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What is new for spin-glass in a quasi-2D system[1] WEI BAO, Los Alamos National Lab, YING CHEN, NIST, YIMING QIU, NIST, J.E. LORENZO, CNRS Grenoble, J.L. SARRAO, Los Alamos National Lab, DEREK HO, NIST, MIN Y. LIN, NIST — In conventional spin glasses, magnetic interaction is not strongly anisotropic and the entire spin system is believed to be frozen below the spin-glass transition temperature. Along *any* direction, spin correlations are highly disordered. In $La_2Cu_{0.94}Li_{0.06}O_4$, for which the in-plane exchange interaction dominates the interplane one, only a fraction of spins with antiferromagnetic correlations extending to neighboring planes become spin-glass. The remaining spins with only in-plane antiferromagnetic correlations remain spin-liquid at low temperature. Spin correlations are highly disordered only along the interlayer direction, but highly ordered in-plane. Such a novel partial spin freezing out of a two-dimensional spin-liquid observed in this cold neutron scattering study is likely due to a delicate balance between disorder and quantum fluctuations in the quasi-two dimensional S=1/2 Heisenberg system.

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