



Contribution ID: 77

Type: **Contributed Talk**

## Design and Performance of Radiation Hard Silicon Sensors for the LHCb Experiment at CERN

*Thursday 15 September 2005 14:00 (15 minutes)*

The LHCb experiment at CERN depends critically on silicon sensors to provide vertex, tracking and trigger information. The environment the sensors will be operated in is unique amongst the next generation of LHC experiments; the sensors will be run in high vacuum conditions and will receive a high radiation dose. The design of the sensors for LHCb is described, together with the criteria that must be met.

The technological solution for the first generation of vertex detector for LHCb is n+n (n implants in n bulk) silicon with radial and azimuthal geometry. Details of the performance of the sensors are given.

Further enhancements to the design are discussed with particular attention to the fabrication of large scale n+p sensors. These sensors are prototypes sensors which could be used in a potential LHCb upgrade

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**Session Classification:** S12 : New Solid-State Detector Technologies

**Track Classification:** New Solid-State Detector Technology