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The Effect of Magnetic Anisotropy on Colossal Electroresistance in Manganites[1] ALESSANDRA GALLASTEGUI, RAFIYA JAVED, HYOUNG-JEEN JEEN, AMLAN BISWAS, Department of Physics, University of Florida, Gainesville, FL 32611 — The combined effect of long range strain interactions and disorder on a first order transition leads to micrometer scale phase separation in hole-doped manganese oxides (manganites). The coexisting phases are ferromagnetic metallic (FMM), charge ordered insulating (COI), and paramagnetic insulating (PMI) and at certain temperatures these phases behave like a fluid under the influence of magnetic and electric fields. We will present magnetotransport data on nano/micro-structures of the manganite $(La_{1-y}Pr_y)_{0.67}Ca_{0.33}MnO_3$ (LPCMO) which show that the FMM phase behaves like a fluid in an electric field. In fact, due to the magnetic anisotropy of our materials, the behavior of the coexisting phases is reminiscent of a ferrofluid.

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