Short Course 1
Radiation Detection and Measurement

Saturday, October 16, 08:30 - 18:00 Room Tarragona

Organizer: Konrad Kleinknecht, Universität Mainz
Instructors: Archana Sharma, CERN
Dietrich Wegener, Universität Dortmund
Jochen Schwiening, SLAC
Konrad Kleinknecht, Universität Mainz

The course will start with a description of the interactions of particles and radiation with matter. Elementary particles are usually not directly detected but rather their interaction products. Depending on the purpose of the experiment one can do tracking with gaseous detectors with the aim e.g. of momentum measurement in a magnetic field. For higher energies calorimetric techniques yield excellent results with electromagnetic or hadronic calorimeters for electrons and hadrons. In many cases the nature of the incident particle has to be determined. For that purpose different techniques like dE/dx measurements, Cherenkov and transition radiation detection or time-of-flight techniques can be employed. The course follows closely the book on Radiation Detection and Measurement (Konrad Kleinknecht, Cambridge University Press), which will be provided by the organizer.

8:30 -10:30 :
Interactions of particles and radiation with matter,
Konrad Kleinknecht,Universität Mainz

11:00-12:30 :
Gaseous tracking detectors
Archana Sharma/CERN Geneva

14:00-16:00 :
Electromagnetic and Hadronic calorimetry
Dietrich Wegener/Universität Dortmund

16:00-18:00 :
Particle identification methods
Jochen Schwiening/SLAC, Stanford