Run14 P18ih Production Comparison

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JETCORR MEETING, 05/03/19

Production Comparison

- Compare P16id, P17id, P18if, and P18ih (most recent)
  - Only choose events from P16id which have no HFT hits
  - Study events which all productions share (~130k Events)

- **P16id** -> Full production, with HFT. Nominally no problems

- **P17id** -> MB/HT Triggers, NO HFT, Tracking Bug and wrong vertex finding parameters

- **P18if** -> Test Production (Runday 110, low lumi), NO HFT, Tracking Bug but fixed vertex finding parameters

- **P18ih** -> MB/HT Triggers, NO HFT, "Fixed Jetcorr Tracking Bug" and appropriate vertex finding parameters
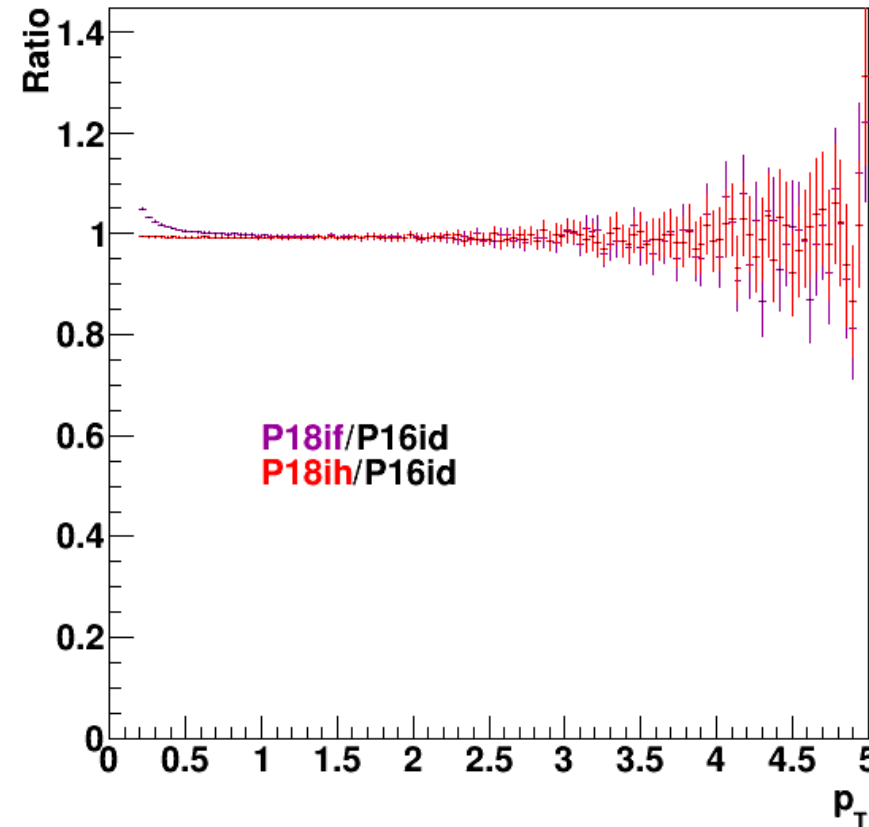
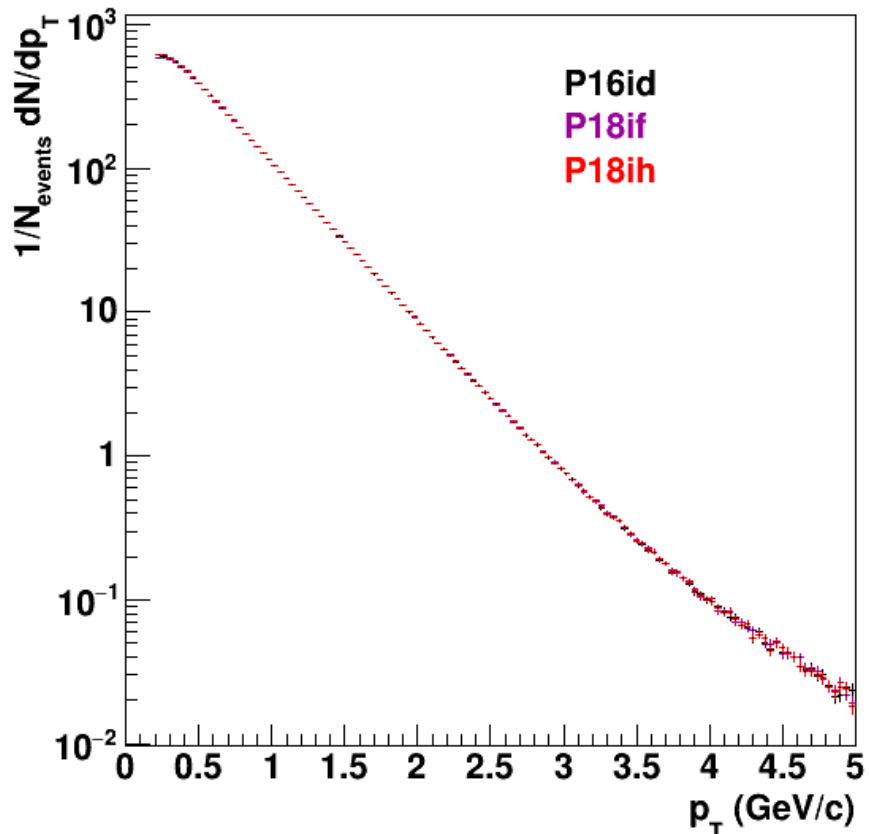# Number of Global/Primary Track Comparison (no QA cuts)
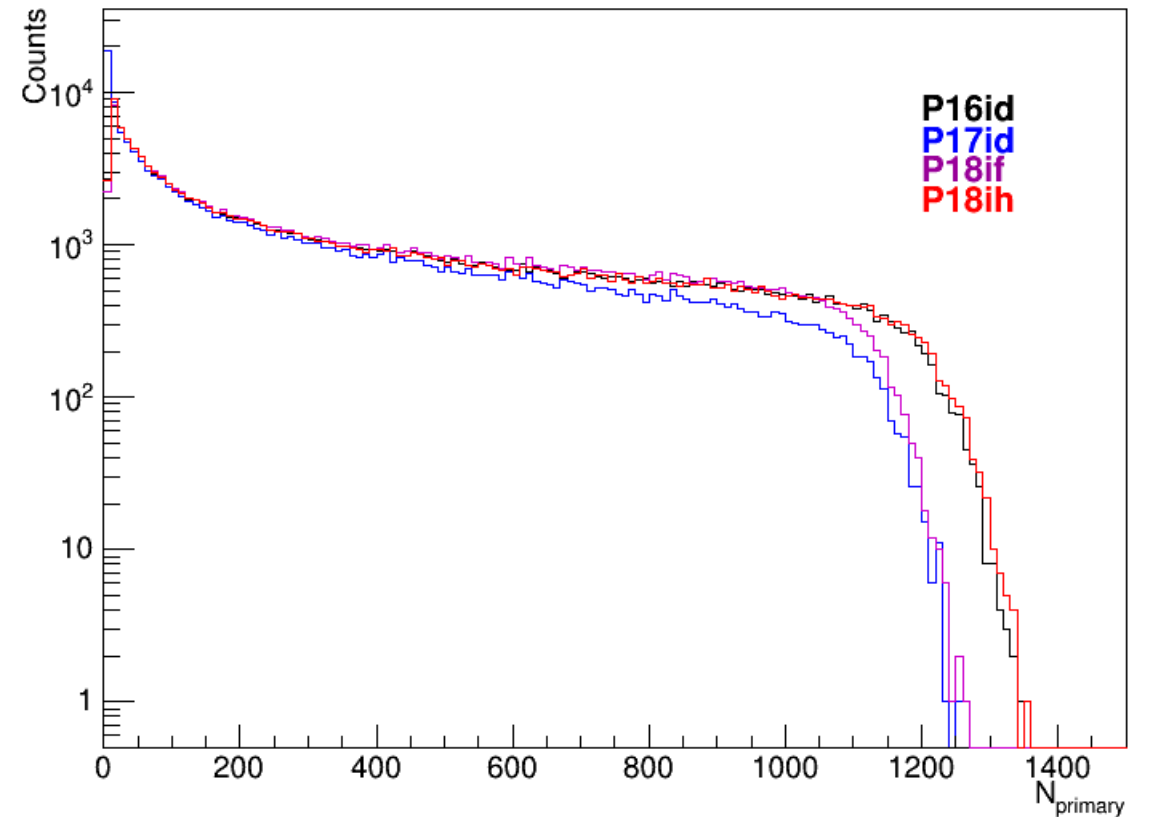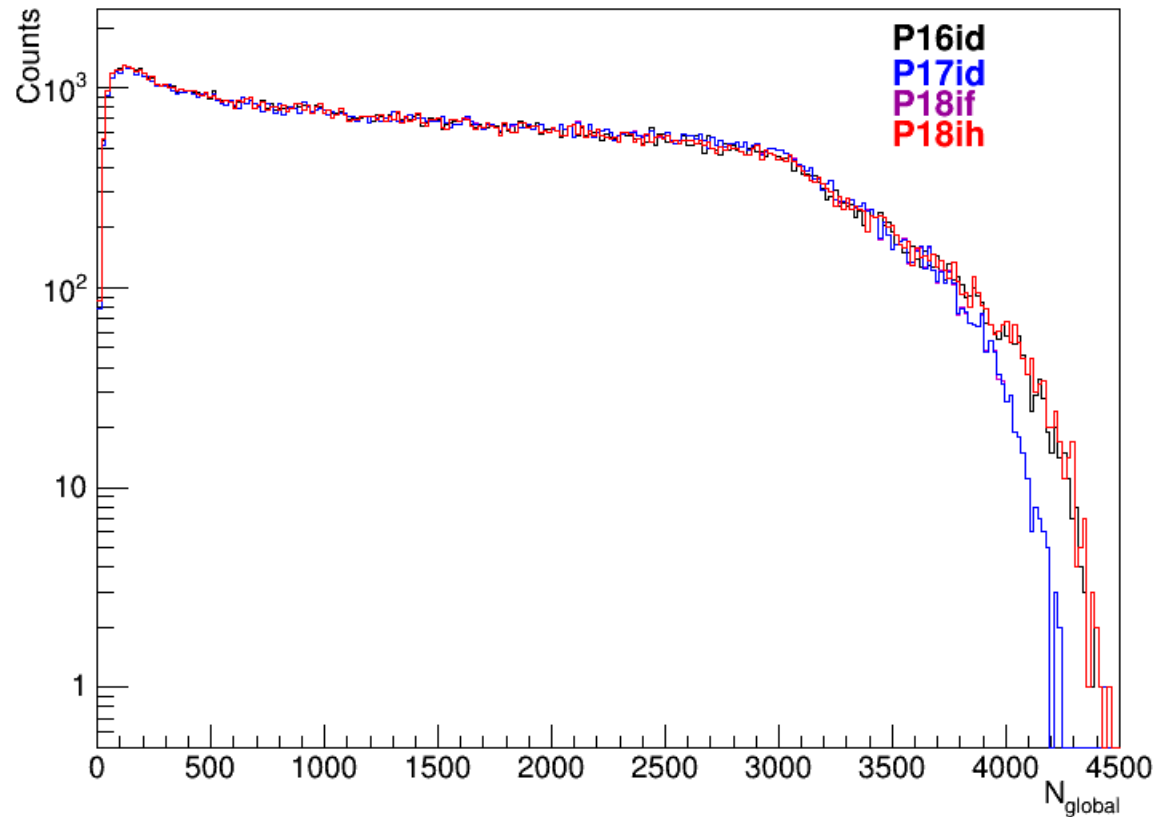
Number of Vertices
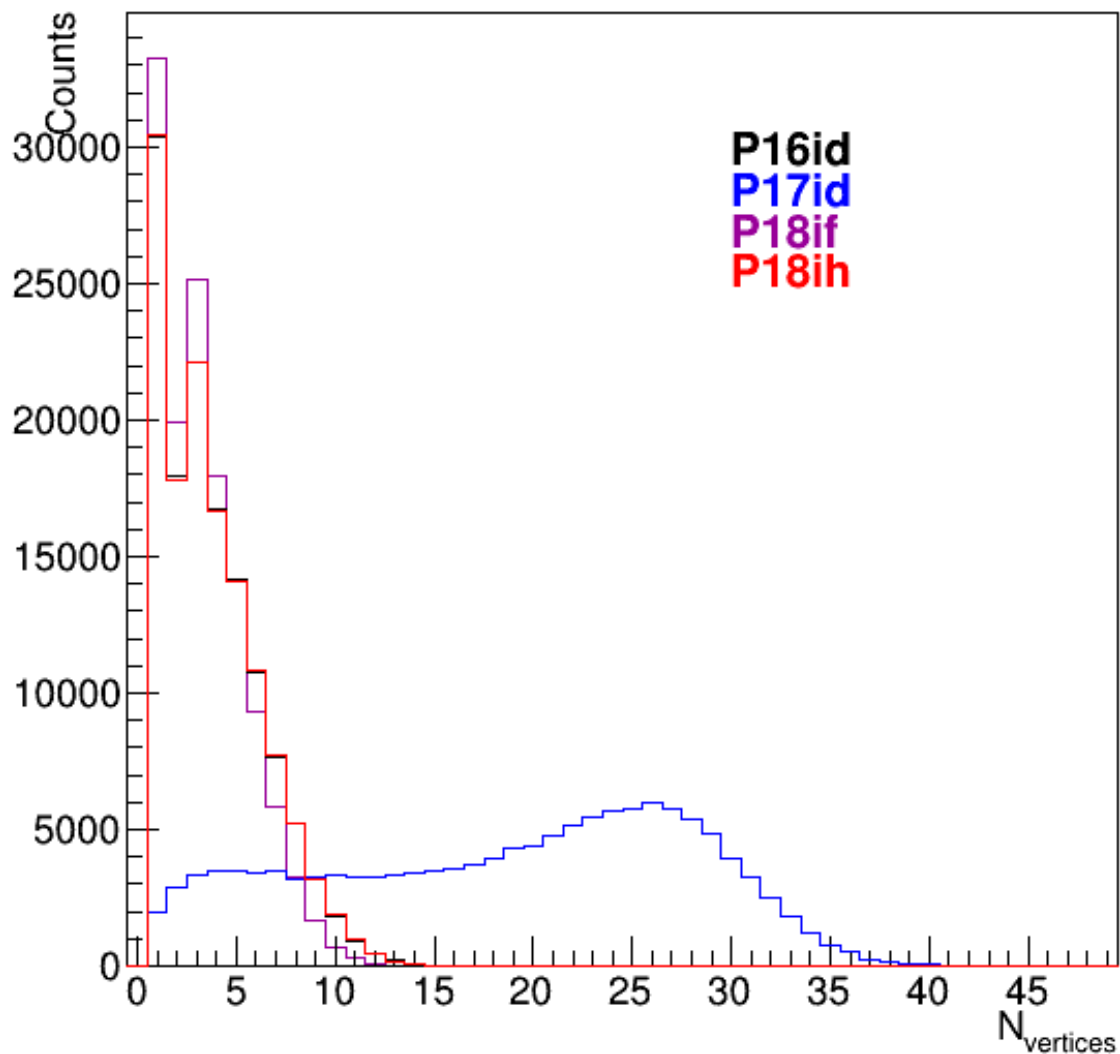
- **P17id** has wrong vertex finding parameters

