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Beam Test Results of Thin n-in-p 3D and Planar Pixel Sensors for the High Luminosity LHC Tracker Upgrade at CMS

The poster will describe the development of new 3D and planar pixel detectors for the LHC Phase-2 upgrades, funded by INFN and made in collaboration by FBK foundry. The sensors, which are 100µm and 130µm thick n-in-p type, are assembled into hybrid single chip modules bump bonded to the PSI46dig readout chip. Results from beam tests performed at FTBF (Fermilab Test Beam Facility) obtained with modules before and after irradiation up to 5e15 neq/cm2 will be described. We will also report on the first results obtained with 3D pixel sensors 130µm thick with columnar electrodes for different pixel cell prototypes. The 3D prototypes have different unit pixel cell size, ranging form the standard 100µm x 150µm as used in the present CMS Pixel Tracker, down to 50µm x 50µm and 25µm x 100µm which are most favoured dimensions for the High Luminosity upgrade of the pixel tracker.

Experimental Collaboration

CMS

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