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PRIMARY VERTEX RECONSTRUCTION WITH THE ATLAS DETECTOR

Efficient and precise reconstruction of the primary vertex in an LHC collision is essential in both reconstruction of the full kinematic properties of a hard-scatter event and in reconstruction of soft interactions as a measure of the amount of pile-up. The reconstruction of primary vertices in the busy, high pile-up environment of Run-2 of the LHC is a challenging task. The algorithms developed by the ATLAS experiments to reconstruct vertices in such environments, in particular the reconstruction of multiple vertices with small spatial separation, will be presented. Additionally data-driven methods to evaluate vertex resolution will be presented with a special focus on correct methods to evaluate the effect of the beam spot constraint; results from these methods in Run-2 data will be presented.

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