Topic List for Exam #5 **Thursday & Friday, May 15 & 16, 2008**
(not exhaustive) **exam to be held in rooms HS 360 & 366**

geometric optics
- ray, reflection, refraction – Snell's law
- lenses and image formation
  - plane mirror, spherical mirror – sign conventions
  - converging lens, diverging lens – sign conventions
  - optical instruments – eye, pinhole camera, magnifier, telescope, microscope

wave optics
- Huygen's principle, wave front propagation
- diffraction, interference
- two-slit interference
- thin film interference
- single slit diffraction, diffraction gratings, resolution & Rayleigh's criterion

quantum physics
- blackbody radiation – spectral distribution, Wien's law, Stefan-Boltzmann law
  - Rayleigh-Jeans eqn, Planck equation
- wave-particle duality – Bohr's principle of complementarity
- photons – discrete energy, nonzero linear momentum
  - photoelectric effect & Compton effect – qualitative results
- Bohr's Principle of Complementarity
- DeBroglie's wave hypothesis – matter waves, two slit electron interference
- Heisenberg's Uncertainty Principle

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