- **P18if** has appropriate vertex finding parameters, but there is still a disagreement in the distributions due to the tracking bug

- **P18ih** has strong agreement with number of vertices

p_T Spectra

- p_T spectra of primary tracks comparison between productions with same vertex finding parameters (over all centralities

- **P18if** (tracking bug) has enhancement at low p_T

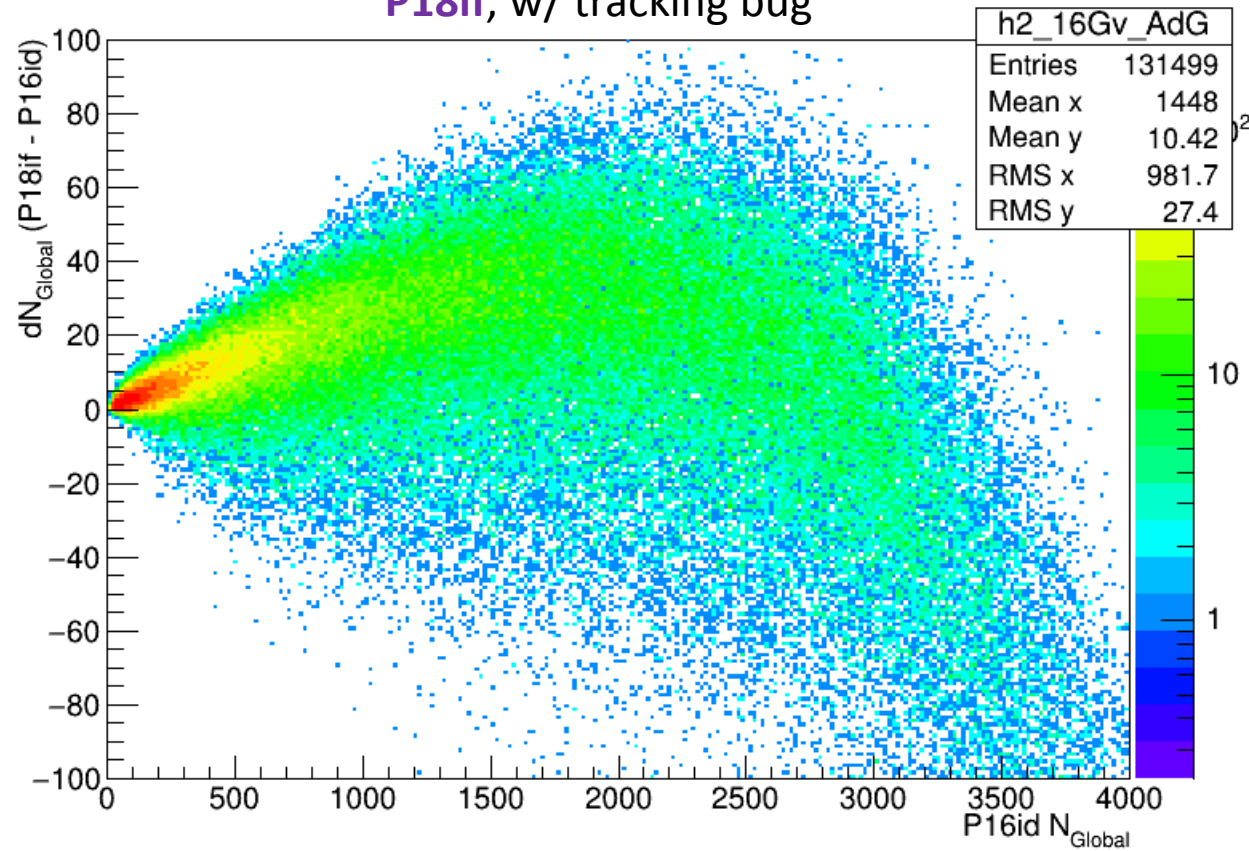- **P18ih** (new production) has good agreement with **P16id**

