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Trigger and DAQ: introduction to Trigger Systems

Wednesday, 21 October 2015 11:30 (1 hour)

This lecture is mainly devoted to introduce the students to the main key concepts one may know to understand how the trigger systems in HEP experiments work.

First we will describe the strong connections with the DAQ and the computing resources of an experiment, motivating the design of a trigger selection and providing the list of design parameters. The students will learn how to ensure good efficiency and effectively measure and monitor it. Many examples will be given, linked to current HEP experiments.

In the second part of the lecture, the students will review different trigger architectures and learn how to build a trigger system and scale it with the increased requirements. We will understand the separation in levels, and the different advantages of synchronous and asynchronous systems. An overview will be given of the helpful technologies, more or less available on the market, together with examples of hardware and software selections of present or future experiments.

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