Bosonization Method and Its Application in One-dimensional Electron Systems

by

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Third Lecture

Date: December 4, 2007 (Tuesday)
Time: 10:00 a.m. – 12:00 noon
Venue: Rm. G25A, Science Centre North Block, CUHK, Shatin, N.T.

Contents:

I. Standard bosonization method and its applications
   1. Electron correlation effect
   2. One-dimensional non-interacting electron gas
   3. Linearization of the electron energy spectrum
   4. Bosonization representation of the Hamiltonian
   5. Bosonization representation of the electron field operators
   6. Property of one-dimensional interacting electron gas
   7. Application in one-dimensional systems
      (a) spin-1/2 Heisenberg model
      (b) Hubbard model

II. Path integral bosonization method