Supplementary Material (ESI) for Chemical Science

Supporting Information for

$BiMnFe_2O_6$, a Polysynthetically Twinned *hcp* MO Structure

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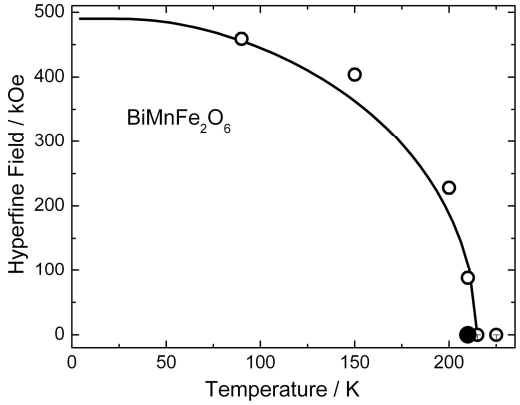

Figure S1. Temperature dependence of the magnetic hyperfine field, acting on Fe nuclei in $BiMnFe_2O_6$. The solid line is a pure Spin S=5/2 Brillouin function adjusted to T_c=213 K and H_{eff}(90 K) = 459 kOe.

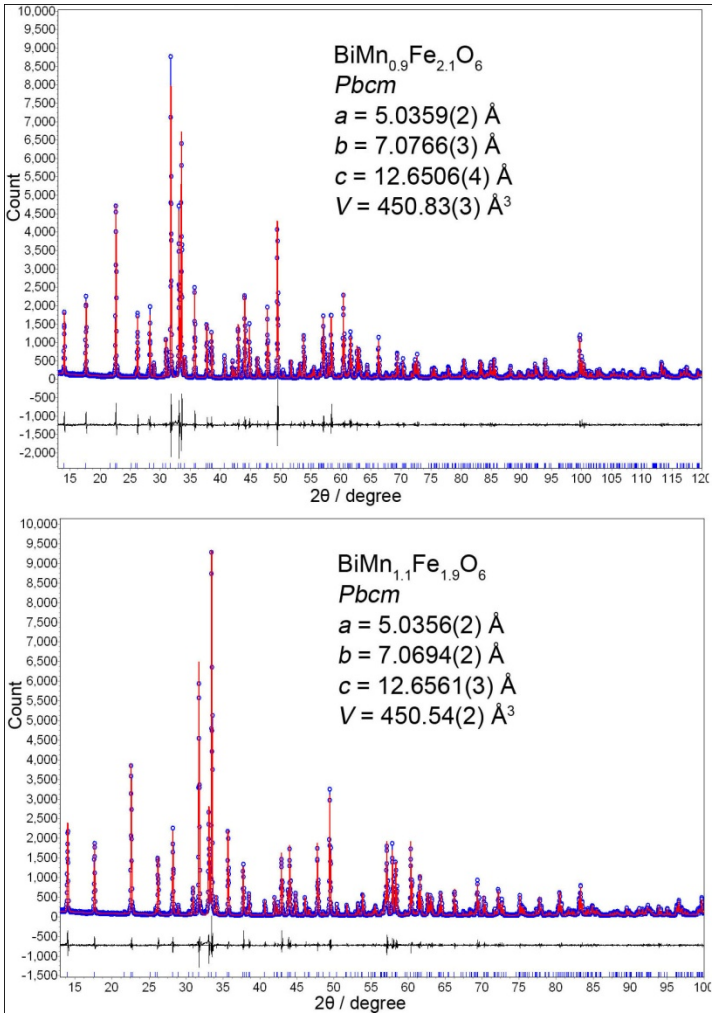

Figure S2. Rietveld refinements for $BiMn_{0.9}Fe_{2.1}O_6$, $BiMn_{1.1}Fe_{1.9}O_6$.

Table S1. Unit cell parameters of the $Bi(Mn, Fe)_3O_6$ solid solutions.

