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Implications of the Low-Temperature Instability of Dynamical Mean Theory for Double Exchange Systems CHUNGWEI LIN, ANDREW MILLIS, Department of Physics, Columbia University — The single-site dynamical mean field theory approximation to the double exchange model is found to exhibit a previously unnoticed instability, in which a well-defined ground state which is stable against small perturbations is found to be unstable to large-amplitude but purely local fluctuations. The instability is shown to arise either from phase separation or, in a narrow parameter regime, from the presence of a competing phase. The instability is therefore suggested as a computationally inexpensive means of locating regimes of parameter space in which phase separation occurs.

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