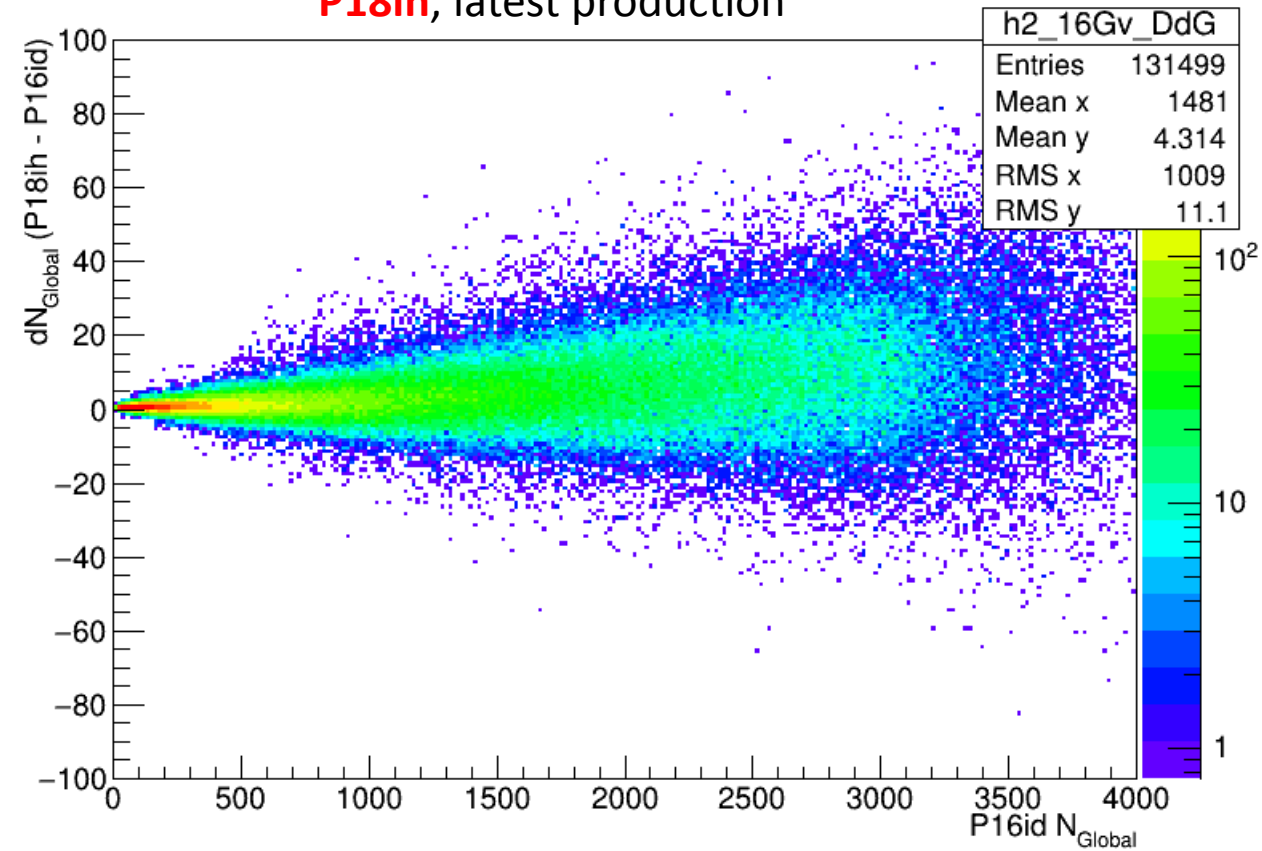# Event by Event Comparisons for Number of Globals/Primaries