Sample	a / Å	b / Å	c / Å	V / Å^3
$BiMn_{0.9}Fe_{2.1}O_6$	5.0359(2)	7.0766(3)	12.6506(4)	450.83(3)
$BiMnFe_2O_6$	5.0365(2)	7.0742(2)	12.6542(2)	450.86(2)
$BiMn_{1.1}Fe_{1.9}O_6$	5.0356(3)	7.0694(3)	12.6561(3)	450.54(3)

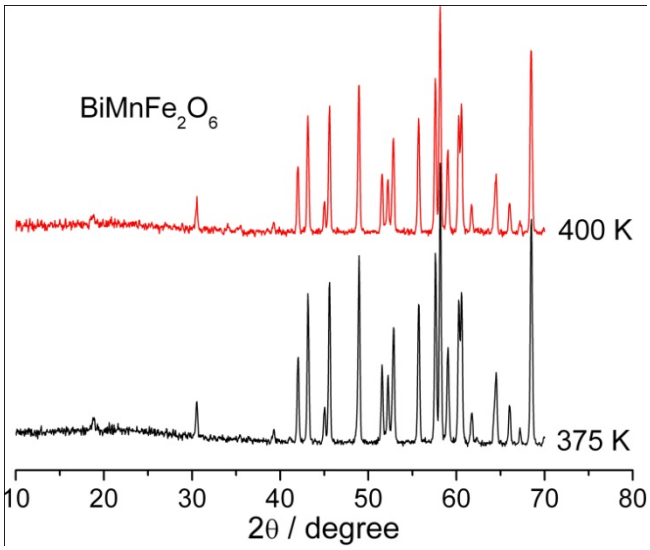

Figure S3. Neutron diffraction above room temperature. Wavelength: 2.079 Å using Ge(311) monochromator.

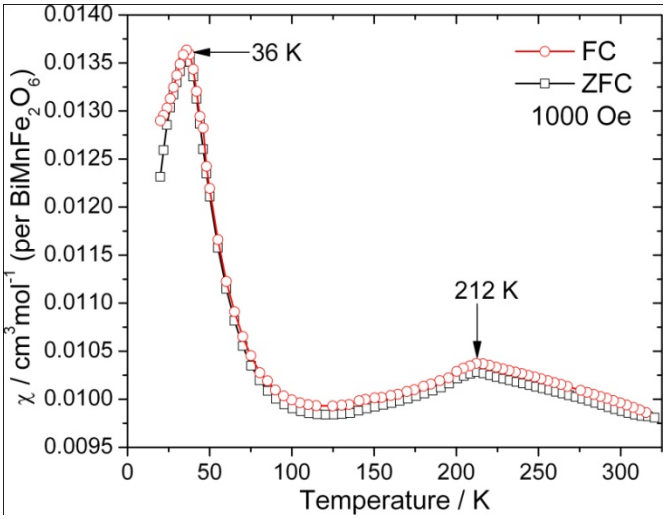

Figure S4. Zero Field Cooling (ZFC) and Filed Cooling (FC) magnetic susceptibility *v.s.* temperature of $BiMnFe_2O_6$.

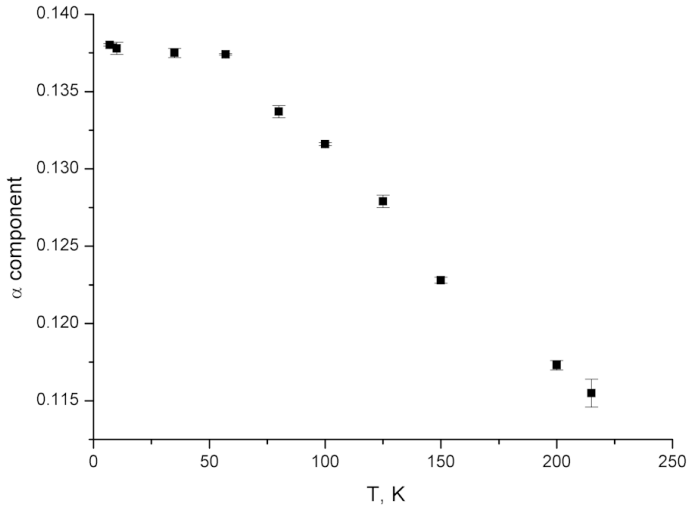

Figure S5. Temperature dependence of the α component of the modulation vector.