

New results from fast timing iLGAD sensors on Timepix4

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With the High-Luminosity Large Hadron Collider (HL-LHC) the number of events per bunch crossing increases. This sets new requirements for the detectors. To distinguish all the tracks from quasi simultaneous collisions time information must be used in addition to spatial information. This requires an intensive R&D program. We aim to reach a time resolution of the order of 50 ps for silicon pixels of area smaller than $55 \times 55 \mu\text{m}^2$. This presentation shows the latest results of a novel type of sensor (iLGAD inverted Low Gain Avalanche Detector). This hybrid pixel sensor is connected to a Timepix4 ASIC. Timepix4 is a hybrid pixel detector made to reach sub-200 ps time binning on each pixel. It has a 448×512 pixel matrix with square pixels at a $55 \mu\text{m}$ pitch.

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