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Tracking the time: Single pixel 50µm pitch 3D cell time resolution map

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The proven radiation hardness of 3D technologies up to fluencies exceeding $1x10^{16}n_{eq}/cm^2$ makes them a prime candidate for next generation high energy physics experiments. In addition, the decoupling of the charge generation and drift volumes unique in these structures, provides excellent timing characteristics without radiation hardness comprise or the need for additional amplification layers. In this study, results are presented using 160GeV SPS pions to examine the time resolution uniformity, efficiency and fill factor for a single cell 50µm pitch structure. The various technical aspects, including synchronisation with the EUDAQ system and instrumentation integration are also discussed and the analysis framework is presented.

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