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Test beam studies of passive CMOS strip sensors

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Future particle physics experiments are motivated by the increase in luminosity and thus the need for intelligent tracking detectors providing fast track and momentum information to select events of interest. The next generation tracking detectors are mostly all silicon detectors and thus finding a cost effective solution to maximize the output is important. Therefore the commercial CMOS technology for silicon strip sensors is a prime candidate as it allows the use of large and high-resistive wafers and also provides the advantage of easier production and faster fabrication.

In this contribution, the test beam measurements of novel passive CMOS silicon strip sensors performed at the DESY-II test beam facility are presented.. The sensor is processed by a European foundry, in a 150 nm CMOS technology and has three different strips design to study. The sensors have two different strip lengths and are formed by stitching of individual reticles. The main focus of this test beam measurement on the passive CMOS sensors is to study the charge collection, to determine the hit detection efficiency and to examine the performance of the stitching.

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