

MOOC1: Particle Accelerators

introduction

- Launched in August '19
- 174 learners enrolled
- Rating: 5/5

Accelerators for Synchrotron

Light

Light and Light Sources

Accelerator to make light

The development of accelerators for synchrotron light

Photon light sources and MAXIV

Synchrotron radiation

Bending magnets, wigglers and undulators

Free Electron Lasers

Spallation source and ESS

Introduction and neutron science

European Spallation Source

Particles Colliders

Introduction to Particles

Colliders

The LHC and its experiments

Linear Colliders

Future Circular Colliders

Plasma Wakefield (to be completed)

MOOC2: Fundamentals of accelerator technology

- Launched in March '19
- 465 learners enrolled
- Rating: 4.8/5

RF-System

Introduction to RF-systems

RF cavities

Waveguides

RF Amplifiers

More about cavities

Magnets technology for accelerators

Magnets part1/2/3

Beam Diagnostics

An overview

Beam intensity and position

Transverse Beam Profile

Longitudinal Beam Profile

Beam Loss Monitoring

Basics of Vacuum techniques

An overview and motivation

Residual gases and vacuum regions

Vacuum equipment

Other vacuum components

MOOC3: Medical Applications of Particle Accelerators

- Launched in Nov. '18
- 726 learners enrolled
- Rating: 4.7/5

Introduction to the course and radiotherapy

Introduction

Biological rationale for radiotherapy

Intro. to the electron linac for radiation therapy

Electron Linacs for radiation therapy

The multi-energy electron Linac structure

Dose delivery to the patient

Proton therapy 1

Rationale of proton therapy

Accelerators for proton therapy

Treatment delivery of proton therapy

Proton therapy II and production of medical radionuclides

Heavy ion therapy

Challenges in pr. & heavy ion th.

Intro. to medical radionuclides

Production of medical radionuclides