

Abstract Submitted
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Electron energy loss spectroscopy study of $\text{Sr}_{2-x}\text{Gd}_x\text{TiMnO}_6$ ¹ NEVENKO BISKUP, INMACULADA ALVAREZ-SERRANO, MARIA LUISA VEIGA, Universidad Complutense Madrid, Spain, MAR GARCIA-HERNANDEZ, ICMM, CSIC, Spain, MARIA LUISA LOPEZ, Universidad Complutense Madrid, Spain, MARIA VARELA, Oak Ridge National Laboratory — The newly synthesized double perovskite family $\text{Sr}_{2-x}\text{Gd}_x\text{TiMnO}_6$ ($0 < x < 1$) is magnetically frustrated system that orders magnetically at $T=40\text{K}$. In spite of the probable double exchange interaction around $x=0.5$, no metallic state is established and the magnetoresistance is weak in the whole family. The most interesting feature in this material is the giant electroresistance that persists even at room temperature. We have studied the microscopic composition of these polycrystals by the electron energy loss spectroscopy. We find that, in spite of some precipitations of Mn and Ti rich regions that exist in $0.25 \leq x \leq 0.75$, the manganese and titanium ions are generally well intermixed in both interior of the grains and on the grain boundaries. We discuss these results in the frame of highly non-linear electrical conductivity found in these materials.

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