Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Construction of local order parameters from non-vanishing mutual information WING CHI YU, SHI-JIAN GU, Department of Physics, The Chinese University of Hong Kong, HAI-QING LIN, Department of Physics, The Chinese University of Hong Kong; Beijing Computational Science Research Center — In the recent decades, raising attention has been paid in the study of quantum phase transitions (QPTs) from quantum information perspectives. In this talk, we will present a scheme in constructing the local order parameters by investigating the spectra of the reduced density matrices that are used to calculate the mutual information. We will briefly review the relation between non-vanishing mutual information and the presence of long-range correlation in a system. In particular, we will illustrate our scheme using the numerical exact diagonalization result of the one-dimensional Hubbard model.

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Date submitted: 03 Jan 2013   Electronic form version 1.4