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## $p_{\rm T}$ spectra as a function of Multiplicity and Transverse Spherocity in pp collisions using a Bayesian Unfolding

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So far we have use the COMBTPCITS 08 estimator, wich uses global tracklets from both detectors to obtain the measured probability.

In order to obtain better results allow multiplicity, we substitute them by just the number of tracks counted in the acceptance in our kinematical cut ( $p_T > 0.15 \text{ GeV/c}$ ).

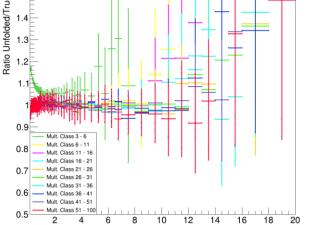
	mult08	tracks
N <sub>acc</sub>	COMBTPCITS08 estimator	$p_T > 0.15 \text{ GeV/c}$
N <sub>ch</sub>	$p_T \geq 0 \text{ GeV/c}$	$p_T > 0.15 \text{ GeV/c}$

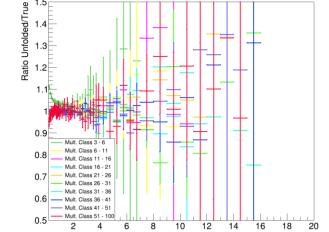


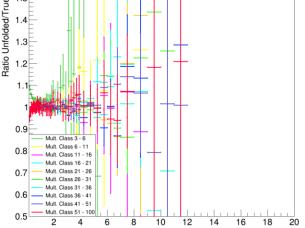
#### Instituto de Ciencias **Invariant Yield Closure Test Comparison** Nucleares **UNAM 1° Spherocity Class** 6° Spherocity Class **10° Spherocity Class** Ratio Unfolded/True Unfolded/Tr Unfolded/T 1.4 1.3 1.3 Ratio ( Satio 1.2 0.9 0.9 Mult Class 3 - 6 Mult Class 3 - 6 Mult Class 3 - 6 Mult. Class 6 - 11 Mult. Class 6 - 11 Mult. Class 6 - 11 0.8 0.8 0.8 Mult. Class 11 - 16 Mult. Class 11 - 16 Mult. Class 11 - 16 Mult. Class 16 - 21 - Mult. Class 16 - 21 Mult. Class 16 - 21 0.7 Mult. Class 21 - 26 0.7 Mult. Class 21 - 26 0.7 Mult. Class 21 - 26 Mult. Class 26 - 31 Mult. Class 26 - 3 - Mult. Class 26 - 31 - Mult. Class 31 - 36 - Mult. Class 31 - 36 - Mult. Class 31 - 36 0.6 - Mult. Class 36 - 41 0.6 - Mult. Class 36 - 41 0.6 - Mult. Class 36 - 41 — Mult. Class 41 - 51 Mult. Class 41 - 51 Mult. Class 41 - 51 - Mult. Class 51 - 100 - Mult. Class 51 - 100 - Mult. Class 51 - 100 \_\_\_\_ 0.5 0.5 0.5 2 4 6 8 10 12 14 16 18 20 2 4 6 8 10 12 14 16 18 20 2 4 6 8 10 12 14 16 18 20 Ratio Unfolded/True Infolded/ 1.4 1.3 .2

