

# NEC'2019



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## Hit Reconstruction Improvement in the Cathode Strip Chambers of the CMS Experiment

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The reconstruction of charged particle trajectories in the CMS endcap muon system is based on hits detected by the Cathode Strip Chambers (CSCs). The reconstruction procedure for these multilayer detectors can be divided into two main parts: the reconstruction of hits on each layer, and the assembly of track segments within the chambers from the reconstructed hits. At the HL-LHC the increased luminosity implies higher muon and background rates which, without improvement of the existing hit reconstruction algorithm, may deteriorate the present performance of the CSC system. On one hand, the increasing hit rates will require a better precision in the identification of two or more particles that pass very close to each other. On the other, upgraded readout electronics for the CSCs provide options for improved reconstruction which have not yet been fully exploited in the offline software. Some proposed solutions for these issues, together with figures comparing the standard and improved reconstruction algorithms, are presented here.

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