

Supplementary Information for:

Effect of substrate orientation on local
magnetoelectric coupling in bi-layered multiferroic
thin films

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Polarization versus voltage loops and TEM images of BLF100 interfaces

Polarization hysteresis loops were measured for both films at room temperature at *ac* voltage frequency of 50 Hz. They are shown in Fig. S1 (a) and (b) for BLF111 and BLF100, respectively. The loops do not show a saturation behavior as it is normally expected in ferroelectric materials. Probably there is a interfacial polarization due to charge accumulated at CFO/BTO and SFO/STO interfaces, corresponding depolarization field may decrease field felt by the BTO layer (in this case CFO serves as a dielectrics with low ϵ). Therefore we have field not enough to switch the polarization.

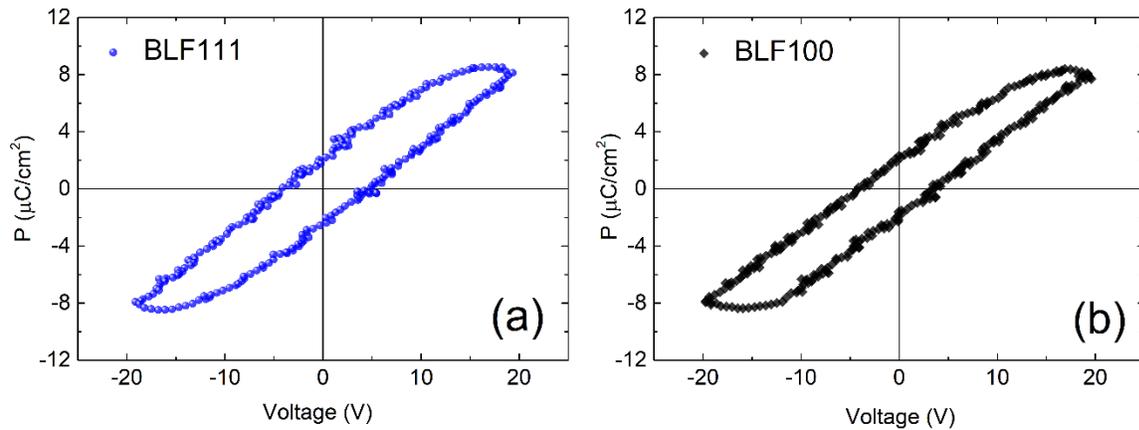


Figure S1 Room temperature polarization-voltage hysteresis loops of the (a) BLF111 and (b) BLF100 thin films.

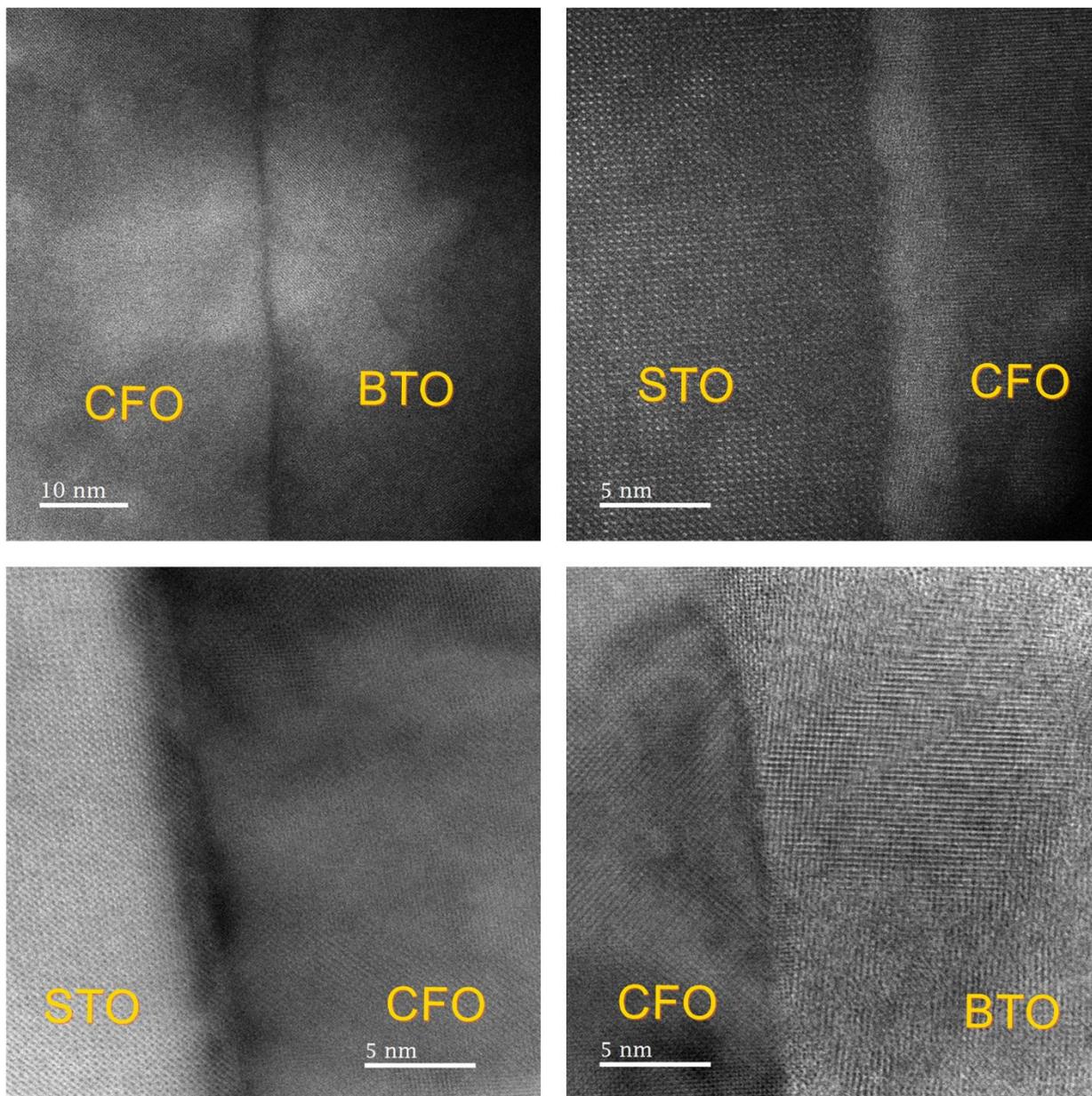


Figure S2 TEM micrographs of BLF100 at various interfaces which show imperfect interface.