Supplementary Tables

Table SI: **Rietveld parameters for Ti substituted BFO**

Samples	Phase	Lattice Parameters	Atoms	x	y	z	R-factors
x = 0.04	R3c	a=b=5.587Å, c=13.859Å	Bi	0	0	0	R_p = 3.34, R_{wp} = 3.42, R_{Bragg} = 11.3, R_F = 15.7, χ^2 = 1.04
			Fe/Ti	0	0	0.23981	
			O	0.55348	0.797	0.95114	
x = 0.08	R3c	a=b=5.575Å, c=13.830Å	Bi	0	0	0	R_p = 3.17, R_{wp} = 2.27, R_{Bragg} = 6.46, R_F = 8.40, χ^2 = 1.67
			Fe/Ti	0	0	0.22492	
			O	0.57555	0.6101	0.95331	
x = 0.12	R3c	a=b=5.596Å, c=13.863Å	Bi	0	0	0	R_p = 3.69, R_{wp} = 3.7, R_{Bragg} = 13.8, R_F = 6.46, χ^2 = 1.88
			Fe/Ti	0	0	0.247	
			O	0.54157	0.5182	0.9612	
x = 0.16	R3c	a=b=5.631Å, c=13.714Å	Bi	0	0	0	R_p = 2.42, R_{wp} = 2.33, R_{Bragg} = 3.83, R_F = 2.41, χ^2 = 1.57
			Fe/Ti	0	0	0.25505	
			O	0.75089	0.55213	0.43506	
	Pnma	a=5.067Å, b=6.445Å, c=5.591Å	Bi	0.154	0.25	0.95345	R_p = 2.52, R_{wp} = 4.16, R_{Bragg} = 9.20, R_F = 7.96, χ^2 = 1.57
			Fe/Ti	0	0	0	
			O1	0.76382	0.25	0.02232	
			O2	0.26087	2.46498	0.00831	phase1= 49.2%, phase2 = 50.8%
x = 0.20	R3c	a=b=5.674Å, c=13.844Å	Bi	0	0	0	R_p = 4.16, R_{wp} = 4.0, R_{Bragg} = 7.4, R_F = 5.21, χ^2 = 1.12
			Fe/Ti	0	0	0.25505	
			O	0.75089	0.55213	0.43506	
	Pnma	a=5.0934Å, b=6.5582Å, c=5.625Å	Bi	0.154	0.25	0.95345	R_p = 2.266, R_{wp} = 3.21, R_{Bragg} = 9.42, R_F = 6.92, χ^2 = 1.12
			Fe/Ti	0	0	0	
			O1	0.76382	0.25	0.02232	
			O2	0.26087	2.46498	0.00831	phase1= 45.96%, phase2 = 54.04%

Table SII:**Lattice Parameters, atomic positions and Rietveld refined factors of $Bi_{1-x}Sm_xFeO_3$**

Samples	Phase	Lattice Parameters	Atoms	x	y	z	R-factors
x = 0.04	R3c	a = b = 5.580Å, c = 13.855Å	Bi/Sm	0	0	0	
			Fe	0	0	0.22229	R_p = 2.57, R_{wp} = 2.27, R_{Bragg} = 11.1, R_F = 7.50, χ^2 = 1.176
			O	0.4423	0.01169	0.9549	
x = 0.08	R3c	a = b = 5.569, c = 13.815Å	Bi/Sm	0	0	0	
			Fe	0	0	0.2158	R_p = 4.08, R_{wp} = 2.51, R_{Bragg} = 9.36, R_F = 7.06, χ^2 = 1.91
			O	0.49339	0.0627	0.94666	
x = 0.12	R3c	a = b = 5.565Å, c = 13.791Å	Bi/Sm	0	0	0	
			Fe	0	0	0.22319	R_p = 3.93, R_{wp} = 2.42, R_{Bragg} = 7.93, R_F = 6.08, χ^2 = 1.13
			O	0.53771	0.06851	0.96075	
x = 0.16	R3c	a = b = 5.541Å, c = 13.709	Bi/Sm	0	0	0	
			Fe	0	0	0.24552	R_p = 4.62, R_{wp} = 3.37, R_{Bragg} = 12.3, R_F = 7.32, χ^2 = 1.86
			O	0.0578	0.26556	0.4031	
	Pn_21a	a =5.593Å, b =7.881Å, c = 5.405Å	Bi/Sm	0.00338	0.23821	1.00193	
			Fe	0.04025	0	0.44432	R_p = 4.62, R_{wp} = 3.37, R_{Bragg} = 16.4, R_F = 12.3, χ^2 = 1.86
			O1	0.55611	0.96715	0.41387	
			O2	0.32532	0.15707	0.05413	phase1= 66.72%, phase2 = 33.28%
			O3	0.95438	0.63235	0.96866	
x = 0.20	R3c	a = b = 5.5388Å, c = 13.701Å	Bi/Sm	0	0	0	
			Fe	0	0	0.23064	R_p = 3.88, R_{wp} = 3.01, R_{Bragg} = 10.9, R_F = 6.93, χ^2 = 1.04
			O	0.05293	0.69359	0.3997	
	Pn_21a	a = 5.602Å, b =7.787Å, c = 5.415Å	Bi/Sm	0.0415	0.26189	1.01555	
			Fe	0.02709	0	0.47341	R_p = 3.88, R_{wp} = 3.01, R_{Bragg} = 8.52, R_F = 6.54, χ^2 = 1.04
			O1	0.46321	0.27593	0.08442	
			O2	0.30145	0.59029	0.12903	phase1= 43.43%, phase2 = 56.57%
			O3	0.27044	0.44076	0.27087	

