Lecture Hours: Tuesday and Thursday – 5:00 PM – 6:15 PM

Lecture Hall: Room 114 Gore Hall

Professor: Henry R. Glyde
Rm 229 Sharp Lab
tel: 831-8051 or 831-2661
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Office Hours: When in office or by appointment.

Text: Solid State Physics
G. Grosso and G. P. Parravicini

This is a second course in Condensed Matter Physics. It follows PHYS 624, Introduction to Condensed Matter Physics which is a prerequisite. It precedes PHYS 826, Advanced Topics in Condensed Matter Physics which will be given in the Fall 2008 or Spring 2009. The text book above is the same text as used last time the course was given in Spring 2007. Topics begin with Chapter VI and VIII, review of III and IX and go on to IV, XV, XVI, XVII, X, XI, XVIII. Specifically, the topics included are:

- Electronic properties of selected crystals
- Adiabatic Approximation, Review Electrons and Phonons, and Berry Phase
- Beyond the One Electron Approximation,
  - Hartree and Hartree-Fock Theory
  - Density Functional Theory
- Magnetism
  - Single electrons in a magnetic field
  - Localized Magnetic Moments and Kondo Impurities
  - Magnetic ordering in crystals
- Scattering of Particles by Crystals
- Optical properties (of metals)
- Bose-Einstein Condensation, Superfluidity
- Superconductivity

Come and Bring a Friend.
First Lecture: February 14, 2008
Registration accepted up to February 25, 2008 (last drop/add day).
MARKING SCHEME: Quiz (2) – 1.0 Hours Final – 2.0 Hours
Problems – 30 % Quizzes – 40 % Final- 30-40 %