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Electron-lattice coupling and partial nesting as the origin of Fermi arcs in manganites[1] JUAN SALAFRANCA, University of Tennessee and ORNL, GONZALO ALVAREZ, ORNL, ELBIO DAGOTTO, University of Tennessee and ORNL — We present a detailed Monte Carlo study of the one-particle spectral function using a double-exchange model for layered manganites, incorporating lattice distortions. Our results contribute to clarifying the physical origin of the Fermi arcs observed in ARPES experiments on bilayered manganites.[2] In a range of parameters where no broken symmetry phase exists, the nearly-nested Fermi surface favors particular correlations between the Jahn-Teller distortions. Due to these correlations, the spectral weight is surpresed near the Brillouin zone edge, while a quasiparticle peak survives in the zone diagonal. This regime manifests as a pseudogap in the density of states, and produces a Fermi-arc like Fermi surface.[3] We also discuss the stability of the pseudogap varying the temperature and the electron-lattice coupling strength for different hole dopings.

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[2]Manella *el al.* Nature 438, 474 (2005)
[3]Salafranca *el al.* Phys. Rev. B 80, 155133 (2009)

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