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Corrigendum

Corrigendum to "Charged Particle, Photon Multiplicity, and Transverse Energy Production in High-Energy Heavy-Ion Collisions"

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In the review article entitled "Charged Particle, Photon Multiplicity, and Transverse Energy Production in High-Energy Heavy-Ion Collisions" [1], the following two modifications are suggested to take care of some minor errors.

(1) There were some descriptive errors in last paragraph of Section 3.4 as well as in corresponding Figures 14, 15, and 16. The following modifications are done both in the text and in Figures 14, 15, and 16. In addition to that a new figure is also added to the literature as Figure 45.

The pseudorapidity distributions of charged particles in Cu + Cu, Au + Au, and Pb + Pb most central collisions at different energies are shown in Figures 14, 15, and 16, respectively. These distributions are fitted with the double Gaussian function as given in equation (6) of "Charged Particle, Photon Multiplicity, and Transverse Energy Production in High-Energy Heavy-Ion Collisions," which are represented by solid lines. The widths (σ_1 and σ_2) and the amplitude parameters (A_1 and A_2) obtained from the double Gaussian fitting to 0–6% centrality RHIC data are already given in Tables 2, 3, and 4. Now to explain the charged particle density distributions in terms of Landau hydrodynamics the pseudorapidity distribution of charged particles ($dN_{ch}/d\eta$) should be converted into rapidity distribution (dN_{ch}/dy) by applying a Jacobian transformation. For this one needs to know the information about particle ratio and spectra measurements in the midrapidity as described in [2]. After the Jacobian transformation to $dN_{ch}/d\eta$ distribution of Pb + Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV, the rapidity distribution of charged particles is obtained, as shown in Figure 45. Now the dN_{ch}/dy data is fitted with a Gaussian and Landau-Carruthers functions represented by solid and dotted lines, respectively. It can be seen from Figure 45 that the Gaussian function describes the data nicely. Similar exercises can be carried out to get the dN_{ch}/dy from the $dN_{ch}/d\eta$ after Jacobian transformation. Then the widths are obtained after fitting the dN_{ch}/dy distributions by Gaussian and Landau-Carruthers functions, respectively. The ratios of the widths obtained from the Gaussian (σ_{data}) and Landau-Carruthers ($\sigma_{carrut.}$) fittings to dN_{ch}/dy are calculated for all the energies, which are shown in Figure 17 of "Charged Particle, Photon Multiplicity, and Transverse Energy Production in High-Energy Heavy-Ion Collisions." It can be seen from Figure 17 that the pion data at AGS and SPS energies are in close agreement with the Landau hydrodynamics, whereas the deviations increase at RHIC and LHC energies.

(2) Table 6 should replace Table 6 of Section 9 in "Charged Particle, Photon Multiplicity, and Transverse Energy Production in High-Energy Heavy-Ion Collisions."

Table 6: E_T/N_{ch} (in GeV) for different center of mass energies as a function of N_{part}, the measure of collision centrality (shown in Figure 44). Different columns correspond to centrality classes in %.

$\sqrt{s_{NN}}$ (GeV)	0–5	5–10	10–15	15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55	55–60	60–65	65–70	Experiment
7.7	0.86	0.89	0.89	0.88	0.88	0.88	0.88	0.88	0.89	0.89					PHENIX
19.6	0.74	0.73	0.73	0.72	0.71	0.71	0.70	0.70	0.70	0.69					PHENIX
27	0.79	0.79	0.79	0.79	0.79	0.80	0.79	0.80	0.80	0.79					PHENIX
39	0.80	0.81	0.82	0.83	0.83	0.84	0.84	0.84	0.85	0.81					PHENIX
130	0.87	0.87	0.87	0.87	0.88	0.87	0.88	0.88	0.88	0.87	0.86	0.85	0.86	0.84	PHENIX
200	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.87	0.87	0.86	0.85	0.84	0.83	0.82	PHENIX
$\sqrt{s_{NN}}$ (GeV)	0–5	5–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80						
200	0.86	0.86	0.86	0.86	0.85	0.82	0.79	0.75	0.69						STAR
$\sqrt{s_{NN}}$ (TeV)	0–2.5	2.5–5	5–7.5	7.5–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80				
2.76	1.26	1.25	1.24	1.23	1.22	1.21	1.19	1.17	1.16	1.15	1.05				CMS

