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A system for characterisation of DEPFET silicon pixel matrices and test beam results.

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The DEPFET pixel detector offers first stage in-pixel amplification by incorporating a field effect transistor in the high resistivity silicon substrate. In this concept, a very small input capacitance can be realized thus allowing for low noise measurements. This makes DEPFET sensors a favorable technology for tracking in particle physics. Therefore a system with a DEPFET pixel matrix was developed to test DEPFET performance for an application as a vertex detector for the Belle II experiment. The system features a current based, row wise readout of a DEPFET pixel matrix with a designated readout chip, steering chips for matrix control, a FPGA based data acquisition board, and a dedicated software package. The system was successfully operated in both test beam and lab environment. In 2009 new DEPFET matrices have been characterized in a 120 GeV pion-beam at the CERN SPS.

The talk will cover the current status of the DEPFET system, test beam results and progress in the development of the new system is presented.

Summary (Additional text describing your work. Can be pasted here or give an URL to a PDF document):

http://cern.ch/fourl/vci2009_summary.pdf

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