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ABSTRACTS

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up drastically. The magnetoresistance (MR) versus field (MR-H) for the sample with 25 % glass compositions is shown in Figure 1. The MR-H curve shows a sharp drop at low field for all compositions followed by a more gradual drop at higher field. This low field drop has been earlier shown to arise from spin polarized tunneling across the ferromagnetic grain boundaries. This sharp low field drop is maximum (MR1.8% at 200Oe) for composite containing 25wt.% of glass which matches with the conduction threshold determined from the resistivity. Here the glass layer separating the grain boundaries may be acting as barrier for spin polarized tunneling. The more gradual drop at high field is possibly due to hard magnetic regions at the disordered interface. This enhancement of the low field MR (<200Oe) at room temperature, particularly for the optimal composition of 25 wt.% of glass coupled with the fact that there is negligible hysteresis in the MR curve, makes these composites suitable for application as magnetic sensors.

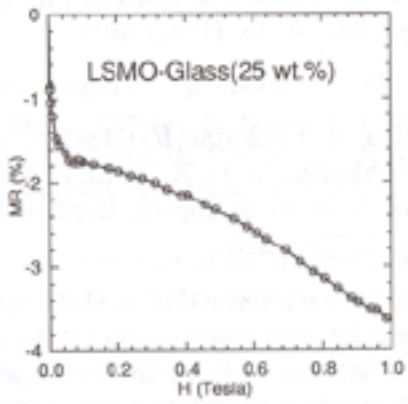

FIG. 1. MR vs H curve for the LSMO-glass 25 wt.% sample.

FW-17. Magnetoresistance properties of $La_{0.67}(Ca,Sr)_{0.33}MnO_3$ and $CoFe_2O_4$ combined system. Seung-Iel Park and *Chul Sung Kim* (Kookmin Univ., Dept. of Phys., 861-1, Chongnung-Dong, Songbuk-Ku, Seoul, 136-702, KR)

$La_{0.67}Ca_{0.33}MnO_3$, $La_{0.67}Sr_{0.33}MnO_3$ and $CoFe_2O_4$ samples have been prepared by a sol-gel processing method. A mixture of the two samples was annealed in 6 hour at 1000°C. The magnetoresistance properties of combined samples (with 5, 10, 20 wt% $CoFe_2O_4$) have been studied with x-ray diffraction pattern, magnetization and magnetoresistance measurement, and Mössbauer spectroscopy. For the combined samples, results of x-ray diffraction patterns show no evidence of reaction between the $La_{0.67}Ca_{0.33}MnO_3$, $La_{0.67}Sr_{0.33}MnO_3$ and $CoFe_2O_4$. For the amount of $CoFe_2O_4$ increased, the Curie temperature of combined samples show no appreciable change, whereas a metal-semiconductor transition temperature rapidly decreased. For the $La_{0.67}Sr_{0.33}MnO_3$ sample with 20 wt% $CoFe_2O_4$, the metal-semiconductor transition temperature(192K) was decreased about 160K compared to the $La_{0.67}Sr_{0.33}MnO_3$. Under an applied filed of 15kOe, the magnetoresistance(MR) ratio of combined sample with 20 wt% CoFe2O4 is 7.3 % at 192 K.