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Simulations of guard ring designs for n-on-p sensors and of 3D detectors

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Electrical simulations have been performed with the Synopsys Sentaurus TCAD to develop a guard ring structure that minimizes the electric field throughout the periphery of an n-on-p silicon particle detector. The behavior of the breakdown voltage has been studied as the function of the radiation fluence, the field plate length, and the oxide thickness.
Preliminary results of the performance of 3D detectors after irradiation will also be presented.

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