

PH5211 - High Energy Physics

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Abstract

Instructor :James Libby (HSB 116A) **Lecture Timings** : E Slot (Tue – 11am, Wed – 10am, Thu - 8am)

Venue : HSB 210

Course Outline:

1. Nuclear Physics
2. Elementary Particle Properties
3. Particle Dynamics
4. Particle accelerators and detectors

Textbooks :

1. Introductory Nuclear Physics, Kenneth S. Krane, Wiley India Pvt Ltd.
2. Introduction to High Energy Physics, Donald H. Perkins, Cambridge.
3. Introduction to Elementary Particles, 2nd Edition, David Griffiths, Wiley-VCH.
4. Refer to Syllabus for more text books.

Evaluation :

1. **Problem sets** (10 marks): one question of three or four will be selected for marking - best ten of eleven will be averaged to give the grade.
2. **Quiz I** (20 marks): 8am Thursday 1st of September
3. **Quiz II** (20 marks): 8am Thursday 29th of October
4. **End - Semester** (50 marks): 1pm-4pm Friday 18th of November CRC 303

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Chapter 1

Introduction

Lecture 1: First Lecture

1.1 Overview

26 July 2022

So far you have worked at order of 10^{-10}

We are going to work at order of $10^{-15} = 1\text{fm}$

- Nuclear Physics: Strong and weak interactions.
- Particle Properties: Welcome to the zoo.
- Particle dynamics: how things happen.
- Introduce accelerators + detectors.

1.2 Nomenclature



X = H, He, Li ...

Z = Atomic Number = No. of protons

Appendix