

Abstract Submitted
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Investigation of fluctuating intra-unit cell magnetic order in cuprates by μ SR¹ JEFF SONIER, A. PAL, K. AKINTOLA, A. FANG, Department of Physics, Simon Fraser University, M. POTMA, Kwantlen Polytechnic University, M. ISHIKADO, Research Center for Neutron Science and Technology, Tokai, Naka, Ibaraki, Japan , H. EISAKI, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan , W.N. HARDY, D.A. BONN, R. LIANG, Department of Physics and Astronomy, University of British Columbia — A mysterious intra-unit cell (IUC) magnetic order has been observed by spin polarized neutron scattering in the pseudogap phase of four different cuprate families. However, the origin of the IUC magnetic order is unclear, in particular because it has not been detected by the local magnetic probe methods nuclear magnetic resonance (NMR) and muon spin relaxation (μ SR). One possible explanation is that the IUC magnetic order fluctuates at a rate slow enough to appear static on the time scale of neutron scattering, but too fast to cause relaxation of the μ SR or NMR signal. I will discuss recent μ SR measurements on $\text{Bi}_{2+x}\text{Sr}_{2-x}\text{CaCu}_2\text{O}_{8+\delta}$ and $\text{YBa}_2\text{Cu}_3\text{O}_y$ that explore this possibility. The new results place narrow limits on the fluctuation rate of the unidentified IUC magnetic order, and raise new questions concerning the magnetism detected by μ SR in high- T_c cuprates.

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