

Sequential variation of super periodic structures emerged in Bi-layered perovskites pillar-matrix epitaxial nanocomposite films with spinel ferrites

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Supporting information

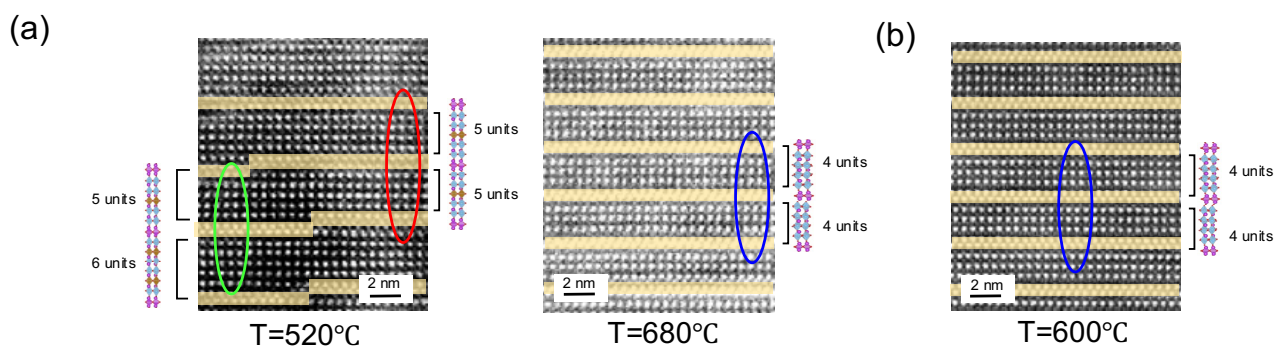
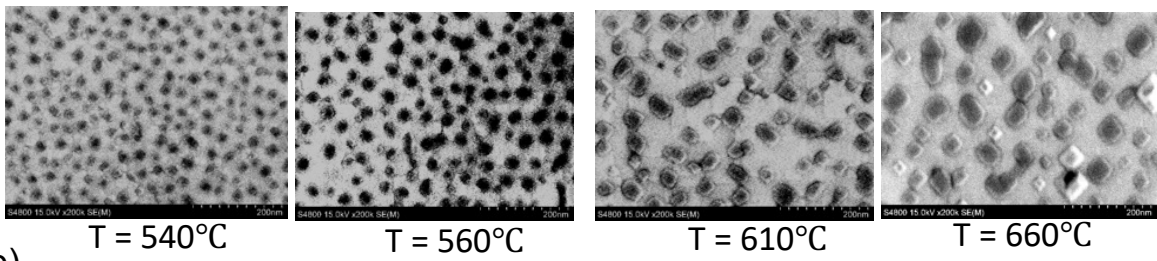


Figure S1. High-resolution HAADF-STEM images of BTFO phases.

(a) BTFO-CFO composite films grown at 520 °C and 680 °C, respectively.

(b) BTFO-NFO composite film grown at 600 °C.

(a)



(b)

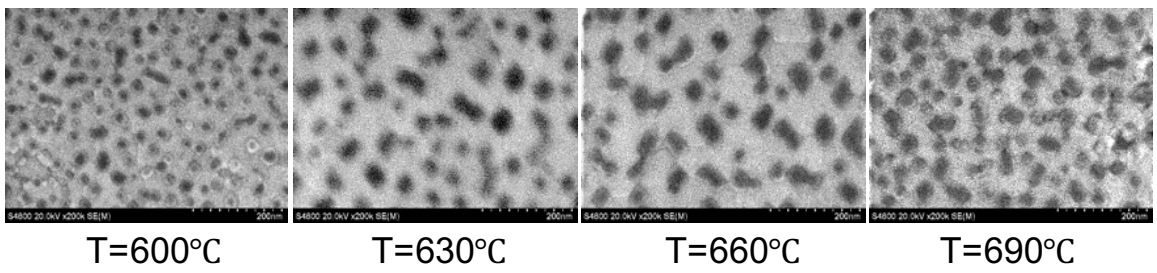


Figure S2. SEM images of BTFO-MFO (M=Co and Ni) composite films for different growth temperatures. (a) BTFO-CFO composite films. (b) BTFO-NFO composite films.

