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New test beam results of 3D detectors constructed with poly-crystalline CVD diamond

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The latest test beam results of 3D detectors fabricated with poly-crystalline chemical vapor deposition (CVD) diamonds will be shown. The devices have 50μm $\times$ 50μm cells with columns 2.6μm in diameter. In one of the devices the cells were ganged in a 3×2 cell pattern and in the other the cells were ganged in a 5×1 cell pattern to match the layouts of the pixel read-out chips currently used in the CMS and ATLAS experiments at the LHC, respectively. In beam tests, using tracks reconstructed with a high precision tracking telescope, both devices achieved tracking efficiencies greater than 97\%. In the same beam tests, the first pulse height distributions from poly-crystalline CVD diamond 3D pixel devices were measured and will be presented. Finally, the latest test beam results of irradiated poly-crystalline CVD diamond pad and pixel detectors will be presented.

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