

## **From cuprates to pnictides: inherent duality in $HT_c$ -materials (A new playground for NMR/NQR studies?)**

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The heterogeneous coexistence of antiferromagnetism (SDW) and superconductivity on a mesoscopic scale was observed in iron-pnictides in many recent experiments. We suggest and discuss the scenario in which the heterogeneity is caused by formation of domain walls inherent to the SDW state of pnictides at a proper doping or under applied pressure. Superconductivity would emerge from the modulated SDW structure. The phenomenon is akin to the FFLO-phase in superconductors. The local suppression of SDW gap in a domain wall results in a finite density of states, corresponding to charge carriers moving along the walls. By analogy to cuprates, such domain walls may be considered as stripes. It is important that in both families of  $HT_c$  compounds the spatial scales for heterogeneity vary in the range from one atomic size and up to thousands of angstroms. We discuss experiments that prove that SC in pnictides indeed emerges on the background of the soliton state and specially focus on the problems which may be studied with a help of NMR/NQR.

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