

# NMR studies of the stripe order in cuprates

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There is increasing evidence that several doped transition metal oxides exhibit intrinsic phase segregation of the charge carriers due to competition between short and long-range interactions. Typically, this inhomogeneity causes a unique topology due to strong couplings between the charges and spin and orbital degrees of freedom. In two dimensional lanthanum cuprates the doped charge carriers are expected to form metallic one-dimensional stripes separating regions of insulating antiferromagnetic order of the Cu spins. There is ample evidence for inhomogeneous doping distributions from NMR and STM experiments, as well as independent evidence for the spatial modulation of the spin density. In my talk I will present our recent  $^{17}\text{O}$  NMR experiments on doped  $\text{La}_2\text{CuO}_4$  that provide a crucial link between the local charge and spin density maps by taking advantage of the ability of the planar oxygen to probe both, the local spin structure via the hyperfine field, as well as the local hole doping in the oxygen p orbitals through the local electric field gradient. Our data and their analysis support a picture of excess charge in the domain walls of the spin modulation.

\* work done in collaboration with

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