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TDAnalyser - A Practical Framework and Its Applications in Test Beam Timing Analysis

Tuesday 20 May 2025 10:00 (20 minutes)

We present a novel framework for the processing of test beam data, and in particular timing DUTs. Based on a modular C++ architecture, it aims to normalise workflows for the analysis of timing detectors performances through the definition of standard and user-defined analyses, e.g. from time discrimination algorithms to a full estimation of time resolution, through the extraction of inter-channel correlations. Thanks to its geometry management system, it also allows the visual monitoring of channel occupancy, or the interfacing to external tracking algorithms to produce high-level information from simple waveforms or user-specific collections. A modular extension platform provides, e.g. the definition of unpacking algorithms for specific oscilloscope output formats, the combination of multiple sources into a global event content, or the extraction of calibration parameters from a fraction of the dataset.

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