

Supporting information

High Energy Efficiency and Thermal Stability of BaTiO₃-BiScO₃ Thin Films Based on Defects Engineering

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I. Transmission Electron Microscope (TEM) image of film cross-section

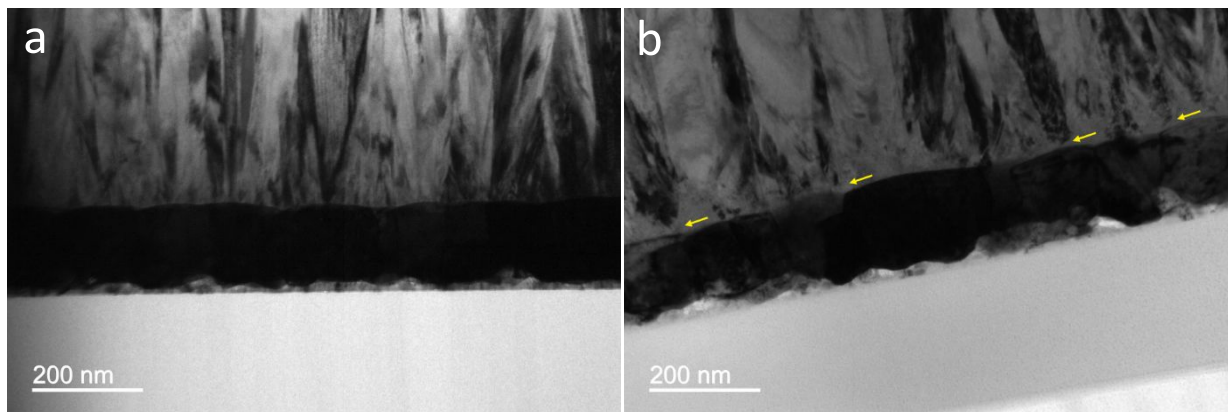
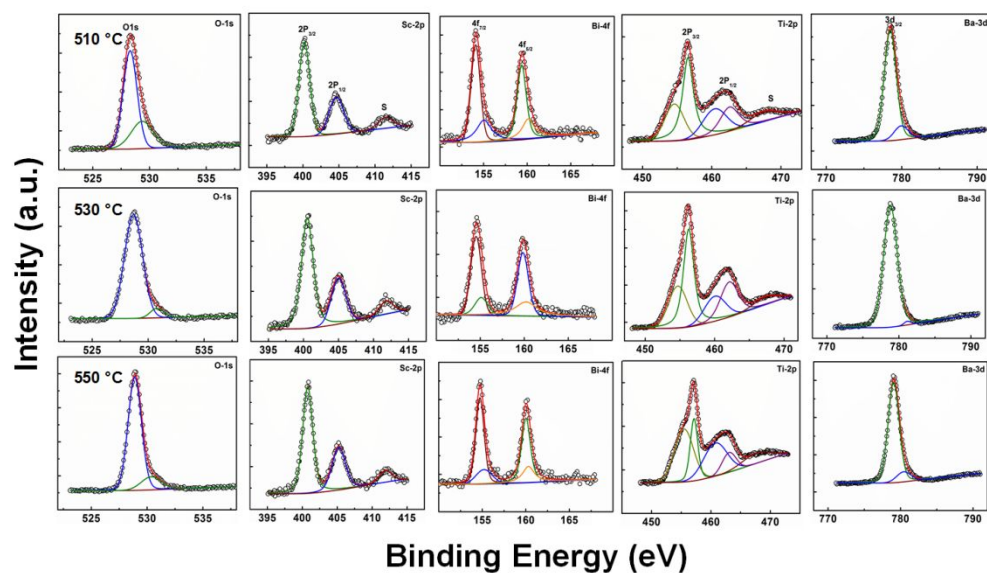


Figure S1: Representative bright-field images of the cross-section of the BSBT/Pt interface of the film deposited at (a) 550 °C and (b) 510 °C. The yellow arrows indicate likely localized amorphous phase for film deposited at 510 °C

