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Impact of transition metal buffer layers on Magnetite thin film growth and properties[1] PRIYANGA JAYATHILAKA, DARYL WILLIAMS, CHRIS BAUER, DUSTIN BELYEA, CASEY MILLER, University of South Florida, Department of Physics — Magnetite thin films were grown on MgO single crystals with 3nm buffer layers of Fe, Cr, Mo, and Nb. An in situ masking system allowed the deposition of the individual buffer layers on separate substrates, followed by the simultaneous growth of 100nm thick magnetite films on all substrates via reactive sputtering. We are thus able to demonstrate the impact of the resulting lattice strain on the magnetite films' structure, and temperature dependent resistivity and magnetization.

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