

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Hybridization of Higgs modes in a bond-density-wave state in cuprates ZACHARY RAINES, VALENTIN STANEV, VICTOR GALITSKI, Univ of Maryland-College Park — Recently, several groups have reported observations of collective modes of the charge order present in underdoped cuprates. Motivated by these experiments, we study theoretically the oscillations of the order parameters, both in the case of pure charge order, and for charge order coexisting with superconductivity. We find in the coexistence regime two Higgs modes arising from hybridization of the amplitude oscillations of the different order parameters, one of which has a minimum frequency that is within the single particle energy gap and which is a non-monotonic function of temperature. Additionally, we explore an unusual low-energy damping channel for the collective modes, which relies on the band reconstruction caused by the coexistence of the two orders.

Zachary Raines
Univ of Maryland-College Park

Date submitted: 06 Nov 2015

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