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Dynamical electronic nematicity from Mott physics SATOSHI OKAMOTO, Materials Science and Technology Division, Oak Ridge National Laboratory, DAVID SENECHAL, Department de Physique and RQMP, Universite de Sherbrooke, MARCELLO CIVELLI, Laboratoire de Physique des Solides, Univ. Paris-Sud, ANDRE-MARIE TREMBLAY, Department de Physique and RQMP, Universite de Sherbrooke, and Canadian Institute for Advanced Research — We study the two-dimensional Hubbard model with small band anisotropy using dynamical-mean-field theory for clusters. We found that very large transport anisotropies can be induced by very small band anisotropy as in many strongly correlated materials. This happens when the interaction is large enough to yield a Mott transition. The maximum effect on conductivity anisotropy occurs in the underdoped regime as observed in high temperature superconductors. The anisotropy decreases at large frequency and is not associated with static stripe order. Thus we call the phenomenon "dynamical electronic nematicity". This work was supported by the Materials Sciences and Engineering Division, Office of Basic Energy Sciences, U.S. DOE (S.O.), NSERC (Canada) and the Tier I Canada Research Chair Program (A.- M.T.), with part of the computational resources by RQCHP and Compute Canada.

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