

Abstract Submitted  
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**A morphotropic phase boundary system with BiInO<sub>3</sub>-PbTiO<sub>3</sub> thin films grown by pulsed laser deposition** HYE-JIN JIN, SEOL HEE OH, WILLIAM JO, Ewha Womans University — Morphotropic phase boundary (MPB) systems attract interests because of huge dielectric and superior piezoelectric properties. At the MPB of perovskite type structure, tetragonal and rhombohedral phases are coexisting by coupling between two equivalent energy states [1]. BiInO<sub>3</sub>-PbTiO<sub>3</sub>(BI-PT) is a MPB system which can possess large dielectric constant and high transition temperature. BI and PT thin-films were deposited sequentially on Pt(111)/Ti/SiO<sub>2</sub>/Si and MgO(100) substrates by pulsed laser deposition under various deposition conditions. A multilayer of BI-PT was grown by depositing BI and PT sequentially. Using x-ray diffraction, phase formation and texture of the BI-PT thin-films were investigated. Dielectric constants and loss tangents of the materials were measured over a wide range of temperature. Piezoelectric force microscopy was used to examine local ferroelectric properties and domain switching of the BI-PT thin-films. Based on the observations, relation between transition temperature and component ratio is discussed. [1] R. E. Eitel et al., Jpn. J. Appl. Phys., Part 1 40, 5999 (2001)

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