

Physics 211B– Solid State Physics, Part II Syllabus

Instructor: Massimiliano Di Ventra
Office: 4631 Mayer Hall Addition
Phone: 2-6447
E-mail: diventra@physics.ucsd.edu

Office hours: by appointment

Recommended Texts: No single book will be followed. Different sources will be used for different subjects. The following sources are the most used:

- Di Ventra, “Electrical Transport in Nanoscale Systems”
- Ashcroft and Mermin, “Solid State Physics”
- Ziman, “Principles of the Theory of Solids”
- Ziman, “Electrons and Phonons”
- Callaway, “Quantum Theory of the Solid State”
- Harrison, “Solid State Theory”
- Kittel, “Quantum Theory of Solids”
- Kittel and Kroemer, “Thermal Physics”
- Madelung, “Introduction to Solid-State Theory”
- Bassani and Pastori Parravicini, “Electronic States and Optical Transitions in Solids”
- Bransden and Joachain, “Physics of Atoms and Molecules”
- Schrieffer, “Theory of Superconductivity”
- Mahan, “Many-Particle Physics”

Prerequisites: Quantum Mechanics, Physics 211A

Grading: At the end of the quarter there will be an oral presentation following a 4-page write-up of a research topic of the student’s choice.

List of Topics: Transport in solids
Optical properties
Magnetism
Superconductivity