

p_T spectra and multiplicity vs centrality in Pb-Pb collision at $\sqrt{s_{NN}} = 5 \text{ TeV}$ Analysis Update

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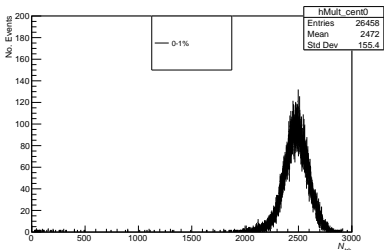
July 15th, 2021



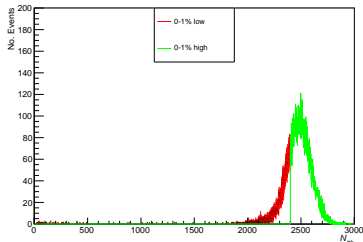
1 pT Ratios

Last week...

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



(a) Before



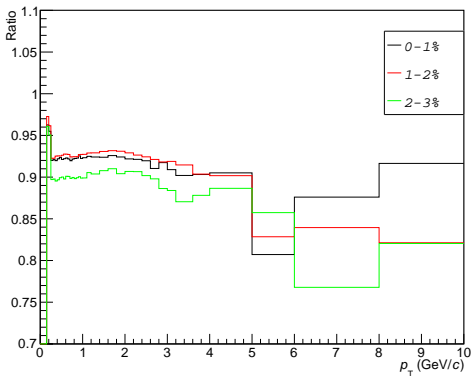
(b) After

Ratios low/high

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

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

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



2: Some problems solved on the ratio

Last week

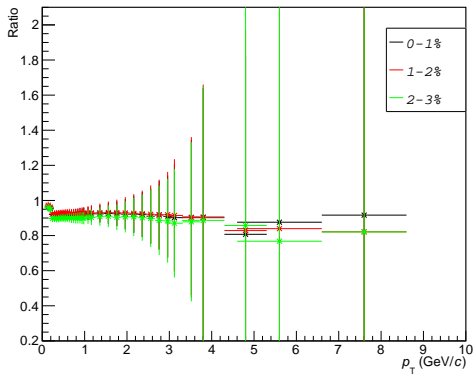
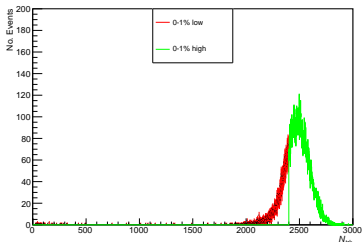


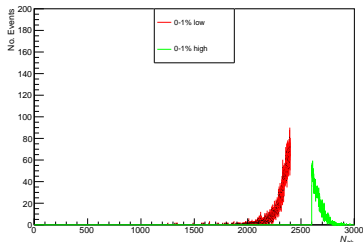
图 3: Errors too big.

Progress

- We separate the low and high multiplicity parts.
- We remove events with low multiplicity.



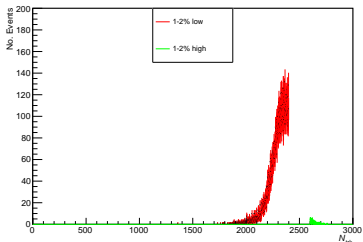
(a) Before



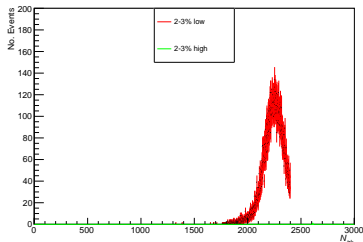
(b) After

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%.

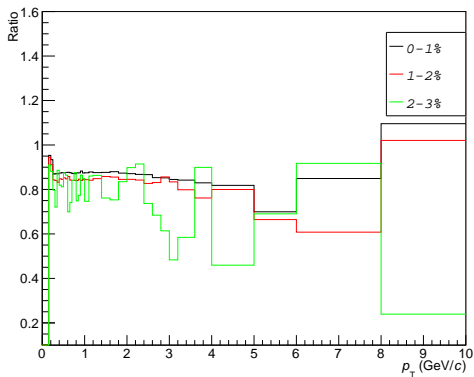


图 6: Ratios

- Let's look only at 0 – 1% alone...

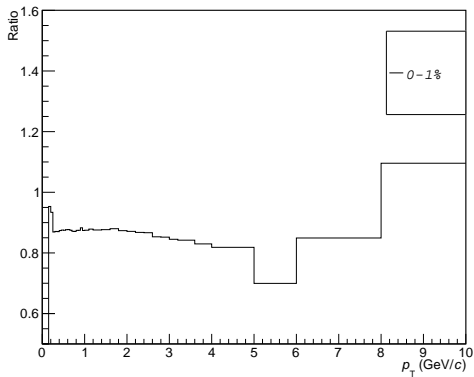
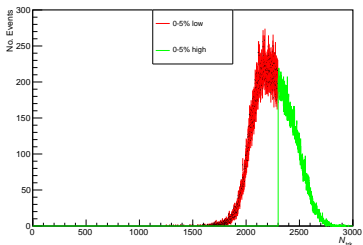


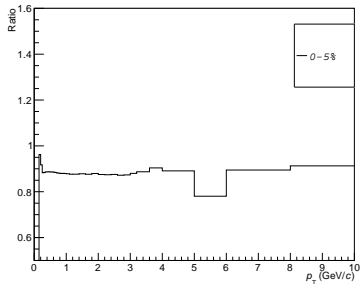
图 7: Ratio 0 – 1%.

Progress

- We still observe the peak at low p_T .
- To try to find an explanation, let's look at our original centralities 0 – 5%, 5 – 10%...



(a) 0 – 5% multiplicity.



(b) 0 – 5% ratio