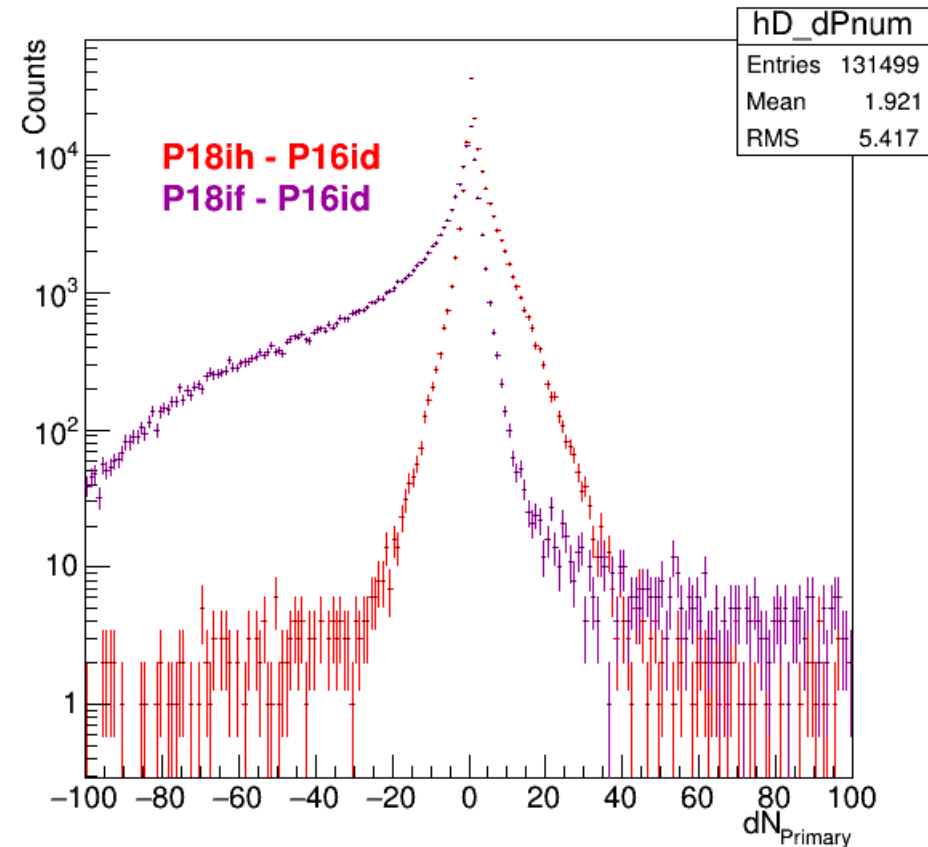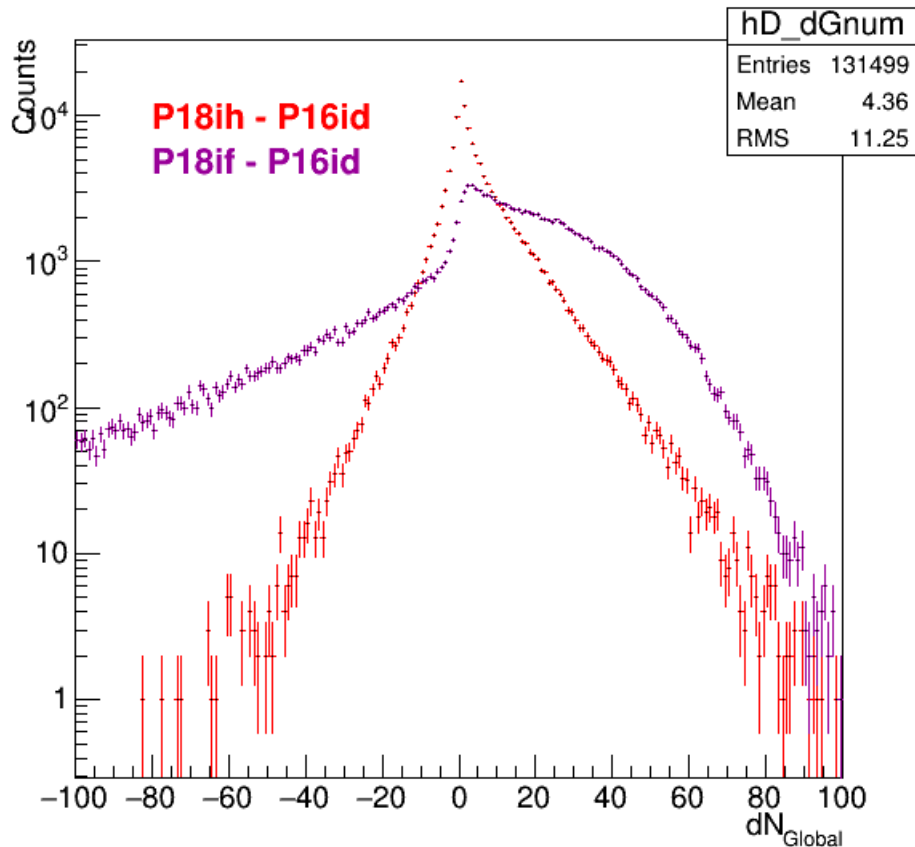
• **Purple** -> Tracking Bug Comparison to P16id

