Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Competition between spin imbalance and mass imbalance in the 1D asymmetric Hubbard model[1] WEN-LONG LU, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong, ZHI-GUO WANG, Department of Physics, Tongji University, SHI-JIAN GU, HAI-QING LIN, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong — In this talk, I will discuss the spin imbalance in the 1D asymmetric Hubbard model in the negative U region by the Bosonization method. A ground-state phase diagram has been obtained. We find that, unlike the $N_\downarrow = N_\uparrow$ case, there is no other phase transition in the ground state (always Singlet Superconducting) before it enters into the phase separation region, and the pairing correlation function is founding to oscillate in real space (FFLO state). The maximum mode is only determined by difference of Fermi momenta, and the correlation exponent is determined by both the mass difference and spin polarization.

[1]This work is supported by HK RGC Grant 402107

Hai-Qing Lin
The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Date submitted: 21 Nov 2008 Electronic form version 1.4