

## High Level Trigger I

High Level Trigger (HLT) systems are acquiring a more and more prominent role in modern high-energy particle physics experiments. These systems are typically built as multi-purpose-computing clusters from mainly commodity hardware and have no or very relaxed latency requirements. Most if not all of the detector data is available for the trigger decision, which is based on online reconstruction of the event data. Both the reconstruction code and the trigger algorithms are typically written in a high-level programming language such as C or C++, with large parts of the code shared with the offline and/or data acquisition processing.

In these lectures we will detail the role of high level triggers in today's high-energy particle and nuclear physics experiments and discuss the ALICE High Level Trigger in more detail as an implementation example. The planned increased usage of HLTs in the future, including technological trends like the usage of graphics cards (GPUs) for reconstruction and trigger algorithms; and the move away from event selection to online reconstruction farms, will be discussed as well.

**Author:** KOLLEGER, Thorsten (Johann-Wolfgang-Goethe Univ. (DE))

**Presenter:** KOLLEGER, Thorsten (Johann-Wolfgang-Goethe Univ. (DE))

**Track Classification:** Instrumentation