

Test Beam Results of 3D Detectors in CVD Diamond

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Detectors based on Chemical Vapor Deposition (CVD) diamond have been used extensively and successfully in beam conditions/beam loss monitors as the innermost detectors in the highest radiation areas of Large Hadron Collider (LHC) experiments. Over the last two years the RD42 collaboration has constructed a series of 3D detectors using CVD diamond as the active material and laser fabricated columns in the bulk and characterized them in test beams. As a result, the 3D geometry in diamond has been measured to collect more than two times the charge of a standard planar diamond device. 3D cell sizes from 100um x 150um down to 50um x 50um have been tested. The electrical properties and beam test results of the latest 3D devices will be presented.

Primary authors: KAGAN, Harris (Ohio State University (US)); TRISCHUK, William (University of Toronto (CA))

Presenter: KAGAN, Harris (Ohio State University (US))

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