

Dependence of primary vertex finding on multiplicity

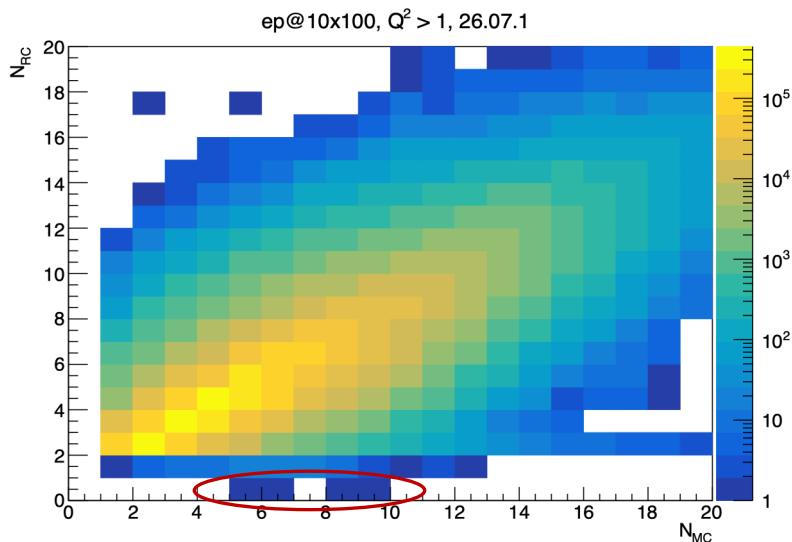
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Simulation samples

- **ep, 10x100, NC DIS, $Q_2 > 1$**
- Without machine background
 - RECO/26.07.1/epic_craterlake/DIS/NC/10x100/minQ2=1
 - 3.8M events
- Default: primary vertices are found **using tracks with at least 4 hits**

Correlation of multiplicity

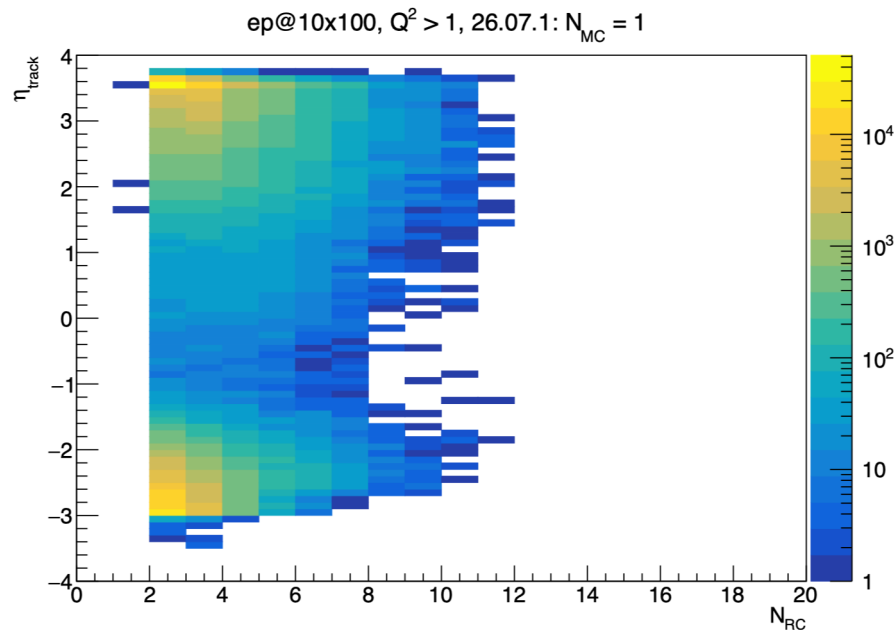
- In case of multiple RC vertices, choose the one with the smallest χ^2/ndf
- N_{MC} : # of charged final-state MC particles within $|\eta| < 3.5$ and originating from MC vertex
- N_{RC} : # of tracks associated with the RC vertex



- RC vertex can have 1 associated track
 - Vertex position is close but not exactly at the track's DCA point ("ReconstructedChargedParticles.referencePoint")
- But how could it have 0?

Events with $N_{MC} = 1$

- In case of multiple RC vertices, take all of them



- Two main sources for more RC tracks than MC particles
 - Outside of $|\eta| < 3.5$
 - Intermediate particles with Status = 0