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Diamond Detectors in Beam Monitoring

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At the LHC at CERN diamond detectors are used at the 4 LHC experiments for the condition monitoring of the beams inside the detectors. At the accelerator they are located at different places to monitor losses which synchronised with the beam injection process, the extraction of the beams from the rings and the revolution period. For the event driven monitors the signals are recorded on the nanosecond scale for a duration of some milliseconds. Another acquisition modus counts single particle loss events and measures its arrival time in respect to the revolution period. This acquisition mode allows to monitor the bunch patterns and possible inter bunch intensity accumulations. These diamond based detectors operate at room temperature while for their application in the superconducting LHC magnets at 2 Kelvin test measurements are started. The actual statues of the employments the detectors will be given.

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