tracks

mult08

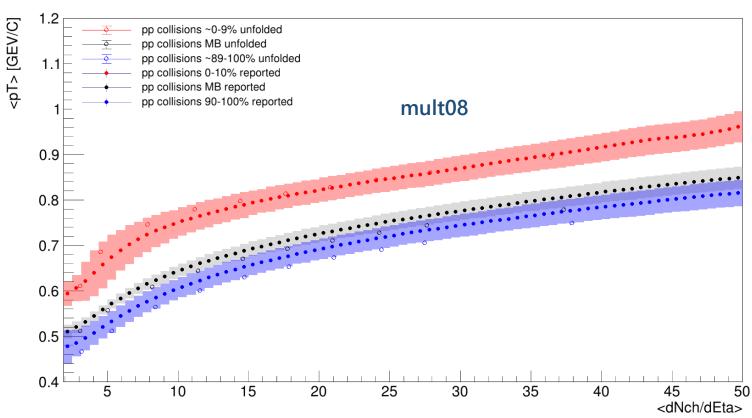






# Mean pT as a function of Multiplicity Density Unamediate United Stress U

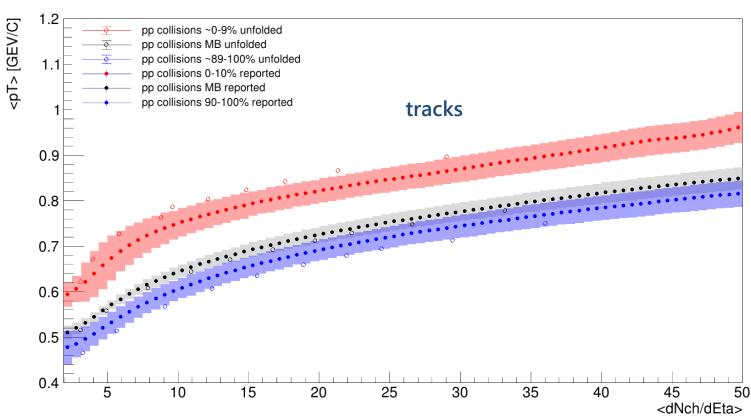
Mean p\_T as a function of Multiplicity Density by Spherocity Class



Mean pT analysis was (mostly) sucesfully rewritten, with the most importart change in the particle density computing.

# Mean pT as a function of Multiplicity Density Unamediate Unamediat

Mean p\_T as a function of Multiplicity Density by Spherocity Class

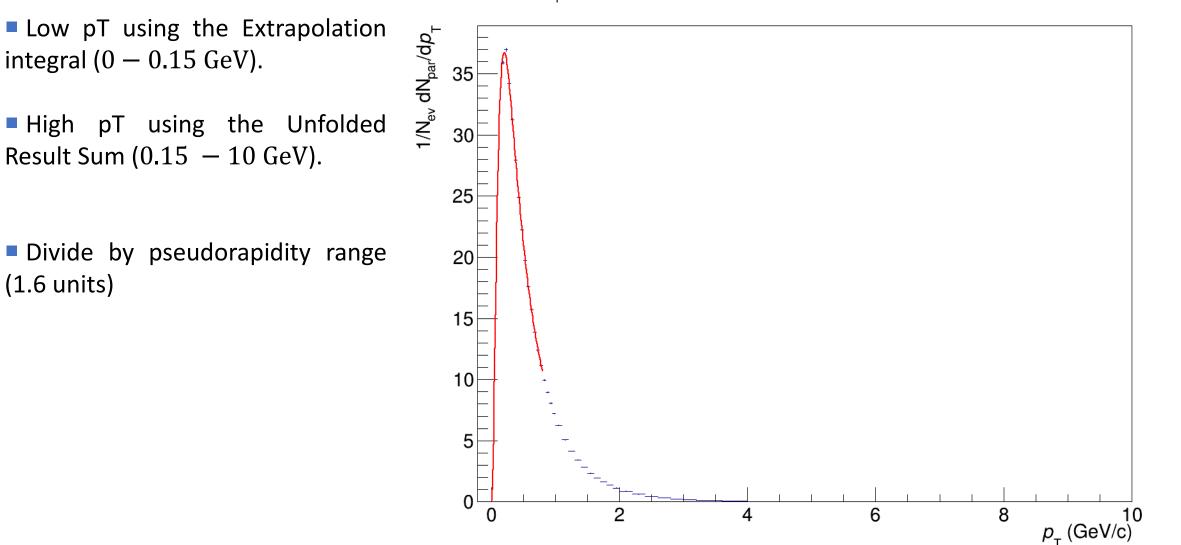


Mean pT analysis was (mostly) sucesfully rewritten, with the most importart change in the particle density computing.

