

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Local electronic liquid crystallinity and topological defects, application to high Tc cuprate STM data ANDREJ MESAROS, JAN ZAA-NEN, University of Leiden, SUBIR SACHDEV, Harvard University, J.C. DAVIS, MICHAEL J. LAWLER, EUN-AH KIM, Cornell University — The patterns observed in STM measurements on underdoped cuprates motivate a theoretical approach based on electronic liquid crystalline ordering. Here, nematic and smectic order parameters describe C_4 point group symmetry breaking and the stripe-like $4a/3$ wavelength modulations. We study the interplay of these two order parameter fields and their topological defects guided by local microscopic considerations. In this light, we analyze published STM data on BSCCO to extract specific information including phase of the $4a/3$ modulations (copper or oxygen centered) and relations between the two types of local ordering.

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Date submitted: 20 Nov 2009

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