• Red -> New Production (tracking bug fixed) Comparison to P16id

Difference in number of Globals vs P16id Number of Globals
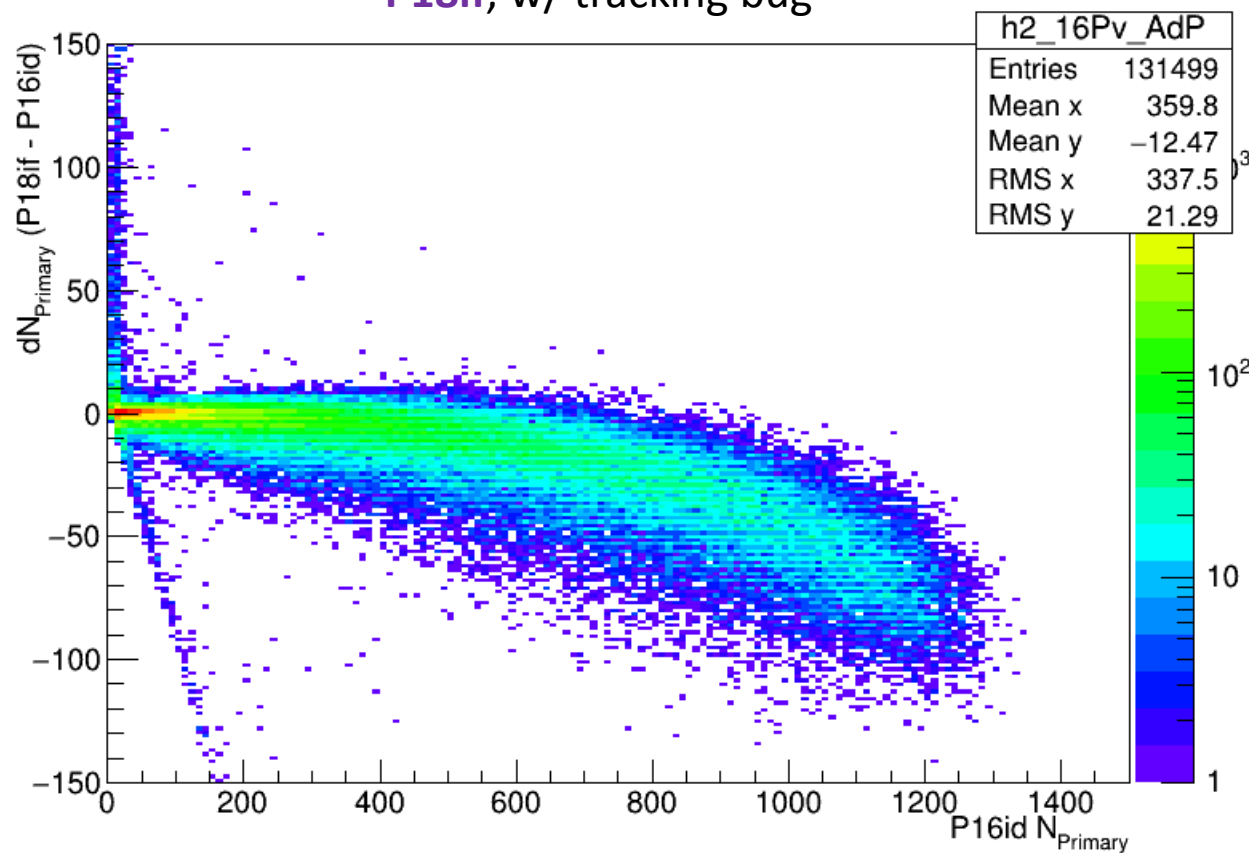

