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Local electronic nematicity in the 2-dimensional Hubbard model[1] KUN FANG, GAYANATH FERNANDO, University of Connecticut, ARMEN KOCHARIAN, California State University — Recent measurements on magnetic and transport properties of some strongly correlated materials show a local electronic nematic phase which locally breaks the C_4 symmetry but keeps translational symmetry. We studied the 2-dimensional Hubbard model using the variational cluster approach and found a similar phase. The results showed this local nematicity is a property of the electron liquid and would appear even if there is no lattice distortion. Calculations of spin correlation were preformed and compared to results from magnetic neutron scattering of real materials, which showed a distinct asymmetry along x and y directions.

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Kun Fang
University of Connecticut

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