Supporting Information

Structure and Magnetic Properties of $BiFe_{1-x}Co_xO_3$ and $Bi_{0.9}Sm_{0.1}Fe_{1-x}Co_xO_3$

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Table S1. Composition dependence of lattice parameters, *c*/*a* ratio, and unit cell volume of $Bi_{0.9}Sm_{0.1}Fe_{1-x}Co_xO_3$ at room temperature.

Co ratio, *x*	Symmetry	*a* (Å)	*b* (Å)	*c* (Å)	*c*/*a*	Cubic perovskite unit cell volume (Å^3)
0	*Pnam*	5.6048(2)	11.2517(4)	15.5824(6)	-	61.418(7)
0.20	*Pnam* 67%	5.5281(2)	11.1327(3)	15.5243(3)	-	59.713(5)
	*R*3*c* 33%	5.5354(1)	-	13.6585(3)	-	60.409(4)
0.30	*Pnam* 90%	5.5161(1)	11.1308(2)	15.5132(2)	-	59.530(3)
	*R*3*c* 10%	5.5591(10)	-	13.4029(18)	-	59.793(30)
0.45	*P*4*mm*	3.7405(1)	-	4.7127(1)	1.25990(1)	65.938(3)
0.50	*P*4*mm*	3.7383(1)	-	4.7141(1)	1.26105(1)	65.878(3)
0.60	*P*4*mm*	3.7362(1)	-	4.7164(1)	1.26235(1)	65.835(4)

Table S2. Temperature dependence of lattice parameters, *c*/*a* ratios, and *R* factors from Rietveld refinements of SXRD patterns collected for $Bi_{0.9}Sm_{0.1}Fe_{0.5}Co_{0.5}O_3$, assumed as *P*4*mm* single phase.

Temperature (°C)	*a*, Å	*c*, Å	*c*/*a*	R_{wp} (%)	R_B (%)
25	3.7432(1)	4.7207(1)	1.2611(1)	4.620	2.553
100	3.7464(1)	4.7215(1)	1.2603(1)	4.596	2.744
200	3.7551(1)	4.7276(1)	1.2590(1)	4.497	2.840
300	3.7612(1)	4.7301(1)	1.2576(1)	4.255	3.163
400	3.7678(1)	4.7320(1)	1.2559(1)	4.261	3.220
450	3.7719(1)	4.7330(1)	1.2548(1)	4.279	2.660
500	3.7758(1)	4.7337(1)	1.2537(1)	4.319	2.786
550	3.7783(1)	4.7302(1)	1.2519(1)	4.184	2.967
600	3.7832(1)	4.7306(1)	1.2504(1)	6.678	6.897
650			Decomposed		

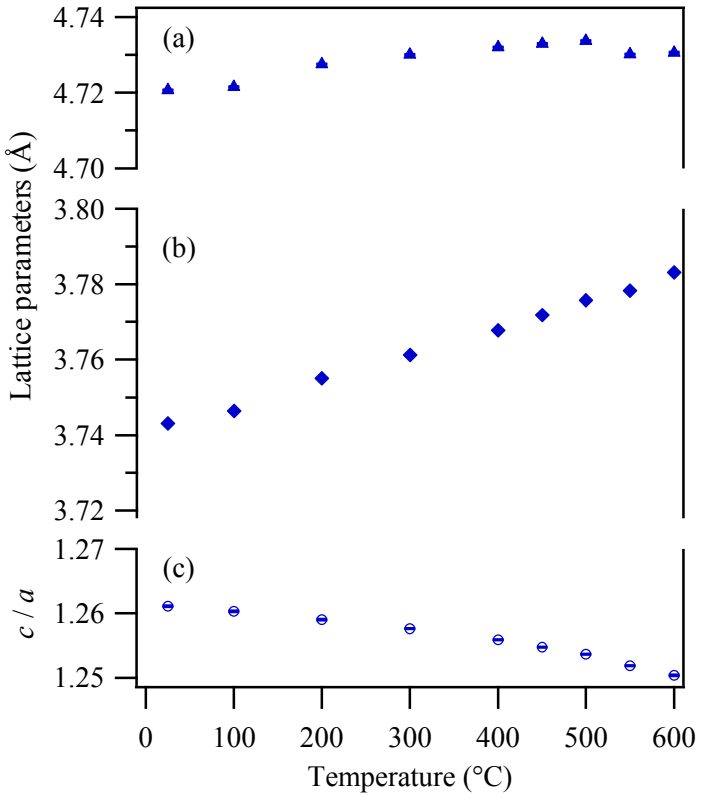

Figure S1. Temperature dependence of the lattice parameters and *c* / *a* ratios of tetragonal $Bi_{0.9}Sm_{0.1}Fe_{0.5}Co_{0.5}O_3$.