

Physics 880.06 (Winter 2010)  
 Condensed Matter Physics II  
 Instructor: Professor Nandini Trivedi

Date	Lecture No	Topics
1/5 (T)	1	<b>Semiconductors: Intrinsic</b>
1/6 (W)	2	<b>Semiconductors: Doped</b>
1/7 (Th)	3	<b>Semiconductors: pn junction</b>
1/12 (T)	4	<b>Semiconductors: quantum wells, 2DEG, FET</b> HW1 given out
1/13 (W)	5	<b>NO CLASS: Conference on "Exotic Insulating Phases of Matter" at John Hopkins University Jan 14-16</b>
1/14(Th)	6	<b>NO CLASS:</b>
1/19(T)	7	<b>PE of Xtal; Dynamical Matrix</b>
1/20(W)	8	<b>Dynamical Matrix</b> <b>Semiconductors: Student Talks:</b> Mason Swanson (Talk 1): Basic equations to determine $\mu$ for intrinsic semiconductor in mathematica; Basic equations to determine $\mu$ for doped semiconductor in mathematica; Rick Worhatch (Talk 2): Band structure of Si, Ge
1/21(Th)	9	<b>Phonon Density of States; Specific Heat</b>
1/26 (T)	10	<b>Phonon Density of States;</b> <b>HW1 due today in class</b>
1/27(W)	11	STUDENT TALKS: Jennifer Thompson (Talk 4): Measurement of gap using optical absorption Yibin Gao (Talk 5): Mobility as a function of T Andy Berger (Talk 6): Effective masses using cyclotron resonance
1/28(Th)	12	<b>Neutron Scattering: detecting Phonons</b>
2/2(T)	13	<b>NO CLASS: Seminar at Rutgers</b>
2/3(W)	14	STUDENT TALKS: Sheng Jiang (Talk 9): Photodiode/optoelectronic devices

		Howard Yu (Talk 11): Integrated Circuit Eric Duchon (Talk 12) Charge Coupled Devices Megan Harberts (Talk 13) Memory Cells Marci Howdyshell (Talk 7): LED
2/4(Th)	15	<b>HW1 returned after grading</b> <b>Neutron Scattering: correlation function</b>
2/9(T)	16	<b>NO CLASS: Seminar in Caltech</b>
2/10(W)	17	STUDENT TALKS: Yi-Hsin Chiu (Talk 3): Measurement of semiconducting gap using resistivity Anisha Ramesh (Talk 10): Tunnel Diode Michael Severance (Talk 14) Organic Semiconductors Thomas Tran (Talk 8): Semiconductor Lasers <b>In class assessment on "semiconductors"</b> <b>HW2 due today in class</b>
2/11(Th)	18	<b>Last bit of neutron scattering</b> <b>Transport Begins!: Boltzmann Theory</b>
2/16(T)	19	<b>Drude Conductivity</b>
2/17 (W)	20	<b>GUEST LECTURE: Elasticity Theory</b> <b>Mike Fellingner</b>
2/18(Th)	21	<b>HW3 discussion</b>
2/23 (T)	22	<b>Electrical Transport:</b> <b>Scattering from impurities, phonons, electron-electron interactions</b> <b>Electrical Transport: Discussion of data</b>
2/24 (W)	23	<b>Thermal transport in metals and insulators</b>
2/25 (Th)	24	<b>Thermoelectric effects in transport</b>
3/2 (T)	25	<b>Thermoelectric effects in transport</b> <b>Figure of Merit (<math>G</math>)</b> <b>Optical Conductivity</b> <b>HW2 returned after grading</b>
3/3 (W)	26	<b>In class assessment on "phonons"</b> <b>Cameliu Selcu will take the class</b>
3/4 (Th)	27	<b>NO CLASS: Colloquium and Seminar at Texas A&amp;M</b>
3/9 (T)	28	<b>Magnetotransport</b>

3/10 (W)	29	<b>QHE</b>
3/11 (Th)	30	<b>Overall Review of Course</b>
3/16(T)		FINAL EXAM WEEK
3/17(W)		FINAL EXAM WEEK
3/18(Th)		FINAL EXAM WEEK