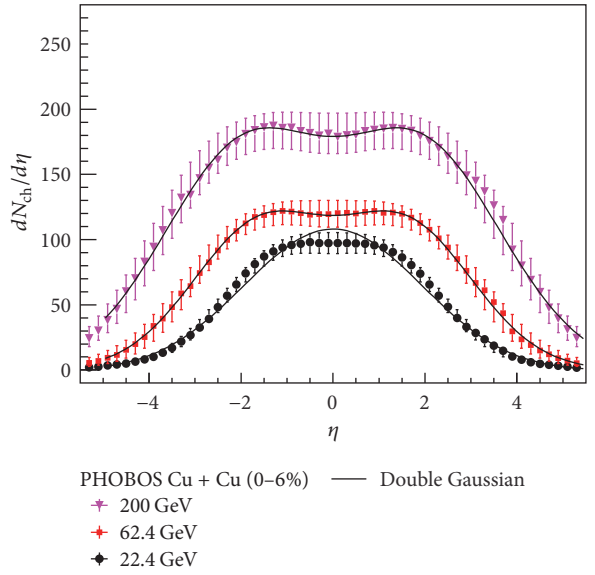

Figure 14: The pseudorapidity distribution of charged particles in Cu + Cu collisions at three different energies, fitted with double Gaussian function represented by solid lines.

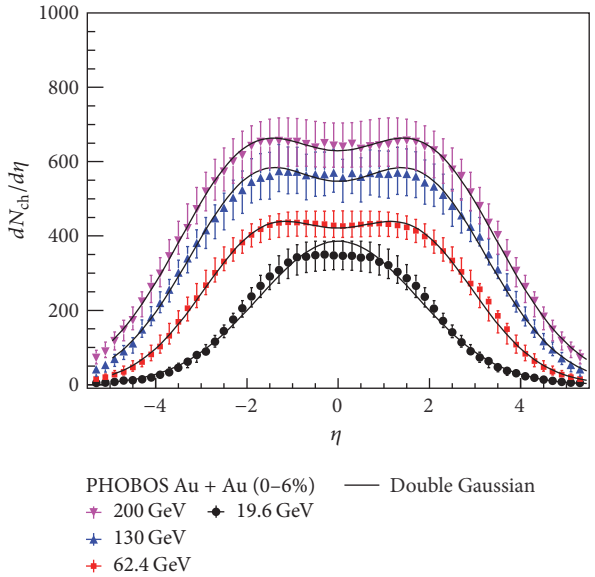

Figure 15: The pseudorapidity distribution of charged particles in Au + Au collisions at four different energies, fitted with double Gaussian function shown by solid lines.

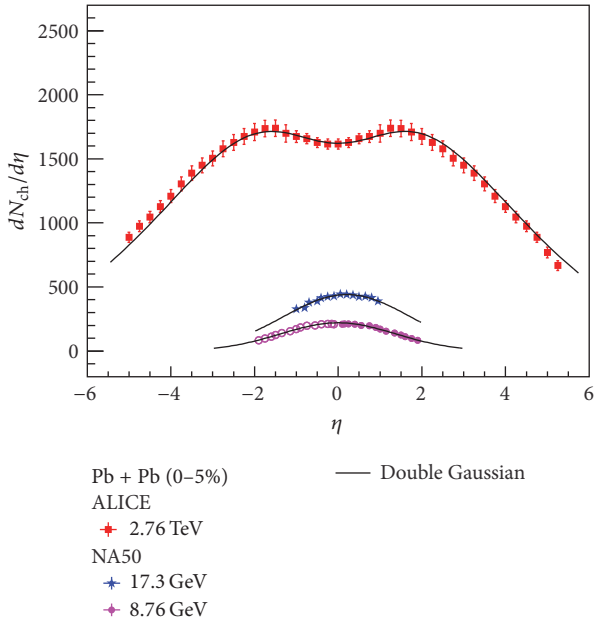

Figure 16: The pseudorapidity distribution of charged particles in Pb + Pb collisions at three different energies, fitted with double Gaussian function shown by solid lines.

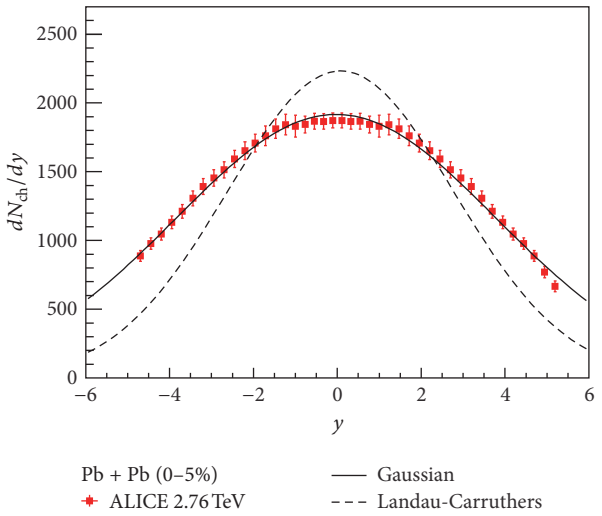

Figure 45: The charged particle rapidity distributions in Pb + Pb collisions for the most central events at $\sqrt{s_{NN}}$ = 2.76 TeV measured by ALICE experiment [2].

References

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