Table SIII: **Lattice Parameters, atomic positions and fitting parameters of $Bi_{1-x}Sm_xFe_{1-x}Ti_xO_3$**

Samples	Phase	Lattice Parameters	Atoms	x	y	z	R-factors
x = 0.04	R3c	a=b=5.5814Å, c=13.8338Å	Bi/Sm	0	0	0	R_p = 2.3, R_{wp} = 2.16, R_{Bragg} = 8.11, R_F = 5.71, χ^2 = 1.67
			Fe/Ti	0	0	0.22368	
			O	0.49704	0.03922	0.95086	
x = 0.08	R3c	a=b=5.5712Å, c=13.8247Å	Bi/Sm	0	0	0	R_p = 2.93, R_{wp} = 2.76, R_{Bragg} = 14.5, R_F = 7.59, χ^2 = 1.86
			Fe/Ti	0	0	0.23235	
			O	0.46471	0.03047	0.95387	
x = 0.12	R3c	a=b=5.5682Å, c=13.8014Å	Bi/Sm	0	0	0	R_p = 3.25, R_{wp} = 3.02, R_{Bragg} = 15.5, R_F = 8.52, χ^2 = 1.95
			Fe/Ti	0	0	0.2365	
			O	0.55293	0.07	0.95391	
x = 0.16	R3c	a=b=5.5388Å, c=13.701Å	Bi/Sm	0	0	0	R_p = 4.94, R_{wp} = 3.56, R_{Bragg} = 11.4, R_F = 7.02, χ^2 = 1.76
			Fe/Ti	0	0	0.24417	
			O	0.22471	0.19902	0.32194	
	Pn_21a	a=5.6104Å, b=7.7868Å, c=5.4418Å	Bi/Sm	0.00338	0.23821	1.00193	R_p = 4.94, R_{wp} = 3.56, R_{Bragg} = 18.4, R_F = 13.9, χ^2 = 1.76
			Fe/Ti	0.04025	0	0.44432	
			O1	0.11873	0.35961	0.5123	
			O2	0.32532	0.15707	0.05413	
			O3	0.95438	0.63235	0.96866	phase1= 53.36%, phase2 = 46.64%
x = 0.20	R3c	a=b=5.5304Å, c=13.6294Å	Bi/Sm	0	0	0	R_p = 5.77, R_{wp} = 3.90, R_{Bragg} = 14.6, R_F = 10.7, χ^2 = 1.16
			Fe/Ti	0	0	0.26011	
			O	0.65102	0.14109	0.46514	
	Pn_21a	a=5.6013Å, b=7.8004Å, c=5.405Å	Bi/Sm	0.00767	0.30543	1.02258	R_p = 5.77, R_{wp} = 3.90, R_{Bragg} = 20.3, R_F = 21.1, χ^2 = 1.16
			Fe/Ti	0.00657	0	0.46238	
			O1	0.2362	0.34367	0.55024	
			O2	0.32532	0.15707	0.05413	
			O3	0.95438	0.63235	0.96866	phase1= 43.45%, phase2 = 56.55%