

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Entanglement and quantum phase transition in the ground state of one-dimensional asymmetric Hubbard model** WENLING CHAN, SHI-JIAN GU, Department of Physics and Institute of Theoretical Physics, The Chinese University of Hong Kong, Hong Kong, China — We study the quantum phase transition by means of entanglement in the ground state of the one-dimensional asymmetric Hubbard model. Both the half-filling and away from half-filling cases are investigated. The local entanglement between the middle two sites with the rest of the system, and the block entanglement between the left and right portions of the system, are calculated by the DMRG method. We find that the entanglements show interesting scaling and singular behavior around the phase transition line.

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Date submitted: 21 Nov 2007

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