

Abstract Submitted
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Effects of a particle-hole asymmetric pseudogap on Bogoliubov quasiparticles in ARPES J.P.F. LEBLANC, University of Guelph, J.P. CARBOTTE, McMaster University, E.J. NICOL, University of Guelph — Motivated by recent angle-resolved photoemission experiments (ARPES) on the underdoped cuprates [1], we show that the particle-hole asymmetry of the pseudogap energy bands acts to reveal new spectral peaks due to Bogoliubov quasiparticles in the superconducting state. With sufficient broadening, the Bogoliubov peaks will merge with existing peaks and will lead to the anomalous observation, seen in experiment, that the carrier spectral density appears to broaden with reduced temperature. Using the resonating valence bond (RVB) spin liquid model [2], we compare with recent experimental data to empirically determine the temperature dependence of the pseudogap. Further, we demonstrate that the d-density wave model cannot explain the same data.

[1] Hashimoto et al. *Nature Physics* **6** 414.

[2] K.Y Yang, T.M. Rice and F.-C. Zhang, *PRB* **73** 17541 (2006).

James LeBlanc
University of Guelph

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