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LHCb trigger system

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The Large Hadron Collider beauty experiment (LHCb) is a dedicated heavy flavour physics experiment at the LHC. The trigger system employs the finite lifetime and relative large mass of charm and beauty hadrons to distinguish heavy flavour and background from inelastic pp-scattering. The LHCb trigger is a two level system. The first level is implemented in hardware, it reduces the visible interaction rate to a maximum of 1MHz, at which the whole detector can be readout. The second trigger level is a C++ application running on an Event Filter Farm composed of several thousand CPU nodes. The full trigger is operational in the experiment. In this talk, an overview of the LHCb trigger system will be given. We put special emphasis on the experience obtained with the initial data taking at the LHC, and the commissioning and monitoring of the software trigger. The method to obtain the efficiency of the trigger from real data will be described, and first results will be presented.

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