Electronic Supplementary Material (ESI) for Nanoscale Advances.


# Supporting Information

## Integration of highly anisotropic multiferroic $BaTiO_3$-Fe nanocomposite thin films on Si towards device applications

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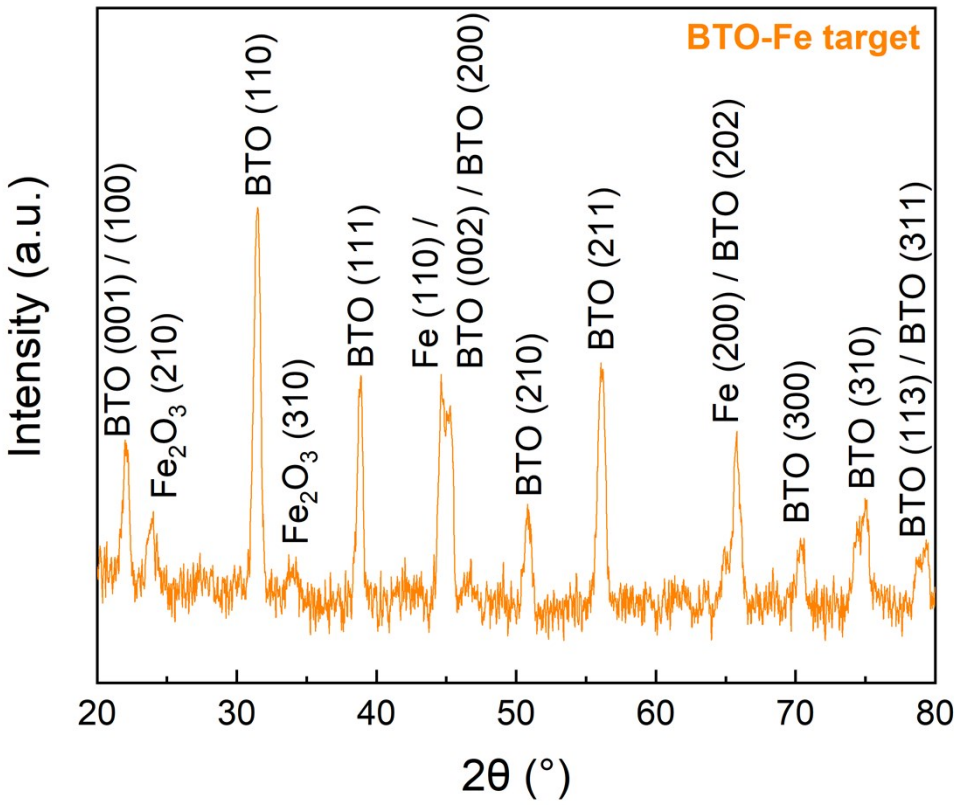


