# Magnetic structure of electronic inhomogeneities in cuprates - Competition between stripes and spirals -

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9.7 cm

The formation of spin and charge stripes is one of the scenarios in order to account for the formation of the pseudogap in cuprate superconductors. Whereas this kind of electronic inhomogeneity is now well established in lanthanum based cuprates the experimental situation in other compounds is less evident. Here we argue that the magnetic structure is strongly influenced by the next-nearest neighbor hopping parameter $t'$ which distinguishes different families of cuprates. In particular our investigations, based on the unrestricted Gutzwiller approximation of the extended Hubbardd model, indicate that uniform spirals get favored by a large $t'/t$ ratio but are unstable at small doping towards stripes and checkerboard textures with spin canting. The structure of these inhomogeneities also depends on $t'/t$ and the associated spin currents may induce a small lattice distortion associated with local dipole moments. We discuss a new kind of stripe which appears as a domain wall of the antiferromagnetic (AF) order parameter with a fractional change of the phase of the AF order. For large $|t'/t|$ spirals can be stabilized under certain conditions in the overdoped regime which may explain the elastic incommensurate magnetic response recently observed in iron-codoped Bi2201 materials.

13.4 cm

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