PHYSICS 846: WINTER QUARTER 2009

STATISTICAL PHYSICS I

Time & Place: Tues. and Thu. 09:30 - 11:18 AM; Smith 1042

Instructor: Professor Mohit Randeria
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Course Website:
www.physics.ohio-state.edu/∼randeria/courses/physics_846/physics_846.htm

Text Book: "*Statistical Mechanics of Particles*" by Mehran Kardar, (Cambridge University Press, 2007).
Other Books: Two standard graduate-level texts are: *Statistical Mechanics* by R. K. Pathria, 2nd Ed., (Butterworth- Heinemann, 1996) and *Statistical Mechanics* by K. Huang, 2nd Ed., (Wiley, 1987).
A modern book with lots of examples from diverse areas of science and engineering is: *Statistical Mechanics: Entropy, Order parameters and Complexity* by J. P. Sethna (Oxford, 2007).
Thermal Physics by C. Kittel and H. Kroemer, 2nd Ed., (Freeman, 1980) is simpler than the books listed above, but is *highly* recommended for clarity.

Syllabus:

- Review of Thermodynamics
- Entropy
- Ensembles: microcanonical, canonical, and grand canonical
- Free Energies and Thermodynamic Potentials
- Ideal Gases: Classical, Fermi and Bose.

Course Grades

- Home Work: 30%
- Mid-Term Exam: 30%
- Final Exam: 40%

Exam Dates

- Mid Term: Tuesday, Feb. 10 (in class)
- Final Exam: (PLEASE NOTE!)
  Friday, Mar. 13, 4:30 - 6:30 PM, Smith 1042

Grader: Nicolas Bock (bock-garcia.1@osu.edu)