effect of BST concentration on the crystal structure, the microstructure, the optical and the electrical properties were investigated. The morphology and structure of the resultant fibers were characterized by scanning electron microscopy (SEM) and X-ray diffraction (XRD), and TGA to characterize the thermal decomposition behavior, and the morphology of the obtained fibers . The results indicated that single-phase and well-fabricated Ba0.5Sr0.5TiO3 nanofibers with diameters around 100 nm could be obtained These materials could have applications in different fields such as capacitors, positive temperature coefficient (PTC) resistors, transducers, and ferroelectric memories.

**Keywords** BST, Perovskites, nanofibers optical properties, electrical properties, dielectric properties.

**Biography of presenting author** (should not exceed 100 words)

Ali Omar is researcher and a member of Electronic and magnetic Materials Division. Central metallurgical research and development Institute (CMRDI). Previously joined the University of Science and technology Beijing (USTB), China as talent young scientist in the talent young scientist program (TYSP) for one year during 2016-2017 and he act as one of talented persons in his field also awarded a scientific mission to European Institute of Membranes University of Montpellier 2 France for 3 months funded from French Culture Institute at French embassy at Cairo. Published more than 14 papers in International Journal as well as participated in at least 15 local and international projects. He published several papers in several international journals such as physical chemistry chemical physics, RSC Advances, Materials and Design , materials science materials in electronics, , Magnetism and Magnetic Materials. Also have experienced in synthesis of materials with different wet chemicals routes and characterization of the final samples products with different instrumentation.

**Details of presenting author to be mentioned in the certificate:**

Name: Ali Omar Ahmed

Affiliation: 1Central Metallurgical Research and Development Institute, P.O. Box: 87 Helwan, Cairo, Egypt

Country:Egypt

**Other Details:**

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Email: ali\_omar155@yahoo.com

Alternative email:

Contact Number:

Twitter/Facebook/LinkedIn:

Recent Photograph: (High Resolution)