

Syllabus for Physics 230 - Advanced Solid State Theory

Spring 2015, Physics Department, UCSD

INSTRUCTOR: Congjun Wu (5430 MH)

Time/Place: 2:00p - 3:20pm, Mon Wed, MHA 5623

Office hour: Friday: 1:00 to 2:00pm pm

Text Books

1. A. Altland and B. Simons, *Condensed Matter Field Theory*.
2. N Nagaosa, *Quantum Field Theory in Condensed Matter Physics*.
3. N Nagaosa, *Quantum Field Theory in Strongly Correlated Electronic Systems*.

Other Reference Books:

1. X. G. Wen, *Quantum Field Theory of Many-Body Systems*, Oxford University Press.
2. G. D. Mahan, *Many-Particle Physics*, Second Edition, Plenum Press, New York.
3. J. Negele, and H. Orland, *Quantum Many-Particle Systems*, Westview Press; New Edition (December 1, 1998)
4. A. L. Fetter, J. D. Walecka, *Quantum Theory of Many-Particle Systems*, Dover Publications (June 20, 2003).
5. A. Auerbach, *Interacting Electrons and Quantum Magnetism*, Springer.

Grade:

Possibly: Homework 20%, Midterm 40%, and the final project 40%. (We need to discuss more).

Homework Assignments:

Homework will be assigned every one or two weeks. I will not actually grade the homework. But I will do collect homework and keep a record.