

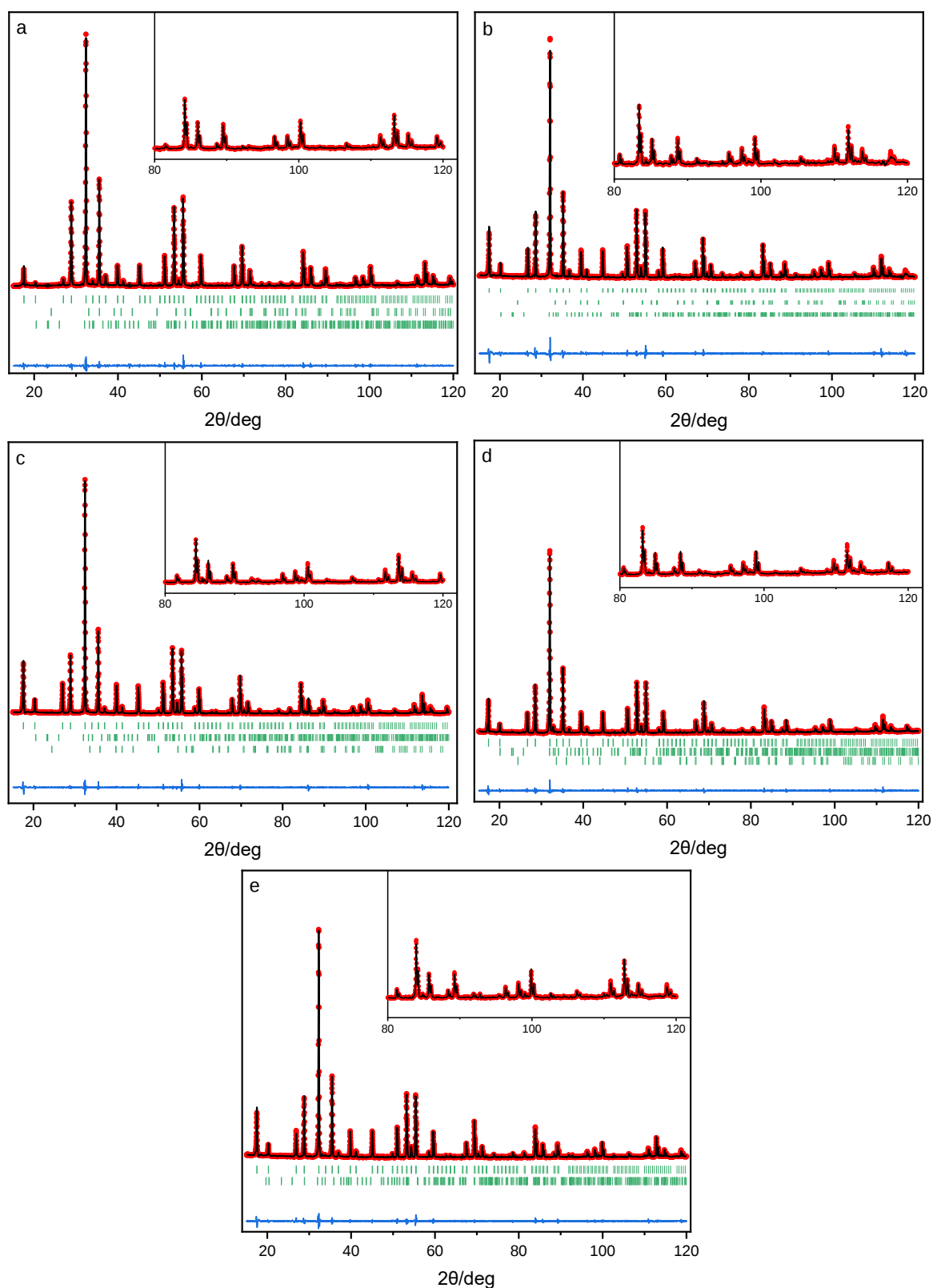


Fig S1. X-ray diffraction data for YIG (a), GdIG (b) ErIG(c), EuIG (d) DyIG(e) garnets with Rietveld refinement (red dots - experiment; black lines - calculated profiles; blue curve - their difference; green markers - peaks in the diffraction pattern; inset - a fragment of the diffraction pattern with an enlarged scale along the OY axis).

Table S2. Bond lengths and angles in the positions of Ln, Fe1 and Fe2 atoms in (Y,Ln)IG_pyr garnet obtained using Rietveld refinement.

Bond	Count	Distance, Å	Bond	Count	Angle, °
Ln-O	4x	2.380	O-Fe1-O	2x	116.0(9)
	4x	2.809		2x	96.9(1)
Fe1-O	4x	1.542	O-Fe2-O	1x	108.431
Fe2-O	1x	1.864		1x	106.351
	1x	2.010		1x	85.325
	1x	2.060		1x	83.959
	1x	2.119		1x	101.139
	1x	2.167		1x	81.852
	1x	2.293		1x	79.549
				1x	94.384