

LHCb upstream tracker upgrade

The upgraded LHCb detector is planned to run at an instantaneous luminosity of $2 \times 10^{32} \text{cm}^{-2}\text{s}^{-1}$ and will have 40 MHz readout. In order to cope with the higher data rate, all the components of the LHCb tracking system are being replaced. In particular, the silicon microstrip detector system located upstream of the dipole magnet, (TT), is going to be replaced by the Upstream Tracker (UT). This system consists of four silicon microstrip planes, read out with custom made electronics (SALT128), currently being developed. The silicon-SALT128 hybrid circuits are connected with near-detector electronics via low mass flex cables. In order to maintain the silicon detectors at the required temperature, cooling is provided by an evaporative CO₂ system. Hybrids are mounted on low mass reinforced carbon fiber sandwiches called “staves.” Considerable progress has been achieved on the design of most of the components required for this system. In addition a program of irradiation and test beam studies was started last year. Key findings will be summarized.

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