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Structural Investigations of Bi-containing, multiferroic thin films using Second Harmonic Generation ERNST KNOESEL, S.E. LOFLAND, K.F. MCDONALD, C.J. MEETING, Rowan University, M. MURAKAMI, M. ARANOVA, I. TAKEUCHI, University of Maryland — The intensity and polarisation of the bulk second harmonic generation (SHG) from thin films depends critically on the second-order susceptibility tensor, which in turn is strongly influenced by the crystal structure of the film. Multiferroic BiMO_3 (M=Fe,Cr) thin films were grown epitaxially as thin films on various substrates with changing orientations. We have found a substantial bulk SHG signal from these materials and performed comparative magnetic field and temperature dependent studies. The implications with respect to crystal structure, magnetic phase transitions and multiferroic properties are discussed.

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