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Design, characterization and beam test performance of different silicon microstrip detector geometries

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During the last few years a large number of Silicon Microstrip Detectors have been especially designed and tested in order to study and optimize the performances of the tracking devices to be used in the forward-backward part of the CMS experiment. Both single and double sided silicon detectors of trapezoidal ("Wedge") shape and with different strips configuration, including prototypes produced with double metal technology, have been characterized in laboratory and tested using high energy beams.

Furthermore, due to the high radiation environment where the detectors should operate, particular care has been devoted to the study of the characteristics of heavily irradiated detectors.

The main results on detector performances (charge response, signal to noise ratio, spatial resolution etc.) will be reviewed and discussed.