Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Bandgap engineering strategy through chemical strain and oxygen vacancy in super-tetragonal $BiFeO_3$ epitaxial films

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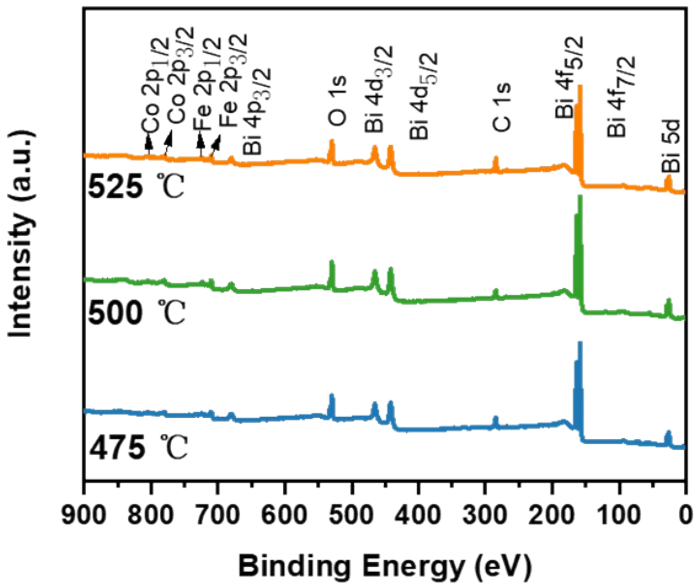

Figure S1 XPS full spectrum of BFCO2 films grown at different temperatures on LAO (100) substrates.

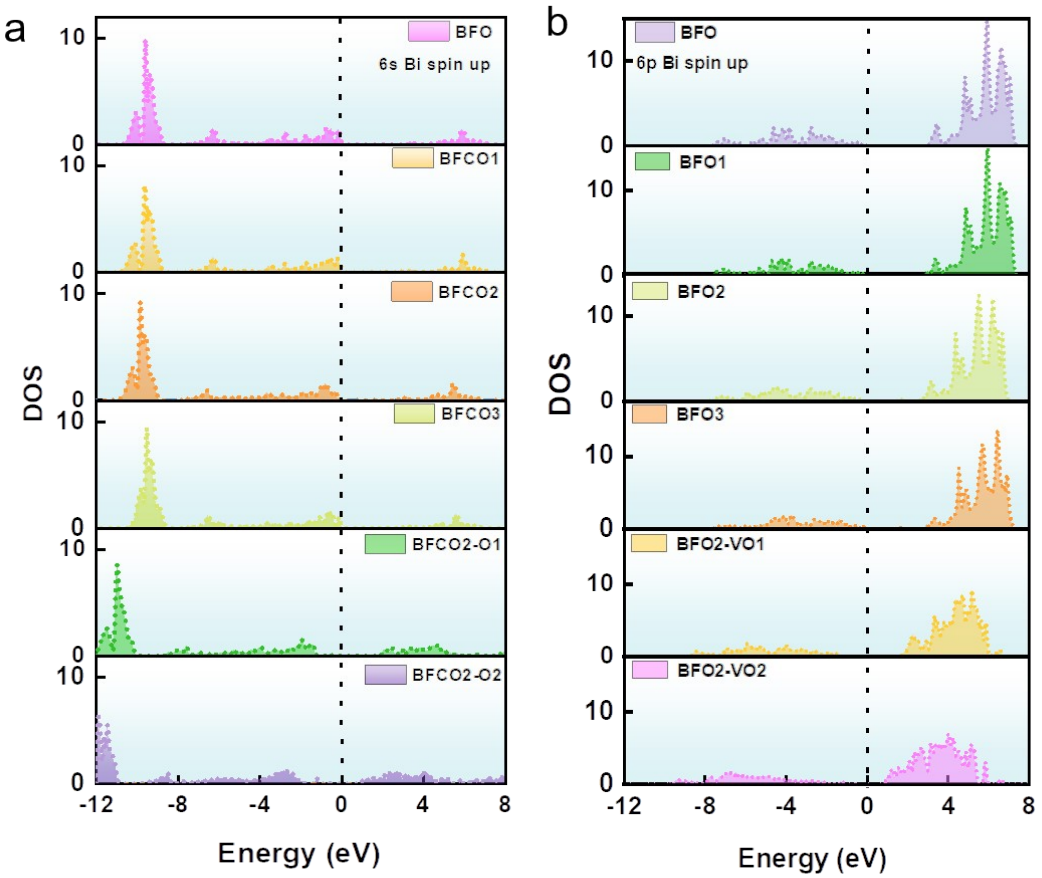

Figure S2 (a) Bi 6s DOS of $BiFe_xCo_{1-x}O_3$ and BFO2-Vac(O_1) or BFO2-Vac(O_2). (b) Bi 6p DOS of $BiFe_xCo_{1-x}O_3$ and BFO2-Vac(O_1) or BFO2-Vac(O_2).

Table S1 Fe and Co contents of BFCO2 films grown at different temperatures

Temperature (°C)	Fe (atom%)	Co (atom%)	Co%
525	8.53	3.26	27.64%
500	5.34	3.2	37.47%
475	6,17	4,33	41.23%

Table S2. Fe^{2+} (Fe^{3+}), Co^{2+} (Co^{3+}), and oxygen vacancies contents of BFCO2 films grown at different temperatures

Temperature (°C)	Co^{2+}: Co^{3+} (area ratio)	Fe^{2+}: Fe^{3+} (area ratio)	V_{ac}: Lat (area ratio)
525	0.28	0.43	0.11
500	0.32	0.59	0.13
475	0.66	0.81	0.24