

Abstract Submitted
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The Characteristics of Iron-doped Barium Titanate Nanocrystals¹ CHRISTINA ARTHUR, Spelman College — Barium Titanate BaTiO_3 is known for both its electric and magnetic properties and the applications are presumed to be greater in the nanoscale region. The synthesis and characterization of iron doped barium titanate nanocrystallites; $\text{BaTi}_{1-x}\text{Fe}_x\text{O}_3$ ($0 \leq x \leq 1$) was investigated with a view to understand its structural and magnetic properties. The samples were synthesized using a wet chemical technique followed by a high temperature and high-pressure hot isostatic pressing treatment. Powder X-ray diffractograms of the samples indicated the purity and scanning electron microscope images were used to determine the particle size. ^{57}Fe Mössbauer spectral data suggest the presence of ferrous and ferric species substituted in the lattice points of titanium. Details of the preparation technique, experimental results, data analysis, and the interpretation will be presented.

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