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Qualification of a new supplier for silicon particle detectors

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Silicon based sensors have become the dominant technology for the tracking systems of most modern particle physics experiments. The demand for these sensors is increasing and the existing production capabilities might not be sufficient to fulfill the demands of the future upgrades of the LHC experiments.

To establish a new supplier for the production of silicon strip and pixel sensors a process for p-on-n strip sensors has been developed in a cooperation between the Institute of High Energy Physics of the Austrian Academy of Sciences (HEPHY) and the European semiconductor manufacturer Infineon Technologies Austria AG.

Summary

The first prototype runs have shown a promising quality with only a small fraction of weak channels. After an extensive electrical characterization, the performance of several sensors has been evaluated during beam tests with hadrons at CERN and electrons at DESY. The results of both beam tests, which confirm the good quality of the sensors, will be presented.

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