p_T espectra and multiplicity vs centrality in Pb-Pb collision at $\sqrt{s_{NN}} = 5\,TeV$

Analysis Update

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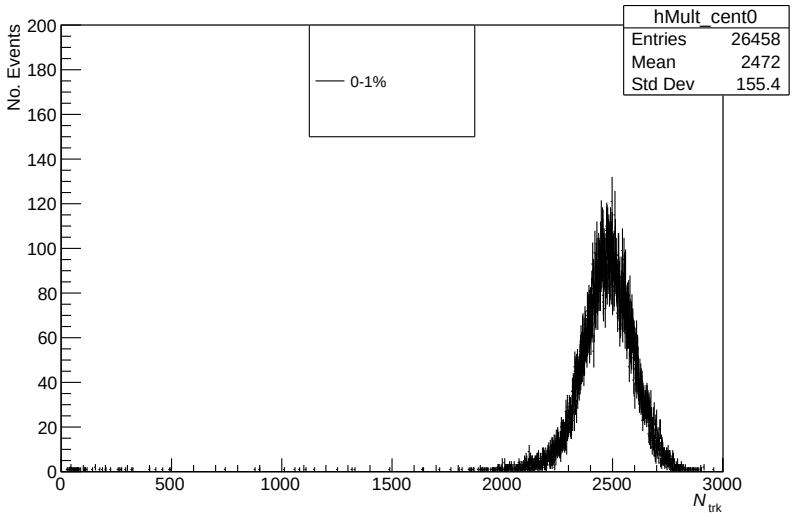
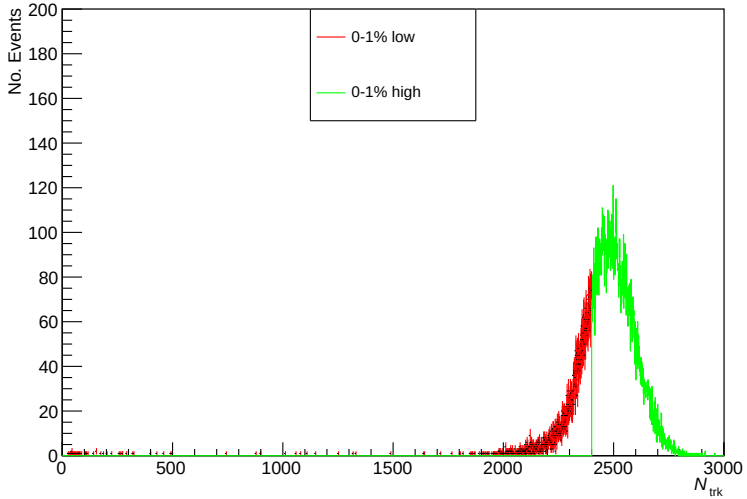
1 pT Ratios

Last week...

- We want to study the p_T distribution of low and high multiplicity separately.



(a) Before



(b) After

Ratios low/high

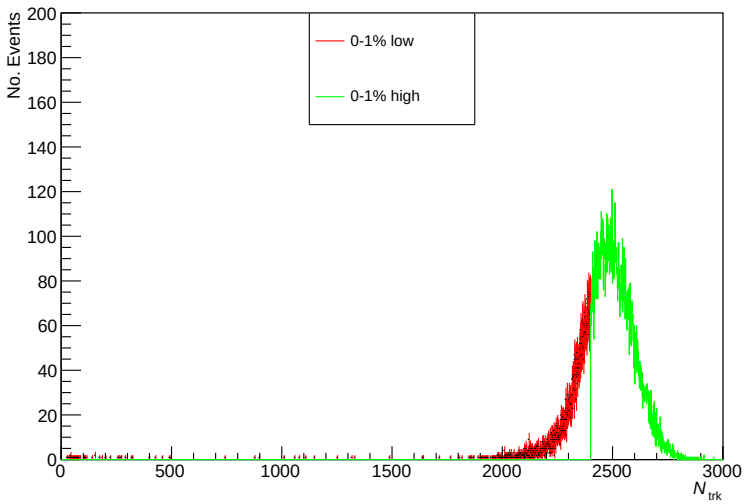
- Now, we want to study the p_T ratios low/high
- As before, we define

$$R_{lh,i} := \frac{\left(\frac{1}{N_{ev}}\frac{d^2N}{dp_T d\eta}\right)_{\text{low},i}}{\left(\frac{1}{N_{ev}}\frac{d^2N}{dp_T d\eta}\right)_{\text{high},i}}$$

