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Very Low Frequency (<1 mHz) Magnetic Noise in $La_{0.67}$ Ca $_{0.33}$ MnO_3 Films[1] SUDESHNA SAMANTA, ARUP KUMAR RAYCHAUDHURI, S. N. Bose National Centre for Basic Sciences — We report an occurrence of very low-frequency (<1 mHz) resistance fluctuations (noise) in a rare-earth perovskite manganite film. This fluctuation is distinct from 1/f noise and is larger than that. The fluctuation arises due to coupling to magnetization fluctuation. It reaches a peak close to the ferromagnetic Curie temperature T_C. The magnetic nature of the transition has been established by sensitivity of the noise to a very low applied magnetic field <0.1 Tesla. The magnetization fluctuation has been calculated from the resistance fluctuation using the directly measured magnetoresistance. The magnetization fluctuations show peak at a temperature close to but lower than T_C and shows a nontrivial dependence on the applied magnetic field.

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Sudeshna Samanta
S. N. Bose National Centre For Basic Sciences

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