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Impact of tracker layout and algorithmic choices on cost of computing at high pileup. (12' + 3')

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High luminosity operation of the LHC is expected to deliver proton-proton collisions to experiments with average number of pp interactions reaching 200 every bunch crossing. Reconstruction of charged particle tracks with current algorithms, in this environment, dominates reconstruction time and is increasingly computationally challenging.

We discuss the importance of taking computing costs into account as a critical part of future tracker designs in HEP as well as the importance of algorithms used.

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