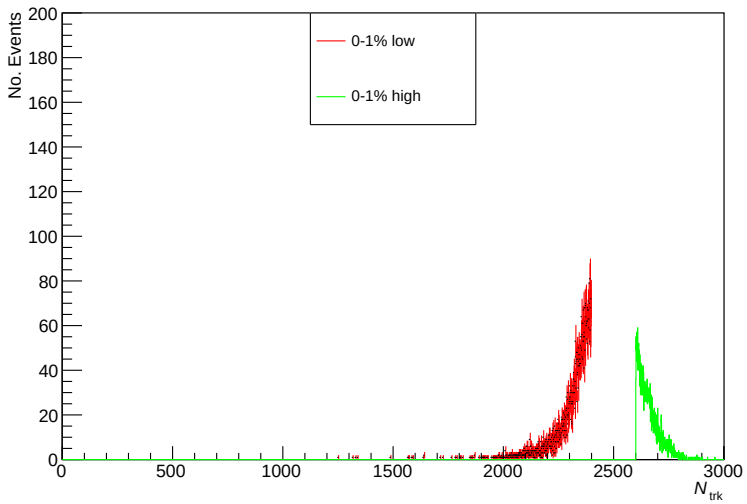
where $i =$ for $0-1\%$, $i = 1$ for $1-2\%$ etc.

Last week

- We separated the low and high multiplicity parts.
- We removed events with low multiplicity.



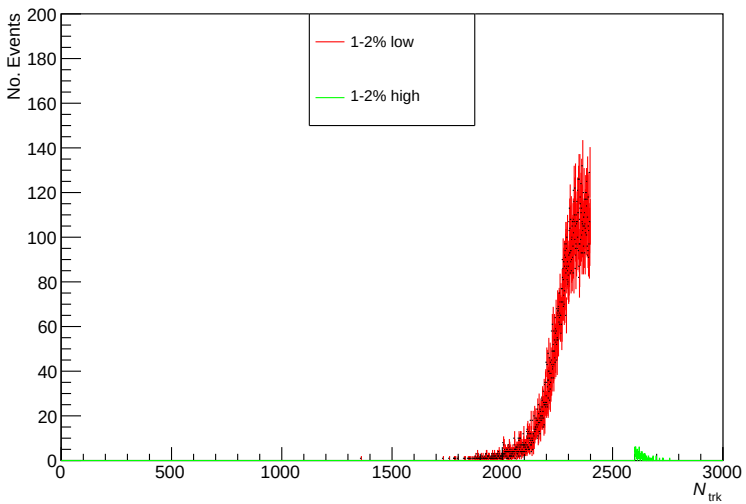
(a) Before



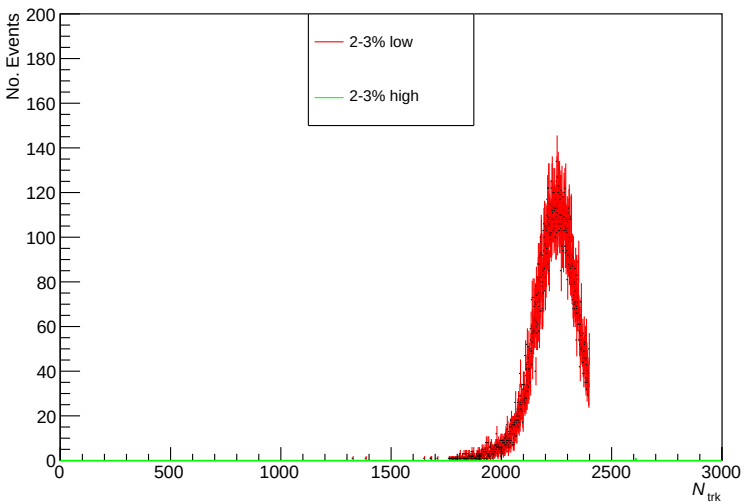
(b) After

Progress

- Fixing the thresholds with the $0 - 1\%$ centrality class only implies that we will get strange results for the other centrality classes



(a) $1 - 2\%$.



(b) $2 - 3\%$.

