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Mupix: A Monolithic Pixel Sensor for the Mu3e Experiment

Mupix8 is the latest and largest prototype of a High Voltage-Active Monolithic Active Pixel Sensor (HV-MAPS) based on the 180 nm HV-CMOS process from AMS. It was developed for the Pixel Tracker of the Mu3e-Experiment at PSI which will search for the lepton flavor violating process $\mu \rightarrow e e \gamma$ with unprecedented sensitivity.

The Mupix8 prototype has a size of $2 \times 1 \text{ cm}^2$, integrates about 25000 cells with a active pixel size of $80 \times 80 \mu\text{m}^2$, a data driven readout and several 1.25 Gbit/s serializer.

After a short introduction to the Mu3e experiment and the requirements of the ultra-light Pixel Tracker the Mupix design and results obtained with several Mupix prototypes are discussed.

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