

() $\vec{C} = C_x \hat{i} + C_y \hat{j} + C_z \hat{k}$; $E = E_x \hat{i} + E_y \hat{j} + E_z \hat{k}$; $\vec{P} = P_x \hat{i} + P_y \hat{j} + P_z \hat{k}$ (P)

410. Nuclear Physics (3)

Prerequisites: A 213, 311.

A study of the structure and properties of nuclei, including the forces between nucleons, the stability of nuclei, the modes of radioactive decay, and the nuclear reactions. Topics include the liquid drop model, the shell model, and the alpha, beta, and gamma decays. The nuclear energy levels and the nuclear reactions are also discussed.

417. Introduction to Condensed Matter Physics (3)

Prerequisites: 311

A study of the properties of solids, including the crystal structure, the lattice vibrations, the electronic structure, and the magnetic properties. Topics include the simple cubic, face centered cubic, and body centered cubic lattices. The phonon dispersion relations and the Debye model are also discussed. The electronic structure of metals, semiconductors, and insulators is also discussed. The magnetic properties of solids are also discussed. The Fermi-Dirac statistics and the Fermi energy are also discussed.

420. Quantum Mechanics (3)