

Abstract Submitted
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Control of oxygen octahedral rotation in BiFeO₃ films using modulation of SrRuO₃ bottom electrode layer SUNGSU LEE, JI YOUNG JO, School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju 500-712, Korea — Oxygen octahedral rotation of multiferroic BiFeO₃ (BFO) has attracted great attention due to changes of electrical and magnetic properties. Coupling of octahedral rotation in BFO-bottom electrode layer interface remains unexplored. Recently, there have been reported the control of octahedral rotation in SrRuO₃ (SRO) film on SrTiO₃ (001) substrate by coherently controlling the oxygen pressure during growth and interfacial coupling [1]. Here we demonstrate that the octahedral rotation of BFO film is changed using tetragonal $a^0a^0c^-$ tilted-SRO bottom electrodes. In this work, BFO/SRO heterostructure is fabricated to SrTiO₃ (001) single crystal substrates by pulsed laser deposition at different oxygen partial pressures. The rotation pattern of FeO₆ and the structural symmetry are identified from half-integer reflections using high-resolution X-ray diffraction. The effects depending on octahedral tilting of BFO films on the magnetic and ferroelectric properties will be presented.

[1] Wenlai Lu *et al.*, Phys. Rev. B. **88**, 214115 (2013)

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