Progress

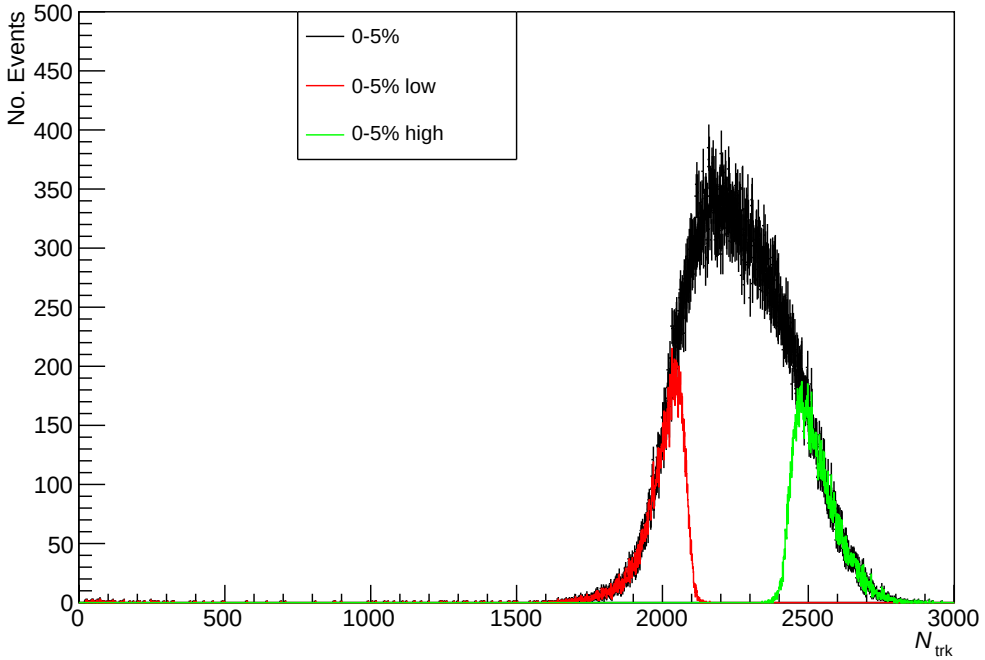


图 4: $0 - 5\%$ centrality

- Now the thresholds are at $\mu + \sigma$ (high threshold) and $\mu - \sigma$ (low threshold).

Progress

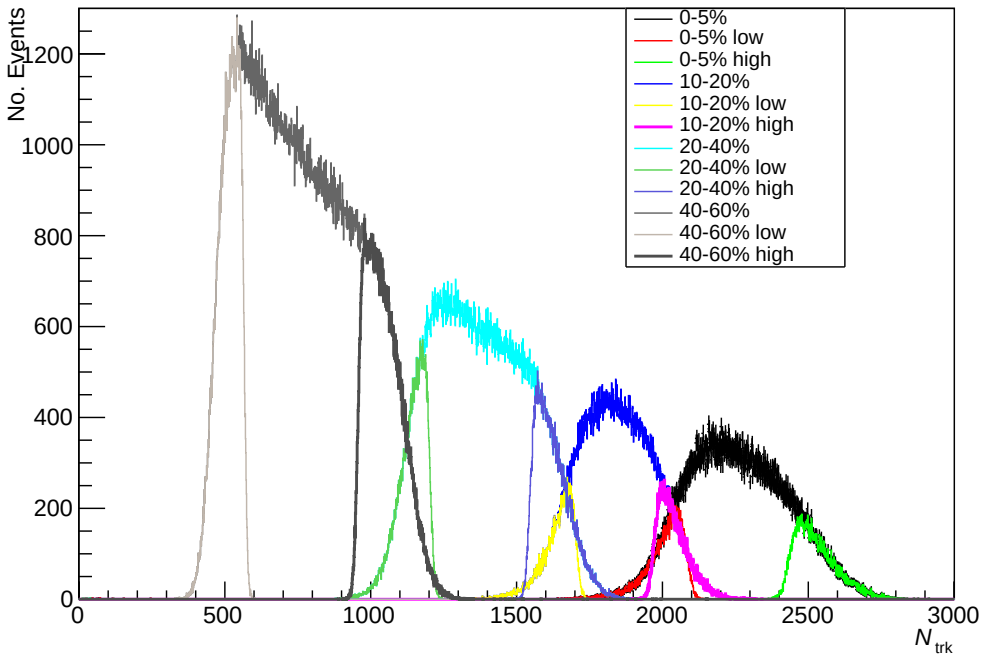
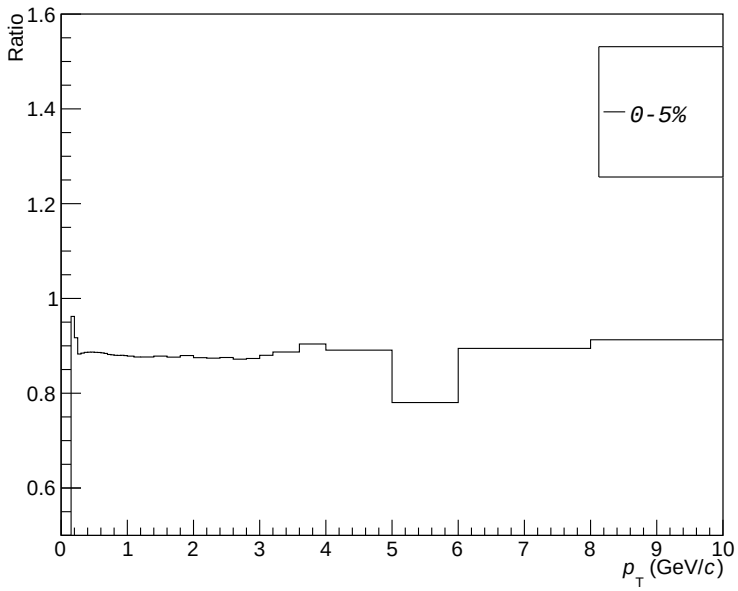