**Figure S1.** XRD *θ-2θ* pattern of the BTO-Fe target showing polycrystalline BTO, Fe, and $Fe_2O_3$ phases.

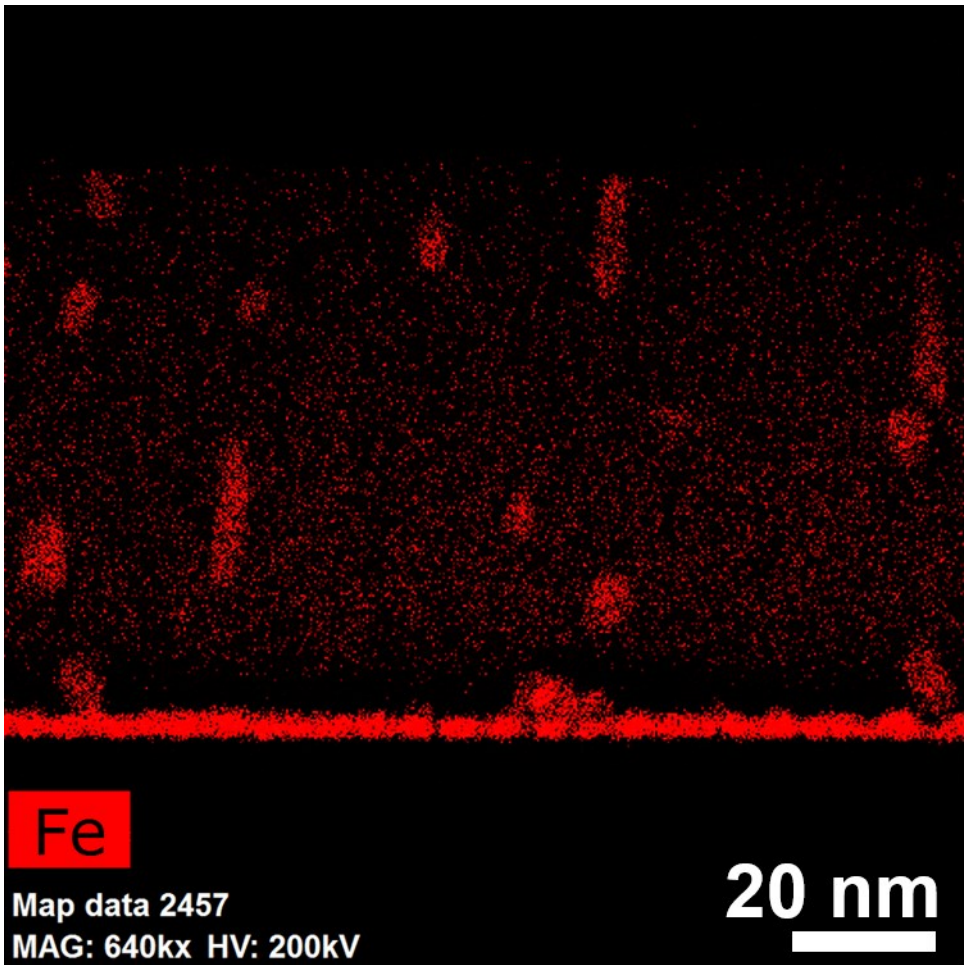


**Figure S2.** EDS elemental map of the BTO-Fe film grown directly on the Si (001) substrate, without buffer layer.

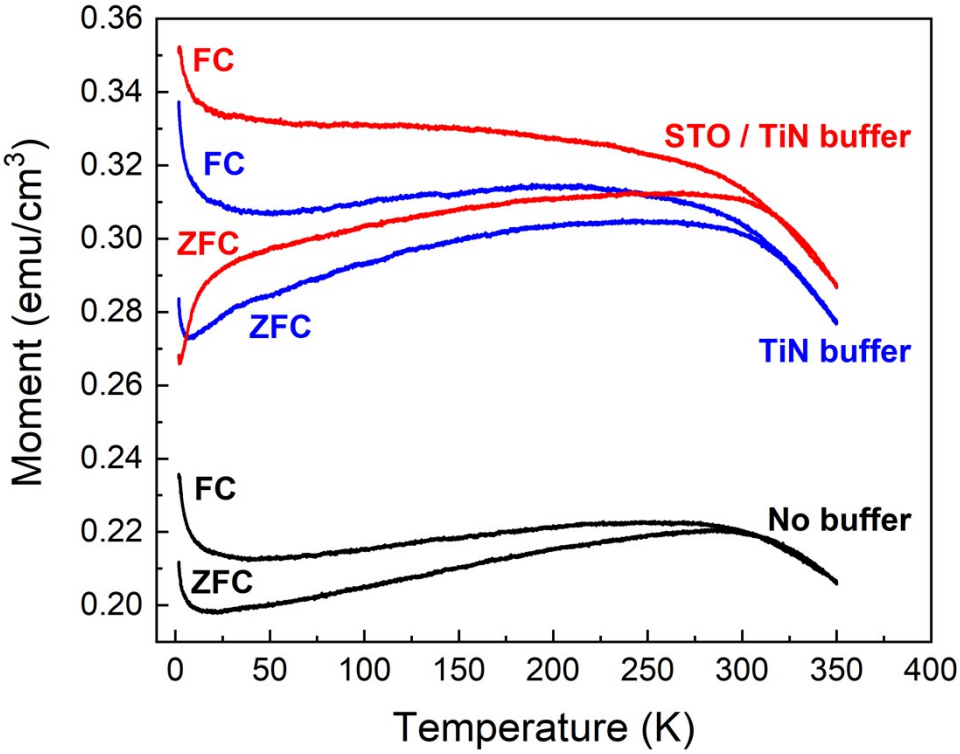


**Figure S3.** Field cooling (FC) and zero-field cooling (ZFC) *M-T* curves of the BTO-Fe thin films grown on various buffer layer configurations.

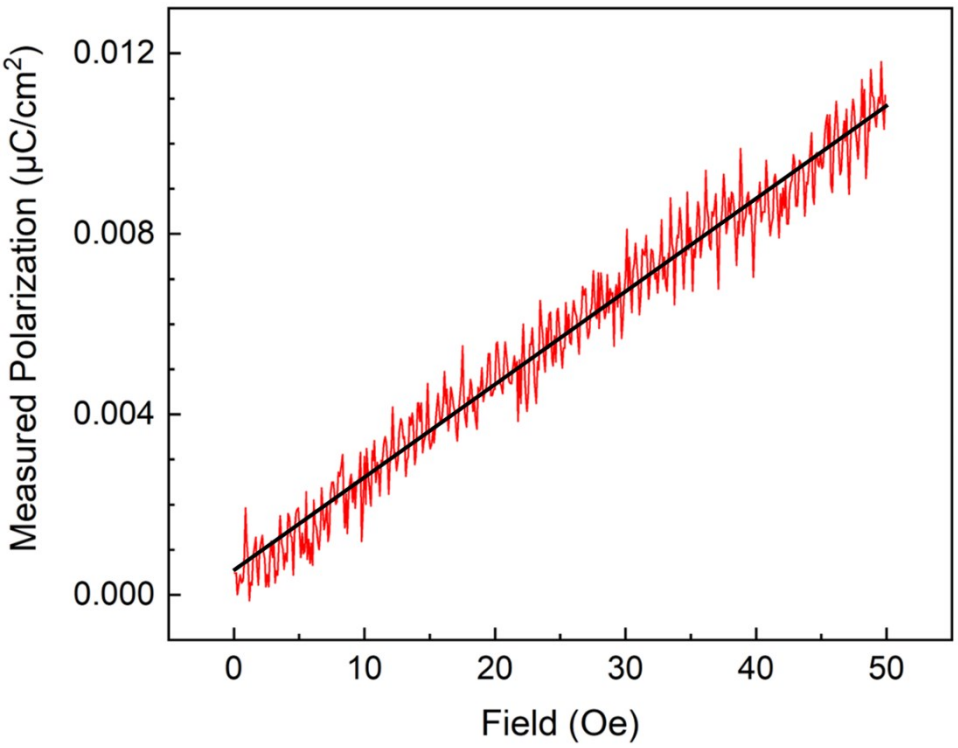


**Figure S4.** Room-temperature polarization as a function of magnetic field of the BTO-Fe nanocomposite thin film grown on a bilayer-buffered (STO / TiN) silicon substrate. The black line represents a linear fit of the data.