

Passive CMOS Strip Sensors with Multiple Stitching

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Two current issues with Silicon particle sensors are the high cost, making them a cost driver, and the limited availability from only a few manufacturers. Most CMOS foundries are equipped for producing small chips only. To obtain larger sensors as required in strip trackers, reticles have to be connected by stitching. In our study, passive strip sensors were developed in p-CMOS 150 nm technology on a 150 μm thick wafer and produced by a European manufacturer. Stitching of up to 5 different reticles was used. Sensors were characterised on probe stations and then tested in the lab with Sr-90 sources and IR-lasers. We will present position-resolved signal measurements to evaluate the sensor performance. Results from 2 batches of sensors are shown in this study, with an improved backside processing on the 2nd batch of sensors to enhance the HV performance of the initial batch. We are able demonstrate that the sensors perform well and stitching does not show negative effects.

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