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K4DetPerformance: A Framework for Tracking Performance Studies in Full Simulation Environments

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K4DetPerformance is a framework designed to study tracking performance within full simulation environments. Initially developed for the CLD detector for FCC-ee, K4DetPerformance has now been integrated into the Key4hep software stack. Current efforts are focused on extending its applicability to other detectors.

The framework requires a complete simulation and reconstruction setup. It employs Condor for running simulations and reconstructions, uses FCCAnalyses for handling RDataFrame, and matches reconstructed tracks to simulated particles. The framework supports plotting options, including the ability to superimpose plots and ratios for comparative analysis.

K4DetPerformance provides a robust solution for tracking performance evaluation and has become an essential tool for detector performance studies across different detector models within the Key4hep software ecosystem.

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