Journal Name

ARTICLE TYPE

Cite this: DOI: 10.1039/xxxxxxxxxx

Effect of partial substitution of Ni by Mg on the structural, magnetic and spectroscopic properties of the double perovskite Sr_2NiTeO_6†

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Received Date
Accepted Date

DOI: 10.1039/xxxxxxxxx

www.rsc.org/journalname

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† Electronic Supplementary Information (ESI) available: [details of any supplementary information available should be included here]. See DOI: 10.1039/b000000x/

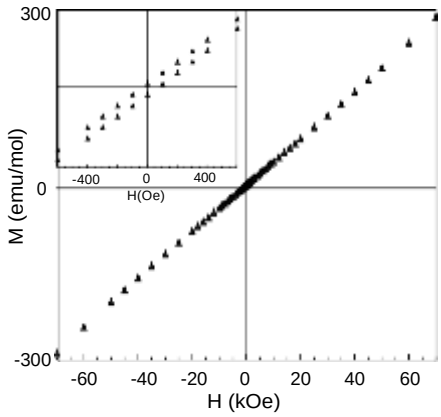

Fig. 1 (Supplementary Figure) Magnetization at 5 K, as a function of the applied external magnetic field, of the pure Sr_2NiTeO_6.

Table 1 (Supplementary Table) Compositional analysis of the $Sr_2Ni_{1-x}Mg_xTeO_6$ (x = 0.0, 0.1, 0.2, 0.3 and 0.5) compounds. The wavelengths (in *nm*) used for the analysis were: λ_{Sr} =421.552, λ_{Ni}=221.647, λ_{Mg}=279.553 and λ_{Te}=214.281.

	x	0.0	0.1	0.2	0.3	0.5
Sr	% Calc	38.3	38.6	38.9	39.2	39.8
	AAS	37.6(3)	38.6(3)	38.7(3)	38.6(3)	-
	ICP [a]	34.1(4)	34.0(4)	33.8(4)	34.5(4)	35.9(4)
Ni	% Calc	12.8	11.6	10.4	9.2	6.7
	AAS	12.4(4)	10.9(1)	9.9(1)	8.7(1)	-
	ICP [a]	13.1(1)	11.6(1)	10.4(1)	9.2(1)	6.7(1)
Te	% Calc	27.9	28.1	28.3	28.5	29.0
	AAS	27.6(3)	29.0(3)	28.0(3)	27.6(3)	-
	ICP [a]	27.1(3)	27.0(3)	27.4(1)	26.8(3)	27.6(3)
Mg	% Calc	0.0	0.54	1.08	1.60	2.76
	AAS	0.0	0.56(2)	1.08(1)	1.55(1)	-
	ICP [a]	0.0	0.46(1)	0.80(1)	1.20(2)	2.21(2)

