

Abstract Submitted
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A Study of Morphology and Magnetic Properties of Doped Barium Ferrite Films Formed by Aerosol Deposition SCOOTER JOHNSON, Naval Research Laboratory, CHRISTOPHER GONZALEZ, California State University Long Beach, ZACHARY ROBINSON, College at Brockport SUNY, DAVID ELLSWORTH, MINGZHONG WU, Colorado State University — Aerosol deposition is a room-temperature thick film deposition technique that produces polycrystalline films that have $> 95\%$ of theoretical density and are up to several hundred microns thick. In addition to depositing films at room temperature another distinct advantage of aerosol deposition is the ability to produce films with the same resulting stoichiometry as the starting material. For this work, we deposited a proprietary doped barium ferrite ($\text{BaFe}_{12}\text{O}_{19}$) film from powder produced by *Temex Ceramics*. This material is designed for microwave absorption near 18 GHz via ferromagnetic resonance. We compare the structural and magnetic properties of the as-deposited film, bulk material, and starting powder. For this purpose, we employed scanning electron microscopy, x-ray photoemission spectroscopy, x-ray diffraction, vibrating sample magnetometry, and broad-band ferromagnetic resonance characterization techniques.

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