Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Checkerboard pattern formation in spinel oxide films TOSHIHIRO ASADA, NISSAN ARC, LTD., Rutgers Univ., YOICHI HORIBE, SOONYONG PARK, NARA LEE, Rutgers Univ., MAKOTO TANIMURA, NISSAN ARC, LTD., SANG-WOOK CHEONG, Rutgers Univ. — A few-nanometer-size columnar superlattice with a checkerboard (CB) structure has been fabricated by harnessing Jahn-Teller structural distortions[1,2]. In this talk, we will discuss the growth mechanism of the CB structures in thin films, obtained from the results of our transmission electron microscopy. Ionic diffusion for the phase separation occurs along the direction parallel to the twin boundaries in the high-temperature tetragonal phase. This anisotropic phase separation suggests the importance of the strain associated with the twin structure in the high-temperature tetragonal phase. 1. S. Yeo *et al.*, Appl. Phys. Lett. **89**, 233120 (2006). 2. C. L. Zhang *et al.*, Appl. Phys. Lett. **90**, 133123 (2007).

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Date submitted: 27 Nov 2007 Electronic form version 1.4