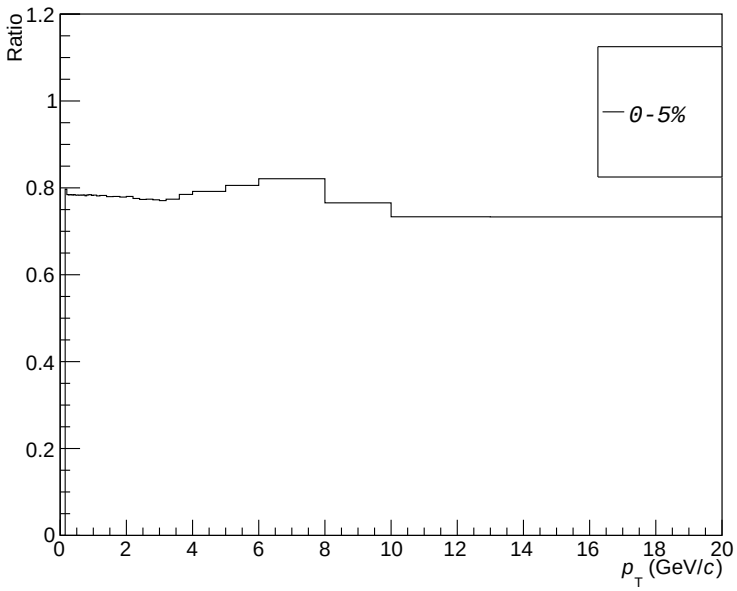
图 5: And this has been implemented for all centralities, with different thresholds for each centrality (as it should be).

Progress

- With the proper low/high separation, and a mistake that has been fixed, we can plot the ratios.



(a) $0-5\%$ ratio before.



(b) $0-5\%$ ratio now.

