

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Effects of particle-hole channel on the behavior of BCS-BEC crossover¹ QIJIN CHEN, Zhejiang University — BCS-BEC crossover is effected by increasing pairing strength between fermions from weak to strong. Such pairing is associated primarily with the particle-particle channel. Effects of the particle-hole channel is often dropped. On the other hand, Gor'kov et al argued that the particle-hole channel can cause a substantial reduction in both T_c and the pairing gap. However, this result has largely been neglected until recent years when BCS-BEC crossover has been realized experimentally in ultracold Fermi gases. In this talk, we study the effects of the particle-hole channel on BCS-BEC crossover in a G_0G scheme. While in the BCS limit, such effects may be approximated by a shift in the pairing strength, the situation becomes more complex as the interaction becomes stronger where the gap is no longer very small. References: Q.J. Chen, I. Kosztin, B. Janko, and K. Levin, Phys. Rev. Lett. 81, 4708 (1998); Q.J. Chen, J. Stajic, S.N. Tan, and K. Levin, Physics Reports 412, 1-88 (2005).

¹Supported by NSF of China and Ministry of Education of China.

Qijin Chen
Zhejiang University

Date submitted: 19 Nov 2010

Electronic form version 1.4