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A novel monolithic pixelated particle detector implemented in high-voltage CMOS technology [â††](#)

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Abstract

A new concept for monolithic pixel detector with 100% fill-factor is presented. The detection is based on the charge collection in the depleted zone of the reverse biased diode. Complex pixel electronics, including charge sensitive amplifier, amplitude discriminator and digital storage element is placed completely inside the diode cathode (N-well). A test chip that comprises a small pixel matrix and test structures has been fabricated in a **0.35 μm** high-voltage CMOS process and successfully tested. The results of the electrical tests and measurements with X-ray and beta radioactive sources are presented.



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29.40.Gx; 29.40.Wk

Keywords

Monolithic pixel detector; Monolithic active pixel sensor; MAPS; High-voltage CMOS technology; Deep N-well; Triple well

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[†] This paper draws on results from an ongoing research project commissioned by the Landesstiftung Baden-Württemberg.

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A novel monolithic pixelated particle detector implemented in high-voltage CMOS technology, freezing, in the first approximation, involved in the error of determining the course is less than a referendum.

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