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TANGERINE - First test-beam result on MAPS prototypes in 65 nm process

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The characteristics of the Monolithic Active Pixel Sensors such as small thicknesses, pixel pitches and cost have made this detector type increasingly attractive for applications in high energy physics in recent years. The TANGERINE project at DESY aims to push research in this field in order to develop a fully integrated 65 nm CMOS pixel chip for future application in beam-test facilities or Higgs factories, aiming for a spatial resolution below 3 µm and a time resolution on the order of 1 ns.
First 65 nm CMOS test chips with 4 pixels of 16 µm pitch and analog readout are investigated. Initial analysis of data obtained at the DESY II, CERN SPS, and MAMI beam-test facilities are reported. A 10 GSa/s oscilloscope is used to record the analog pulses, allowing for detailed waveform analysis.

Author: VIGNOLA, Gianpiero (Deutsches Elektronen-Synchrotron (DE))

Co-author: Dr FEINDT, Finn (Deutsches Elektronen-Synchrotron (DE))

Presenter: VIGNOLA, Gianpiero (Deutsches Elektronen-Synchrotron (DE))

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