

Si detectors in the CMS tracker commissioning, operation and future perspectives

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Abstract

In the last century the Si detectors became the most popular vertex and tracking device used in all modern experiments at LHC and elsewhere. The outcome of many years of research and development resulted in the largest of all Si detector systems, the CMS tracker. Due to the harsh radiation environment during LHC running the Si detectors will degrade with time. To guarantee a long and successful operation period of the CMS tracker, a detailed monitoring program will be presented and in near future performed. First measuring sets will allow us to verify radiation damage concepts like the “Hamburg Model” and estimate the long term detector behavior. This knowledge will trigger strategies of treatment in the shut down periods to use the predicted annealing effects, which should possibly enlarge the running period and as such reduce the long term cost.