Course Information PHY 506 - Fall 2006

Physics 506 (Nuclear and Subatomic Physics) provides an introduction to modern nuclear physics and is intended for advanced undergraduate or graduate students. A brief outline is provided below.

Lecture: MWF 12:25-1:15, rm: tba
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Rough outline:

- Nucleons and Nuclear Forces
  Properties of Nucleons and Nuclei
  Nucleon-Nucleon forces and the deuteron
  Conservation laws, isospin.

- Nuclear Models and Nuclear Stability
  The Fermi Gas and Liquid Drop Models
  Radioactivity, Fusion and Fission
  The Shell Model

- Weak Interactions and Neutrinos
  Weak Interactions: β-deacy, e capture, etc
  Quarks and leptons
  Neutrino Physics

- Fission and Fusion, Nuclear Astrophysics
  Fission reactions, nuclear energy
  Fusion recations
  Stellar burning

- The Quark Structure of Matter
  Deep Inelatic Scattering and the Structure of the Nucleon
  Heavy Ion Collisions and the Quark Gluon Plasma