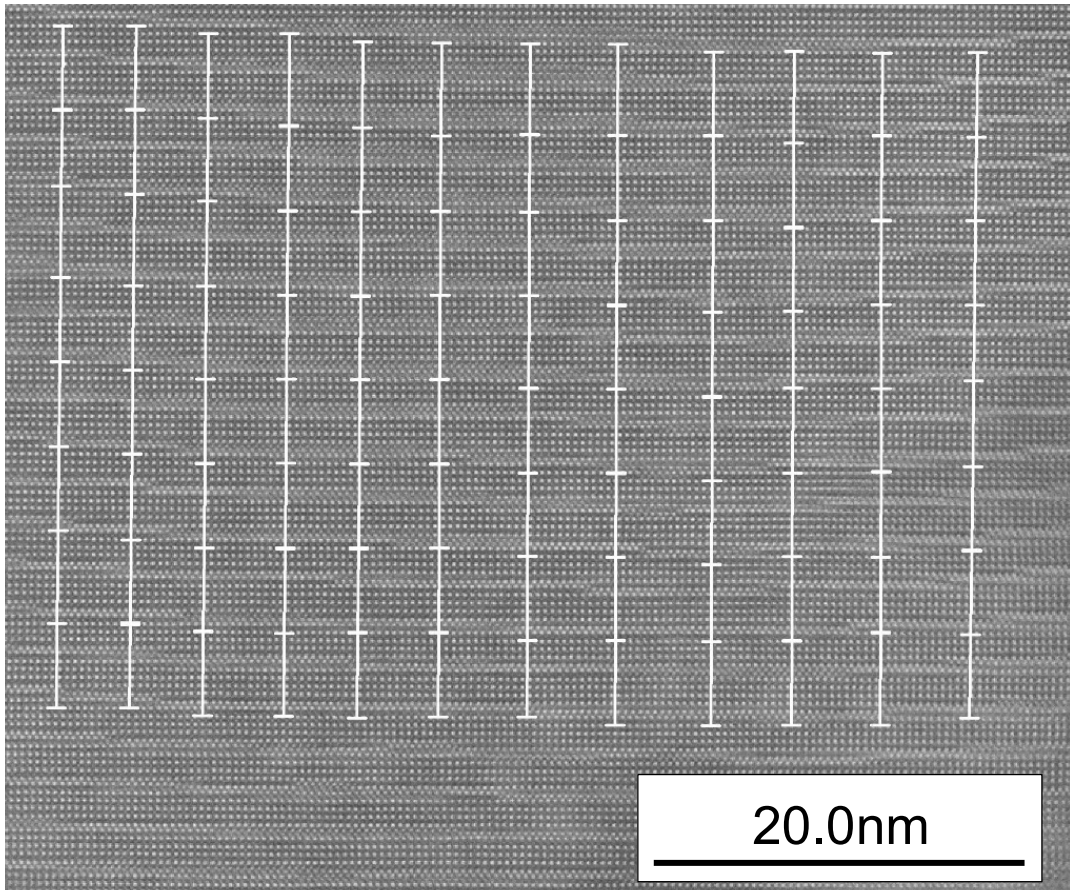


Figure S3. Expanded HAADF-STEM image of the BTFO matrix in a BTFO15-CFO composite film at 580°C.

