

Alignment and calibration at the LHCb experiment

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The LHCb software trigger allows splitting the triggering of events in two stages, allowing to perform the detector alignment and calibration in real time. The real-time alignment and calibration procedure is a fully automatic procedure at LHCb that is executed at the beginning of each fill of the LHC. The alignment estimates the position of detector elements and is essential to achieve the best data quality. The procedure is implemented for the full tracking system at LHCb with the event reconstruction run as a multithreaded process ensuring consistency between triggered and offline selected events. The operational and technical aspects of this procedure during data-taking is discussed with the focus on the performance in the 2024 data-taking period where the first global tracker alignment was obtained.

Presenter: MITRESKA, Biljana (University of Manchester (GB))

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