ABSTRACTS
characterization with conventional extraction magnetometry showed a ferromagnetic behavior at room temperature. The RF Sputtering film, 160 nm thick, was deposited in a heated substrate (at 873 K) and after deposited the sample was annealed in situ at 973 K for 1.5 hours. Grazing incident conventional X Ray and Rietveld analysis reveal a polycrystalline BFO single phase with mean particle size smaller than 35 nm, with residual in plane microstrain (Fig. 1). The magnetic hysteresis was measured along the perpendicular and parallel directions (Fig. 2). Understanding the magnetic behavior of BFO thin films is a key for the development of heterogeneous layered structures and multilayered devices, e.g. multiferroic tunnel junctions [4] and for multiferroic exchange bias heterostructures, e.g. in Magneto-electric Random Access Memories (MERAMS) [5].

The Co2Z hexaferrites (Sr3Co2Fe24O41) with low-field magnetoelectric (ME) effects even at room temperature have been attracting a great amount of research interest due to the potential applications in ME devices. It is well known that the magnetocrystalline anisotropy in the hexaferrites can be adjusted through cation substitution. The change in magnetocrystalline anisotropy of Co2Z hexaferrites at room temperature.

GP-12. Effects of Zn-Ti substitution on the magnetoelectric coupling of Co2Z hexaferrites at room temperature. X. Wang1, K. Song1, H. Luo1, F. Chen1 and R. Gong1 1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China

The Co2Z hexaferrites (Sr3Co2Fe24O41) with low-field magnetoelectric (ME) effects even at room temperature have been attracting a great amount of research interest due to the potential applications in ME devices. It is well known that the magnetocrystalline anisotropy in the hexaferrites can be effectively adjusted through cation substitution. The change in magnetocrystalline anisotropy field essentially alters the magnetic structure and phase evolution with temperature, which sensitively influences ME effect. In this work, we aim to investigate on the effects of Zn-Ti ions on crystallographic structure, magnetic phase transition, magnetic anisotropy and magnetoelectric interaction for Z-type hexaferrites. First of all, polycrystalline samples of Sr3Co2ZnxTi1-nFe24-2xO41 (x=0, 0.1, 0.2, 0.3) were prepared by solid state reaction. X-ray diffraction (XRD) measurements indicate a single phase of Z-type ferrite crystallographic structure for all the four samples. Grain size and grain morphology of the sintered samples were observed using a scanning electron microscope (SEM). The effect of Zn-Ti upon the field dependence of magnetization, coercivity, and anisotropy field was investigated by vibrating sample magnetometer (VSM). A Keithley 6517B electrometer was employed to determine resistivity and ME response to magnetic fields. All the samples show high resistivity with an order of the magnitude up to ~10^10 Ωcm. Fig.1 shows ME current density (i.e. the peak value of the magnitude up to ~10^3 Ωcm²) as a function of external magnetic field H with different levels of Zn-Ti substitution. It is observed that the substitution of Zn-Ti ions markedly influences the ME current. The present work reveals the tailoring of the ME effect in Z-type hexaferrite by means of judicious cation substitution.