II. X-ray photoelectron spectroscopy (XPS) data for 10BSBT and 15BSBT films

10BSBT film



15BSBT film

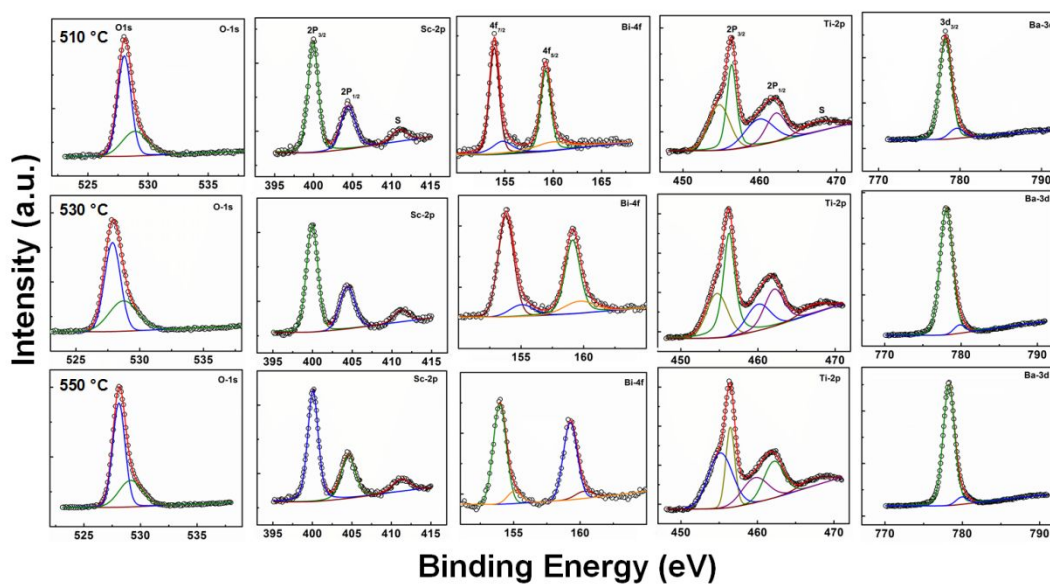


Figure S2: XPS spectra measured for 10BSBT and 15BSBT films

III. Changes in hkl lattice spacing with T_d for the 15BSBT film

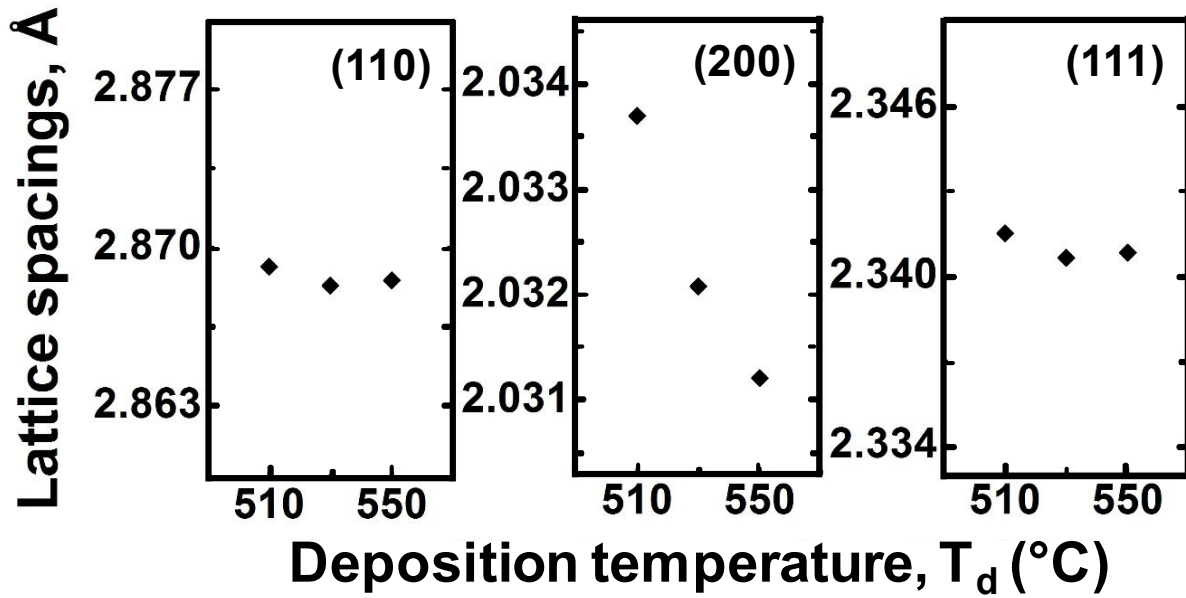


Figure S3: Changes in (hkl) lattice spacing of the 15BSBT thin films as a function of deposition temperature T_d . The (200) lattice spacing decreases more with increase in T_d , as compared to (110) and (111) lattice spacing, which indicates that vacancies induce non-cubic distortions in the crystal lattice.¹

Supplementary reference:

- [S1] W. Abbas, D. Ho and A. Pramanick, High Energy Storage Efficiency and Thermal Stability of A-site-deficient and 110-textured BaTiO₃-BiScO₃ Thin Films. *J. Am. Ceram. Soc.*, **2020**, *103*, 3168-3177.