Progress

- We can go further, and plot all the ratios

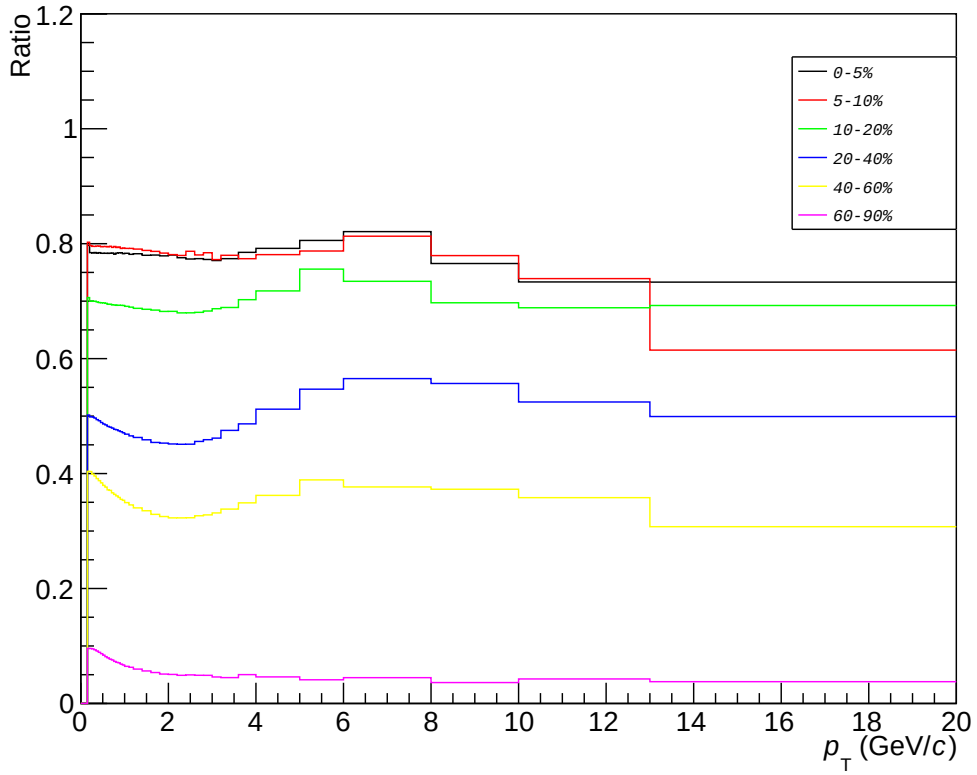
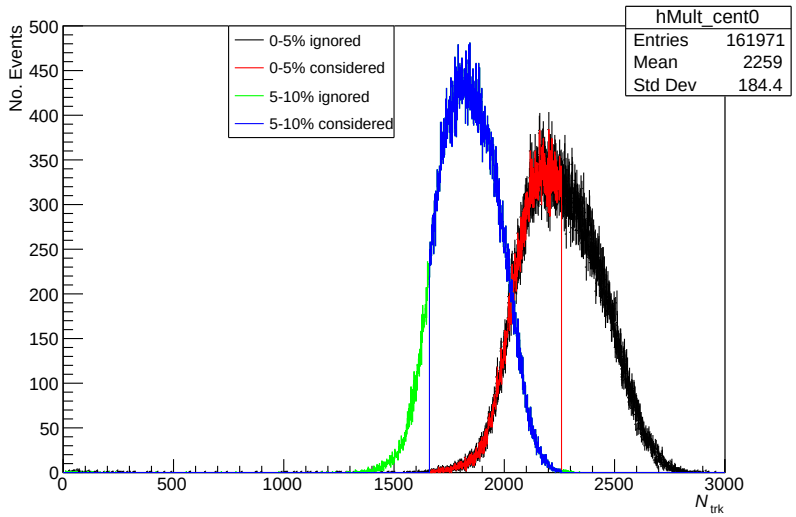


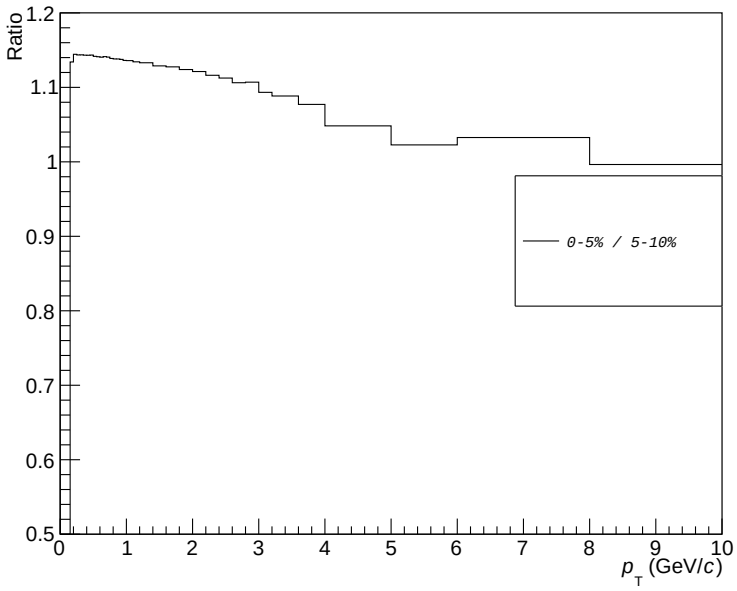
图 7: Fit to a constant function?

Progress

- The overlap region between 2 centrality classes has been studied.



(a) Definition of the overlap region considered



(b) Our usual ratio in the overlap region