

# New experimental techniques: recent developments in particle detectors

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## Summary:

The detection and identification of elementary particles is of fundamental importance in subatomic physics, in order to reconstruct the final states of an interaction and extract from it the physics observables. Along the time, the experimental needs have triggered the development of newer and more advanced detector technologies, some of which have resulted in spin off technology for medicine and industry.

After a brief introduction on the interaction of particles with matter, to recall the main mechanism of particle detection, this course will cover a selection of topics from contemporary particle detector physics. The working principle of the detectors will be outlined, together with their performances and applications in subatomic physics experiments, including possible applications to other domains.

## Main topics:

- Micropattern gas detectors.
- New generation semiconductor detectors.
- Transition radiation detectors
- Nuclear emulsions.
- Cherenkov detectors and RICH.
- Bolometers.
- Detector systems: the CMS experiment at LHC and the COMPASS experiment at SPS.

## Time:

4/05, 11/05, 18/05, 25/05, 2/06 from 15:00 to 17:00

## Place:

Salle de Master, IPHC