



Lecture Series

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
