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Magnetic Clustering and Possible Chemical Nonuniformity in Bi0.125Ca0.875MnO3 YUHAI QIN, TREVOR TYSON, New Jersey Institute of Technology — The manganite system Bi1-xCaxMnO3 possesses intriguing properties in the low bismuth doping region. In this electron doped region ($0.6<x<1$), a large ferromagnetic (FM) moment of $\sim$1.2 Bohr magnetons per Mn site is found for $x\sim0.875$. However, the origin of this FM clustering configuration is still an open question. Chemical nonuniformity (Bi ion segregation) as a candidate interpretation has been explored with TEM/EDS, which can give a quantitative assessment of geometrical parameters, chemical composition and crystal structure of second phase particles. We have identified evidences for the possible Bi nonuniformity in nanoscale, which are consistent with the results from small-angle neutron scattering. This work is supported by NSF DMR-0512196.

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