Abstract Submitted
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Incommensurate Nematic Charge Order in the Three Band Model for Cuprate Superconductors[1] SINAN BULUT, Trent University / Queen's University, WILLIAM A. ATKINSON, Trent University, ARNO KAMPF, Center for Electronic Correlations and Magnetism, Theoretical Physics III, Institute of Physics, University of Augsburg, — Recent experimental evidence for charge order in cuprates is a possible source of anomalous electronic properties in the underdoped regime. Intra-unit cell charge ordering tendencies point to electronic nematic order involving oxygen orbitals. In this context we investigate charge instabilities in the Emery model. The charge susceptibilities reveal three different kinds of nematic order. The first is an intra-unit cell ($q = 0$) nematic order. The second and the third are incommensurate charge orders with wavevectors that are either uniaxial or oriented along the Brillouin zone diagonal. The two latter charge patterns correspond to a spatially modulated nematic phase. The selection of the leading instability depends on the filling, the interaction parameters, and details of the band structure. For these candidate charge orderings we discuss their possible relevance for the charge ordering signatures in X-ray and STM experiments.

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Sinan Bulut
Trent University & Queen's University

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