

MS24-P03 | REVISITING THE MAGNETIC STRUCTURE OF $R_{1/3}Sr_{2/3}FeO_3$ (R = LA, PR, ND) BY NEUTRON POWDER AND SINGLE CRYSTAL DIFFRACTION COMBINED WITH SPHERICAL POLARIMETRY

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We present our study of a magnetic structure in $R_{1/3}Sr_{2/3}FeO_3$ (R = La,Pr,Nd) system, which is interesting because it has a metal-insulator (MI) transition concomitantly with the magnetic ordering. In our previous paper [1] we have shown that the neutron powder diffraction data can be equally well fitted by two different magnetic space groups, namely a canted helical model $P3_221$ and a collinear arrangement of the Fe-spins $C2/c$. The latter model supports the charge ordering, implying that it is responsible for MI-transition. We show that the neutron single crystal diffraction and spherical polarimetry experiments performed on crystals with R=La were able to resolve the above issue, giving the definitive preference to $C2/c$ [2].

[1] F.Li *et al.*, Phys.Rev. B 97, 174417 (2018)

[2] F.Li *et al.*, to be published