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High-Precision Tracking with Large Pixels using Thin Resistive Silicon Detectors

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The implementation of resistive read-out in the design of silicon sensors places built-in charge sharing among neighboring pixels as the basic principle of operation. Resistive Silicon Detectors (RSD), exploiting the signals seen on the electrodes surrounding the impact point, achieve micron-level position resolution even with very large pixels. In this paper, results obtained with sensors from the second RSD production at the Fondazione Bruno Kessler are presented. A position resolution better than 3% of the pixel size is obtained for pitch ranging from 200 to 1300 μm.

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