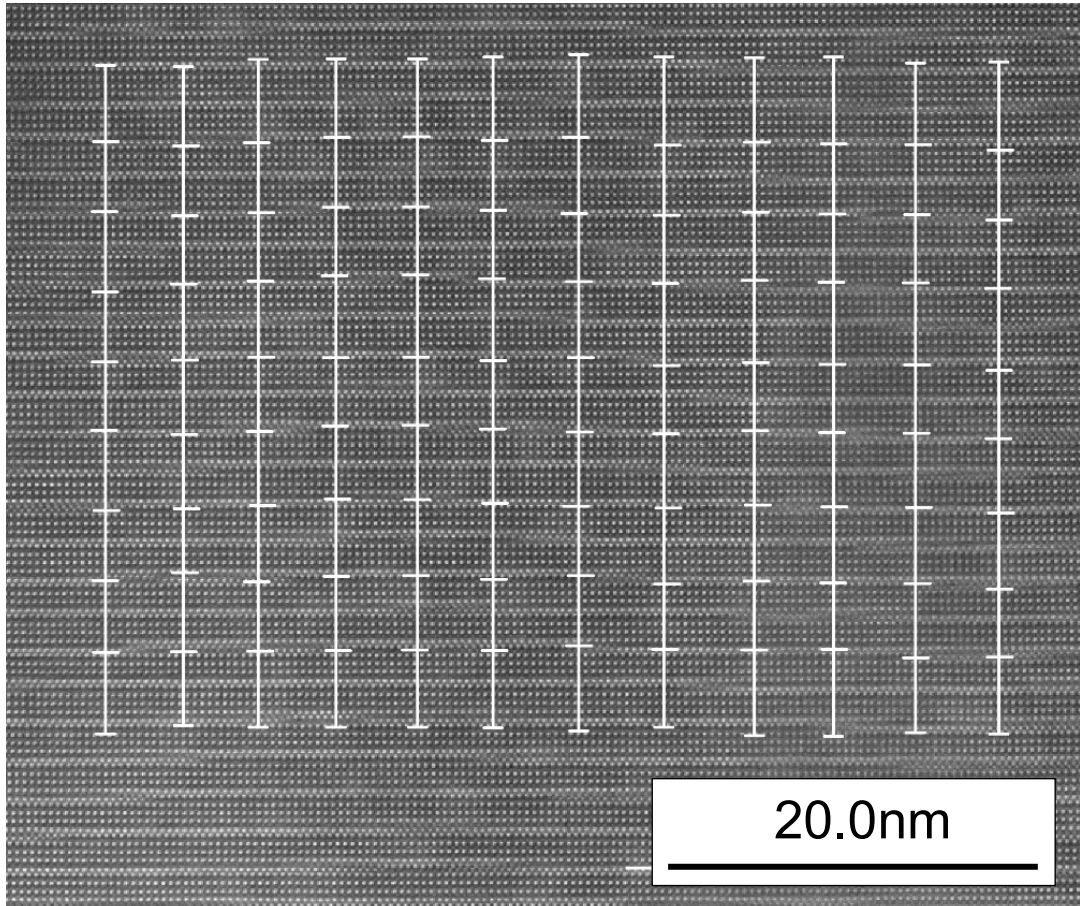


Figure S4. Expanded HAADF-STEM image of the BTFO matrix in a BTFO15-NFO composite film at 680°C.

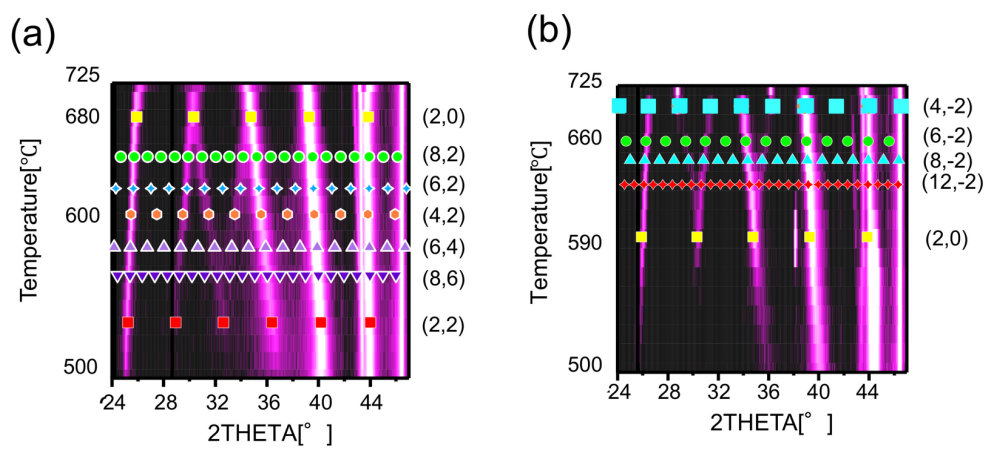


Figure S5. XRD image patterns of Fig. 1 with phase indexes of BTFO super periodic structures for (a) BTFO-CFO composite films and (b) BTFO-NFO composite films.

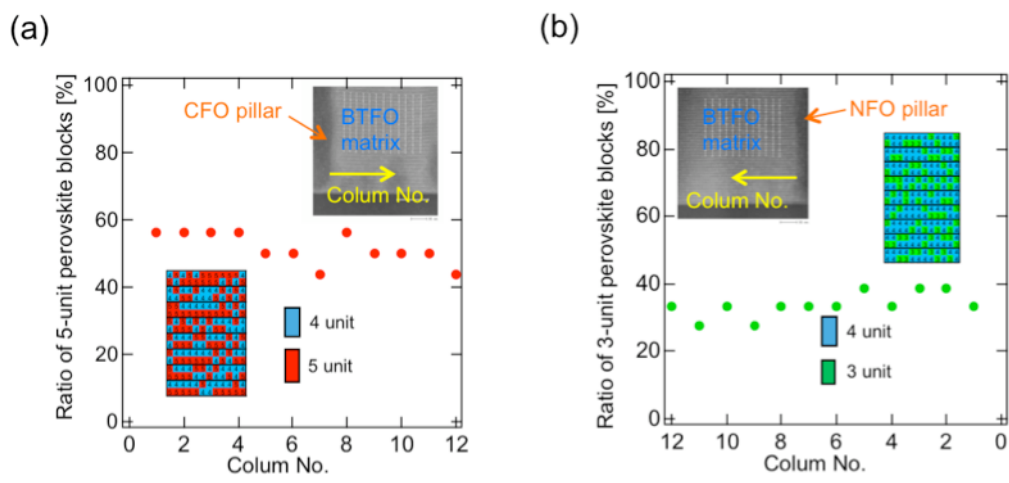


Figure S6. Ratio of perovskite blocks with one more or one less unit vs. the distance from a spinel ferrite pillar. (a) BTFO-CFO composite film at 580 °C. (b) BTFO-NFO composite film at 680 °C.