

Erratum: Midrapidity Antiproton-to-Proton Ratio from Au + Au Collisions
at $\sqrt{s_{NN}} = 130$ GeV
[Phys. Rev. Lett. 86, 4778 (2001)]

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(Received 29 January 2003; published 18 March 2003)

DOI: 10.1103/PhysRevLett.90.119903

PACS numbers: 25.75.Ld, 99.10.Cd

We revise reported numbers on the antiproton-to-proton (\bar{p}/p) ratio at midrapidity from $^{197}\text{Au} + ^{197}\text{Au}$ collisions at $\sqrt{s_{NN}} = 130$ GeV.

In our original Letter [1], a limited data set was used which turned out not to be a good representation of the full data set. About half of the limited statistics used in our publication came from runs where the magnetic field of the detector was unstable and decreased the apparent \bar{p}/p ratio by 7%. These runs were excluded in our reanalysis. In addition, two corrections were not propagated into the final presentation of the results. Namely, a correction of 3% for absorption of antiprotons in the detector material was not applied, and a background of about 4% in the measured proton yield (due to secondary interactions) was not subtracted for the data shown in Figs. 2(b) and 2(c). In the reanalysis, the determination of the proton background was further improved. We fitted the proton distance of closest approach (dca) distribution by a sum of the scaled antiproton distribution (which is background free) plus the results on the proton background from Monte Carlo calculations.

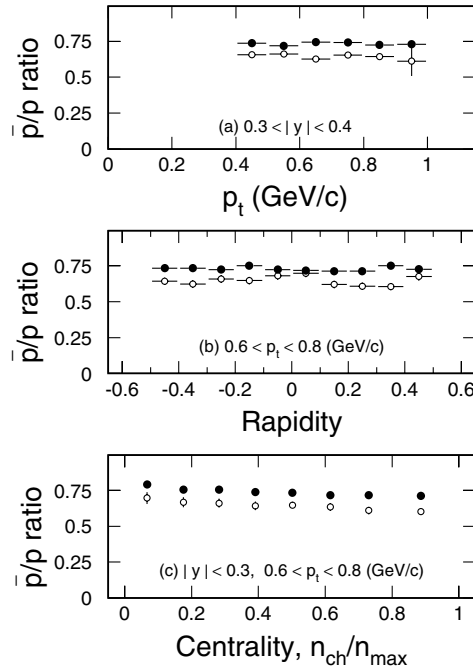


FIG. 1. The antiproton-to-proton ratio from $^{197}\text{Au} + ^{197}\text{Au}$ collisions at $\sqrt{s_{NN}} = 130$ GeV (a) as a function of transverse momentum p_t within the rapidity range $0.3 < |y| < 0.4$; (b) as a function of rapidity within $0.6 < p_t < 0.8$ GeV/c; (c) as a function of collision centrality within $|y| < 0.3$ and $0.6 < p_t < 0.8$ GeV/c from our reanalysis (solid circles) compared to our previous publication (open circles). Panels (a) and (b) show results for minimum bias collisions.

TABLE I. The antiproton-to-proton ratio from $^{197}\text{Au} + ^{197}\text{Au}$ collisions at $\sqrt{s_{NN}} = 130$ GeV in the kinematic range $|y| < 0.5$, $0.4 < p_t < 1.0$ GeV/c for minimum bias (0%–85%), central (0%–6%) and peripheral (58%–85%) collisions. The errors given are statistical (first) and systematic (second).

Centrality	\bar{p}/p
58%–85%	$0.79 \pm 0.010 \pm 0.07$
0%–6%	$0.71 \pm 0.002 \pm 0.05$
0%–85%	$0.73 \pm 0.003 \pm 0.05$

Figure 1 compares our published data (open circles) with results from our reanalysis (solid circles) on the \bar{p}/p ratio (a) within $0.3 < |y| < 0.4$ as a function of p_t for minimum bias collisions; (b) within $0.6 < p_t < 0.8$ GeV/c as a function of rapidity for minimum bias collisions; (c) within $|y| < 0.3$ and $0.6 < p_t < 0.8$ GeV/c as a function of centrality. The revised \bar{p}/p ratio is systematically larger than originally presented. We want to stress that all conclusions drawn in our publication still hold. The results on the antiproton-to-proton ratio from our reanalysis are given in Table I within the same kinematic range used in our original publication [1]. The value of $0.73 \pm 0.003(\text{stat}) \pm 0.05(\text{syst})$ replaces the published value of $0.65 \pm 0.01(\text{stat}) \pm 0.07(\text{syst})$ for minimum bias $^{197}\text{Au} + ^{197}\text{Au}$ collisions at $\sqrt{s_{NN}} = 130$ GeV.

A net-proton density at midrapidity for the 6% most central $^{197}\text{Au} + ^{197}\text{Au}$ collisions at $\sqrt{s_{NN}} = 130$ GeV was deduced to be 14 ± 5 in [2] from the \bar{p}/p ratio in [1] and the reported antiproton yield in [2]. With the revised \bar{p}/p ratio, the deduced net-proton density at midrapidity is 8.4 ± 2.9 per unit of rapidity.

[1] STAR Collaboration, C. Adler *et al.*, Phys. Rev. Lett. **86**, 4778 (2001).

[2] STAR Collaboration, C. Adler *et al.*, Phys. Rev. Lett. **87**, 262302 (2001).