

Abstract Submitted  
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**Quasiparticle interference above and below  $T_c$  in underdoped cuprates**<sup>1</sup> AAKASH PUSHP, COLIN PARKER, ABHAY PASUPATHY, KENJIRO GOMES, Princeton University, SHIMPEI ONO, CRIEPI, Japan, YOICHI ANDO, ISIR, Osaka University, JINSHENG WEN, ZHIJUN XU, GENDA GU, Brookhaven National Laboratory, ALI YAZDANI, Princeton University — There is considerable debate over the evolution of quasi-particle excitations between the superconducting and pseudogap phases in the underdoped cuprates. In the superconducting phase, dispersive real space modulations are observed [1], which can be explained by quasi-particle interference (QPI), whose location in momentum space is consistent with ARPES. What should happen to these modulations in the pseudogap state, where ARPES indicates a finite arc of gapless Fermi surface? We will present STM data from underdoped  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$  that investigates the nature of this change and its connection with the non-dispersive features seen above  $T_c$  [2]. [1] Kohsaka *et al.* *Nature* **454**, 1072 (2008). [2] Vershinin *et al.* *Science* **305**, 1993 (2004).

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Aakash Pushp  
Princeton University

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