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Ferroelectric properties of epitaxial $PbZr_{0.3}Ti_{0.7}O_3$ thin films as a function of $SrRuO_3$ electrode thickness SUNGMIN PARK, JIHWAN HWANG, HYOSANG KWON, GWANGSEO PARK, Department of Physics, Sogang university, Seoul, Korea, EUNG-GOO LEE, JINSEOK CHUNG, Department of Physics, Soongsil university, Seoul, Korea, OXIDE MATERIALS AND THIN FILM LAB TEAM, X-RAY DIFFRACTION LAB COLLABORATION — For the past few years, the one of the main research themes in ferroelectrics is the size effect that should be definitely required for miniaturization of the unit cell in FRAM. Until now, most related researches on the ferroelectric thin film have been merely focused on reducing the film thickness and their lateral size, not the electrode. Changing the point of view to the size effect of electrode, we tried to investigate the bottom electrode thickness-dependent ferroelectric characteristic especially focusing on the coercive field. Epitaxial $SrRuO_3$ (SRO) films are successfully grown on TiO_2 terminated $SrTiO_3$ surface by using pulsed laser deposition method, while the $PbZr_{0.3}Ti_{0.7}O_3$ (PZT) (also epitaxially grown) thickness was fixed. It is found that the coercive field of the PZT thin film increases as the SRO electrode thickness decreases. Based on this result, we believe that the depolarization field must be strongly coupled to the electrode thickness.

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