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Growth and Characterization of Low Loss BaM-BSTO Multi-layer Films JAYDIP DAS, ARKAJIT ROYBARMAN, CARL PATTON, Department of Physics, Colorado State University, Fort Collins, Colorado, USA, BORIS KALINIKOS, St. Petersburg Electrotechnical University, 197376, St. Petersburg, Russia — Ferrite/ferroelectric multilayer films are attractive as electronic materials because of the unique possibility of the electric field tuning of magnetic properties and vice versa. Up to now, however, it has not been possible to produce such layered structures with low microwave magnetic loss. The present work demonstrates the realization of pulse laser deposited low loss barium ferrite (BaM) in a BaM - barium strontium titanate (BSTO) layered film. The structure, from top to bottom, consists of a gold layer (30 nm), a polycrystalline BSTO layer (0.5 μm), another gold layer (30 nm), and a *c*-axis oriented BaM (0.5 μm) layer on a sapphire substrate. X-ray diffraction shows all components. Hysteresis loop and ferromagnetic resonance data show the properties of a low-loss *c*-axis oriented uniaxial BaM component. Capacitance measurements indicate a somewhat low but electric field tunable dielectric constant of the BSTO component. Supported in part by the ARO-MURI and ARO-DARPA-Seedling programs.

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