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## **TCAD simulation and test results of neutron irradiated OVERMOS, a CMOS 180nm MAPS detector**

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We will present latest results of dark current (I-V) and charge collection efficiency (CCE, obtained using a calibrated laser source) of OVERMOS, a high resistivity TJ 180nm CMOS MAPS, irradiated with neutrons up to  $1e15 \text{ cm}^{-2}$  fluence. Results of charge collection within the  $40 \times 40 \text{ um}^2$  pixel region, with  $5 \text{ um}$  resolution, and charge collection time will be shown.

Test results are compared with 3D TCAD results using a device structure obtained through process simulator SPROCESS and using SDEVICE for electro/optical simulations. Implemented models in TCAD include  $\text{SiO}_2$  and  $\text{CoSi}_2$  optical attenuation, Si/SiO<sub>2</sub> surface traps model and HPTM (Hamburg Penta Traps Model) for bulk radiation damage.

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