Something is missing is the uncertinities.

Now both cases are inside the range of error bar.

### **Extrapolation Contribution of <dN/d**η>



(1.6 units)

p\_ Spectra fitted between 0.15 - 0.8 GeV and integrated between 0 - 10 GeV

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Nucleares

**UNAM** 

#### **Extrapolation Contribution**



N <sub>ch</sub> ∖S <sub>O</sub> class	1	4	7	10
3 – 6	17.6934%	12.7306%	11.3416%	11.2662%
16 – 21	12.7208%	12.2275%	11.9474%	11.3725%
31 – 36	11.6941%	11.6308%	11.5872%	11.1615%
51 - 100	10.8154%	10.8013%	11.1603%	10.6876%

Extrapolation Integral Contributions as per Percentages

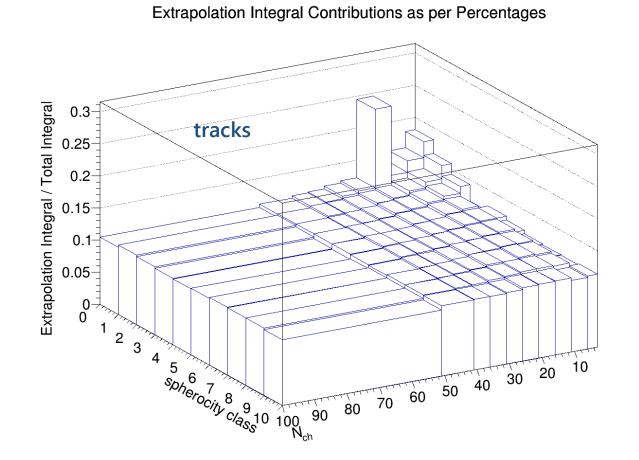
[(3, 6), 11, (16, 21), 26, (31, 36), 41, (51, 100)]

Extrapolation Integral / Total Integral

7

#### **Extrapolation Contribution**





N <sub>ch</sub> ∖S <sub>O</sub> class	1	4	7	10
3 – 6	18.0636%	11.7158%	11.3298%	11.3555%
16 – 21	24.4895%	12.0212%	11.9175%	11.4824%
31 – 36	11.5111%	11.3234%	11.2783%	10.9479%
51 – 100	10.4627%	10.3509%	10.5584%	10.9479%

[(3, 6), 11, (16, 21), 26, (31, 36), 41, (51, 100)]

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The new way of estimate the mean multiplicity density gives results in the range of the error bars.

The error bars of my graphs in the mean pT axis (straighforward) and in the mean multiplicity density axis (probably changing the fit function) are next objective.

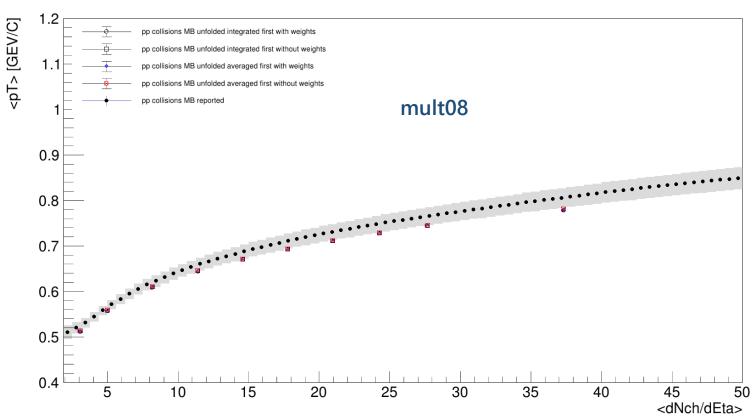


### Back-up

#### <u>Mean pT as a function of Multiplicity Density</u> (Minimum Bias Cross-check)



Mean p\_T as a function of Multiplicity Density by Spherocity Class



#### <u>Mean pT as a function of Multiplicity Density</u> (Minimum Bias Cross-check)



Mean p\_T as a function of Multiplicity Density by Spherocity Class

