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Proposal for electronic nematic order parameter sensitive to intra unit cell structures MICHAEL LAWLER, K. FUJITA, A. SCHMIDT, JHINHWAN LEE, CHUNG KOO KIM, H. EISAKI, S. UCHIDA, J. C. DAVIS, J. P. SETHNA, EUN-AH KIM — We propose an order parameter for detecting signatures of electronic nematic ordering using local probes such as scanning tunneling microscopy (STM). The order parameter is designed to measure rotational symmetry breaking without prejudice towards translational symmetry breaking – achieved by focusing on intra unit cell structures. This order parameter utilizes Fourier space information much the same way as in diffraction measurements, opening the possibility for a comparative study of nematicity between different probes. Our study is primarily motivated by the patterns observed in STM measurements on underdoped cuprates. We discuss theoretical implications of our results in this light.

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