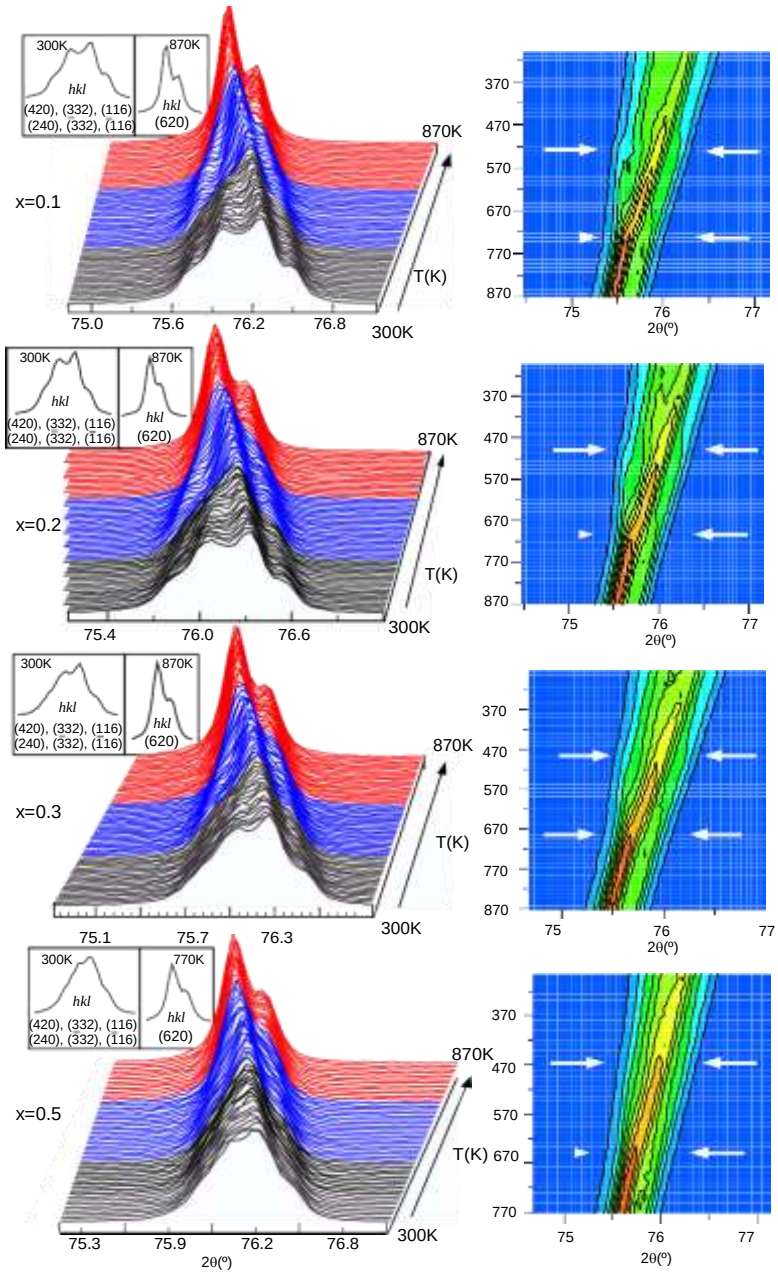

Fig. 2 (Supplementary Figure) Thermal evolution of the (620) cubic reflection splitting located in the interval ($74.6^\circ < 2\theta < 77.2^\circ$) for the $Sr_2Ni_{1-x}Mg_xTeO_6$ compounds with (x=0.1, 0.2, 0.3 and 0.5).

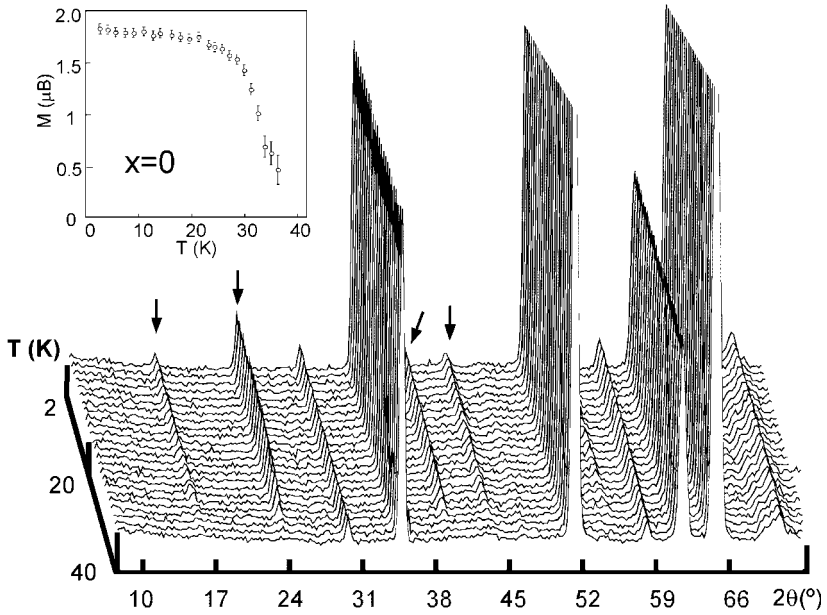

Fig. 3 (Supplementary Figure) The onset of the antiferromagnetic ordering as obtained from sequential refinement of neutron data collected at the D1B instrument for Sr_2NiTeO_6. Inset shows the evolution of the magnetic moment calculated from the Rietveld fits.