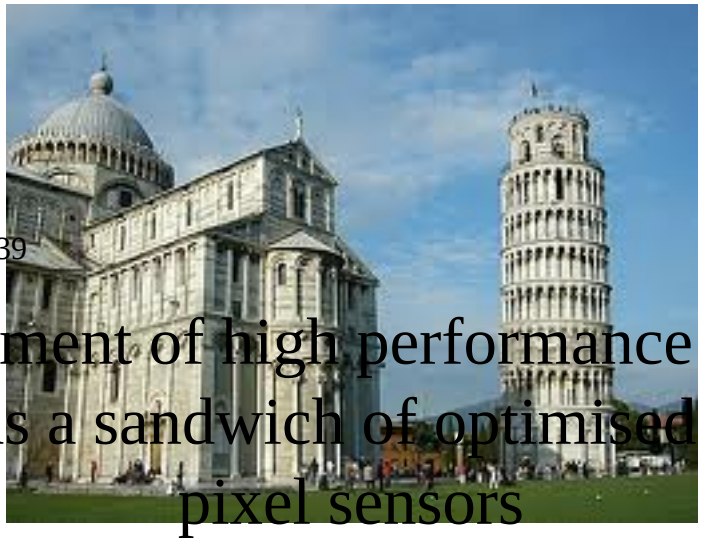
WIT2012 Workshop on Intelligent Trackers



Contribution ID : 39

Development of high performance tracking layers as a sandwich of optimised CMOS pixel sensors

Thursday 03 May 2012 at 20:00 (01h00')

Content :

We propose to enhance the performances of tracking layers by building a sandwich of low power time-integrating CMOS pixel sensors. Sensors equipping one side of the layer offer a high spatial resolution (few μm), while the sensors on the other side focus on the time resolution (few μs). The whole device targets a material budget lower than 0.5 % of X0.

We will present the in-beam test results of a double-sided ladder featuring 8 millions of pixels (18.4 × 18.4 μm2) read-out in 110 μs and an equivalent thickness of 0.6 % of X0, build by the PLUME collaboration. Plans to reach 0.3 % of X0 will also be discussed.

We will then review the development of CMOS pixel sensors with various optimisations with respect to the spatial or time resolution. Especially the road to reach a few microseconds read-out time, while maintaining the power budget at the few μW per pixel level will be described.

The conclusion will show possible implementation of these double-sided tracking layers.

Summary :

See attached file.

Primary authors : BAUDOT, Jerome (Institut Pluridisciplinaire Hubert Curien (FR))

Co-authors : Dr. GREGOR, Ingrid (Deutsches Elektronen-Synchrotron (DE)) ; Dr. GOLDSTEIN, Joel (University of Bristol (GB)) ; WINTER, Marc (Institut Pluridisciplinaire Hubert Curien (FR)) ; BESSON, Auguste Guillaume (Institut Pluridisciplinaire Hubert Curien (FR)) ; GAULD, Rhorry (University of Oxford) ; Dr. SENYUKOV, Serhiy (Institut Pluridisciplinaire Hubert Curien (FR)) ; Dr. NOMEROTSKI, Andrey (University of Oxford (GB))

Presenter : BAUDOT, Jerome (Institut Pluridisciplinaire Hubert Curien (FR))

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