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Development of Upstream Tracker using MAPS for the LHCb Upgrade II

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The Upstream Tracker (UT) is a crucial component in the LHCb tracking system installed in the Upgrade I. The UT is a silicon microstrip detector that speeds up track reconstruction, reduces the rate of ghost tracks, and improves reconstruction of long-lived particles. LHCb is planning Upgrade II during Long-Shutdown 4 aiming at increasing the peak luminosity by a factor of 7.5. The event pile-up and occupancies will be far beyond the design of the current UT, while radiation damage and pattern recognition will also be challenging. The plan of a new UT using MAPS sensors is proposed. The major sensor technology options will be discussed. The digitization and simulation of the MAPS-based UT will be introduced. Based on the simulation, optmization of the system design is performed, and impact of various operation scenarios is studied.

Alternate track

I read the instructions above

Yes

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