Chiral charge order from interlayer tunneling in the hole doped cuprates

AKASH MAHARAJ, SRINIVAS RAGHU, Stanford University — We show how charge density waves in layered materials can be gyrotropic, i.e. break spatial inversion and all mirror symmetries. This order is stabilized by coherent interlayer tunneling whose amplitude depends on in-plane momentum. We present mean field calculations which demonstrate the presence of this chiral configuration of charge density waves, and justify these results using a Landau-Ginzburg theory. The implications for recent experiments (e.g. Kerr, X-ray etc.) in underdoped YBCO are also discussed.

1DOE Office of Basic Energy Sciences, Materials Sciences and Engineering Division, under Contract DE-AC02-76SF00515, and the Alfred P. Sloan Foundation.

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Date submitted: 14 Nov 2013

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