PH215 August 3:0

Nuclear and Particle Physics

Instructor

B Ananthanarayan
Email: anant@iisc.ac.in

Teaching Assistant

Email:

Department: CHEP

Course Time: MWF 9-10

Lecture venue:

Detailed Course Page:

Announcements

Brief description of the course

Basic course, core for 2nd year IPHD, post MSC PHD, and 5th year UG. Designed to give a working knowledge of nuclear and particle physics

Prerequisites

QM-I, QM-II, EM theory, math methods

Syllabus

Yukawa potential. Isospin, neutron and proton. Deuteron. Shell model, magic numbers. Nuclear transitions, selection

rules. Liquid drop model, collective excitations. Nuclear fission and

fusion. Beta decay. Neutrinos. Fermi theory, parity violation, V

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A theory. Mesons and baryons.

Lifetimes and decay processes. Discrete symmetries, C, P, T and G. Weak interaction transit

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rules. Strangeness, K mesons and hyperons. Hadron multiplets, composition of mesons and baryons. Quark model and quantum chromodynamics

Course outcomes

Students are fully furnished with knowledge of Nuclear and Particle physics, at the level of CSIR and UGC Net exam pre-requisites

Grading policy

20% HW, 30% mid-term, 50% final

Assignments

Excellent problem sets given to improve problem solving ability

Resources

Griffiths, Introduction to particle physics

Povh et al., Particle Physics and Nuclear Physics