



Title:	<i>Advanced technologies for particle detection</i>
Lecturers:	Ilaria Vai + invited lecturers
Duration:	24 h
CFU:	4
Period:	March-May
Content:	<p>The objective of the course is to provide an overview of the state of the art in particle detection. Constraints of already well-established technologies will be analyzed and proposed R&amp;D to overcome these limitations will be discussed.</p> <p>Focus will be placed on a particular performance of detectors, such as could be, for example, time or space resolution, to proceed towards illustrating what impact an improvement in that performance has on the results achievable by an experiment. High-energy physics experiments that are already operational or proposed for the future, such as at future accelerators, will be used as case studies.</p> <p>In the final part of the course, non-HEP applications of new particle detection technologies will be examined.</p> <p>Main topics covered: experimental challenges at current and future HEP experiments; performance requested in terms of time and space resolution, ageing, ecc..; current performance of well-established particle detection technologies; R&amp;D in particle detectors; applications of particle detectors in non-HEP fields.</p>
Notes	The exam will consist of a presentation (20-30 minutes long) on a topic, closely connected to the content of the course.