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LHCb Calibration/Alignment

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In Run II of the LHC, a new scheme for the software trigger at LHCb 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 begining of each fill of the LHC. The alignment estimates the position of detector elements and the correct alignment contributes to achieve the best quality data for offline analysis. The procedure is implemented for the full tracking system at LHCb with the event reconstruction run as a multithreaded process. The procedure performs an update of the alignment constants, while the calibration constants are evaluated for each run. This allows identical constants to be used in the online and offline reconstruction and improves the correlation between triggered and offline selected events. The operational and technical point of view of this procedure during data-taking is discussed with the focus on performance and optimisations done regarding the new computing framework and the new detectors.

Presenter: MITRESKA, Biljana (Dortmund Tech. U.)

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