P18if, w/ tracking bug

h2_16Gv_AdG	
Entries	131499
Mean x	1448
Mean y	10.42
RMS x	981.7
RMS y	27.4

P18ih, latest production

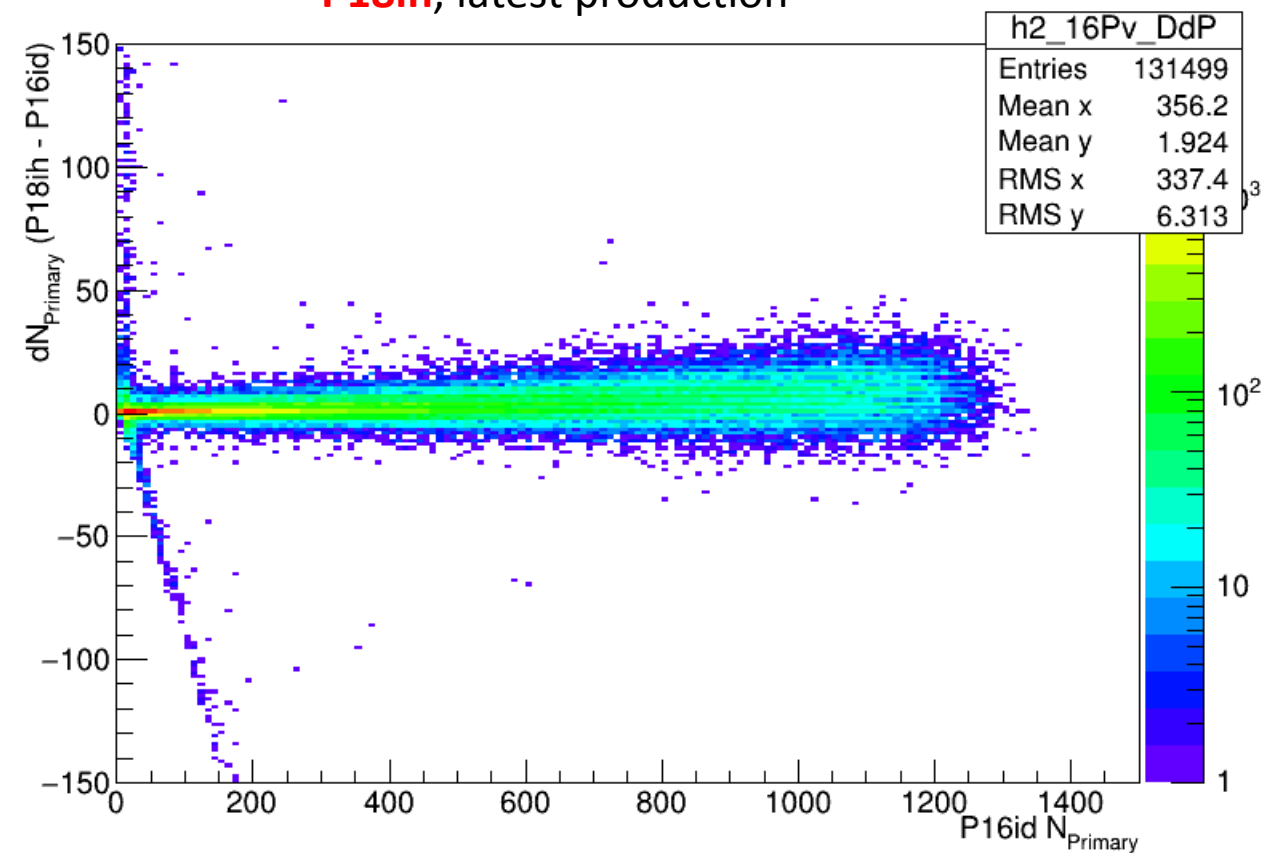| h2_16Gv_DdG	
Entries	131499
Mean x	1481
Mean y	4.314
RMS x	1009
RMS y	11.1

Difference in number of Primaries vs P16id Number of Primaries

P18if, w/ tracking bug

P18ih, latest production

Summary

- The new production, P18ih has fixed the two problems noticed in P17id

- P18ih, for the events selected, has good agreement with P16id

- Tracking before and after the bug is not identical, but functionally similar