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Development of HV-MAPS detectors at the University of Liverpool

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The industry standard High Voltage-CMOS (HV-CMOS) technology is emerging as a very attractive option to track particles in planned future high energy physics experiments. Tracker detectors in HV-CMOS technologies combine in the same substrate material a high bias voltage to create a large depleted sensing volume, which enables fast charge collection by drift and high radiation tolerance, and high integration density of CMOS electronics. Novel developments have shown the feasibility of fully monolithic HV-CMOS detectors, the so-called High Voltage-Monolithic Active Pixel Sensors (HV-MAPS), which integrate analog and also digital processing front-end electronics in the same sensor chip either at the sensor matrix periphery or inside the pixel area, thus suppressing the need for bump bonded or glued readout chips.

In this talk, I will report on recent submission plans and results from HV-MAPS detectors developed by a collaboration of institutes that includes the University of Liverpool.

TRACK

CMOS Sensors

Authors: VILELLA FIGUERAS, Eva (University of Liverpool (GB)); CASSE, Gianluigi (University of Liverpool (GB)); POWELL, Sam (University of Liverpool); VOSSEBELD, Joost (University of Liverpool (GB)); WONSAK, Sven (University of Liverpool (GB)); ZHAN, Chenfan (University of Liverpool)

Presenter: VILELLA FIGUERAS, Eva (University of Liverpool (GB))

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