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Characterization of irradiated epitaxial silicon sensors at the DESY test beam

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Summary

The need of precision vertexing in the radiation environment of high luminosity colliders demands the development of solid state detectors that can withstand unprecedented fluences. While the innermost layers of such detectors will probably be build using alternative materials and configurations, the planar silicon technology is likely to be used to construct the outer layers due to its reliability and cost effectiveness. Thin epitaxial silicon sensors have shown a minor degradation of the charge collection efficiency with irradiation, when compared to thicker devices. In this talk the first results of the characterization of epitaxial silicon strip sensors with a thickness of 100 μm irradiated up to a fluence of $1.3 \times 10^{16} \text{ n}\gamma/\text{cm}^2$ using the data from a test beam campaign conducted at DESY are shown.

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