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Giant increase of magnetic transition temperature in $La_{0.25}Pr_{0.375}Ca_{0.375}MnO_3$ under pressure[1] ZHEN QIN, New Jersey Institute of Technology, Y.J. CHOI, H.T. YI, Rutgers University, T. ZHOU, New Jersey Institute of Technology, S.-W CHEONG, Rutgers University — We have measured the magnetization and resistivity of $La_{0.25}Pr_{0.375}Ca_{0.375}MnO_3$ polycrystalline samples under hydrostatic pressure up to 12 kbar, and from 300 K to 4 K. We find that there is a giant increase of the ferromagnetic phase transition temperature of more than 100 K within this modest pressure range. The origin of this giant increase is explained under the context of electronic phase separation and critical point. The device application from this effect is also discussed.

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