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Corrigendum

Corrigendum to “Suppression of Υ production in $d + Au$ and $Au + Au$ collisions at $\sqrt{s_{NN}} = 200$ GeV” [Phys. Lett. B 735 (2014) 127–137]

STAR Collaboration

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In the original Letter [1] we reported on measurements of Υ production in $d + \text{Au}$ and $\text{Au} + \text{Au}$ collisions at $\sqrt{s_{NN}} = 200$ GeV using the STAR detector at RHIC.

We have uncovered a mistake in the original errors reported, affecting some of the statistical uncertainties of the $d + \text{Au}$ nuclear modification factors, R_{dA} . The corrected values are listed in Table 3,

Table 3

Table of R_{dAu} and R_{AA} results. The results are listed in the form $a \pm b \pm c \pm d \pm e$ where a is R_{dAu} or R_{AA} , b is the $d + \text{Au}$ or $\text{Au} + \text{Au}$ statistical uncertainty, c is the $p + p$ statistical uncertainty, d is the $d + \text{Au}$ or $\text{Au} + \text{Au}$ systematic uncertainty, and e is the $p + p$ systematic uncertainty.

System	Centrality	States	Rapidity	$R_{AA,dA}$
$d + \text{Au}$	Min. bias	1S + 2S + 3S	$-1.0 < y_\Upsilon < -0.5$	$0.84 \pm 0.40 \pm 0.18 \pm 0.03 \pm 0.10$
			$ y_\Upsilon < 0.5$	$0.48 \pm 0.14 \pm 0.07 \pm 0.02 \pm 0.06$
			$0.5 < y_\Upsilon < 1.0$	$1.42 \pm 0.32 \pm 0.30 \pm 0.05 \pm 0.17$
		1S	$ y_\Upsilon < 1.0$	$0.79 \pm 0.14 \pm 0.10 \pm 0.03 \pm 0.09$
			$-1.0 < y_\Upsilon < -0.5$	$0.74 \pm 0.34 \pm 0.16^{+0.03}_{-0.06} \pm 0.09$
			$ y_\Upsilon < 0.5$	$0.63 \pm 0.18 \pm 0.09^{+0.02}_{-0.05} \pm 0.08$
$\text{Au} + \text{Au}$	0–10%	1S + 2S + 3S	$0.5 < y_\Upsilon < 1.0$	$1.31 \pm 0.29 \pm 0.28^{+0.05}_{-0.11} \pm 0.16$
			$ y_\Upsilon < 1.0$	$0.83 \pm 0.15 \pm 0.11^{+0.03}_{-0.07} \pm 0.10$
			$ y_\Upsilon < 0.5$	$0.46 \pm 0.05 \pm 0.07 \pm 0.02 \pm 0.05$
		1S	$ y_\Upsilon < 1.0$	$0.49 \pm 0.13 \pm 0.07 \pm 0.02 \pm 0.06$
			$ y_\Upsilon < 0.5$	$0.69 \pm 0.05 \pm 0.10^{+0.02}_{-0.06} \pm 0.08$
			$ y_\Upsilon < 1.0$	$0.66 \pm 0.13 \pm 0.10^{+0.02}_{-0.05} \pm 0.08$
	10–30%	1S + 2S + 3S	$ y_\Upsilon < 0.5$	$0.69 \pm 0.16 \pm 0.10 \pm 0.02 \pm 0.08$
			$ y_\Upsilon < 1.0$	$0.82 \pm 0.20 \pm 0.12 \pm 0.03 \pm 0.10$
			$ y_\Upsilon < 0.5$	$0.85 \pm 0.16 \pm 0.13^{+0.03}_{-0.07} \pm 0.10$
		1S	$ y_\Upsilon < 1.0$	$1.07 \pm 0.20 \pm 0.16^{+0.03}_{-0.09} \pm 0.13$
			$ y_\Upsilon < 0.5$	$0.74 \pm 0.22 \pm 0.11 \pm 0.03 \pm 0.09$
			$ y_\Upsilon < 1.0$	$0.82 \pm 0.22 \pm 0.12 \pm 0.03 \pm 0.10$
30–60%	1S + 2S + 3S	$ y_\Upsilon < 0.5$	$1.22 \pm 0.22 \pm 0.18^{+0.04}_{-0.10} \pm 0.15$	
		$ y_\Upsilon < 1.0$	$1.19 \pm 0.22 \pm 0.18^{+0.04}_{-0.10} \pm 0.14$	
		$ y_\Upsilon < 0.5$	$0.62 \pm 0.11 \pm 0.09 \pm 0.02 \pm 0.07$	
	1S	$ y_\Upsilon < 1.0$	$0.66 \pm 0.09 \pm 0.10 \pm 0.02 \pm 0.08$	
		$ y_\Upsilon < 0.5$	$0.85 \pm 0.11 \pm 0.13^{+0.03}_{-0.07} \pm 0.10$	
		$ y_\Upsilon < 1.0$	$0.88 \pm 0.09 \pm 0.13^{+0.03}_{-0.07} \pm 0.11$	
0–60%	1S + 2S + 3S	$ y_\Upsilon < 0.5$	$0.62 \pm 0.11 \pm 0.09 \pm 0.02 \pm 0.07$	
	1S	$ y_\Upsilon < 1.0$	$0.66 \pm 0.09 \pm 0.10 \pm 0.02 \pm 0.08$	

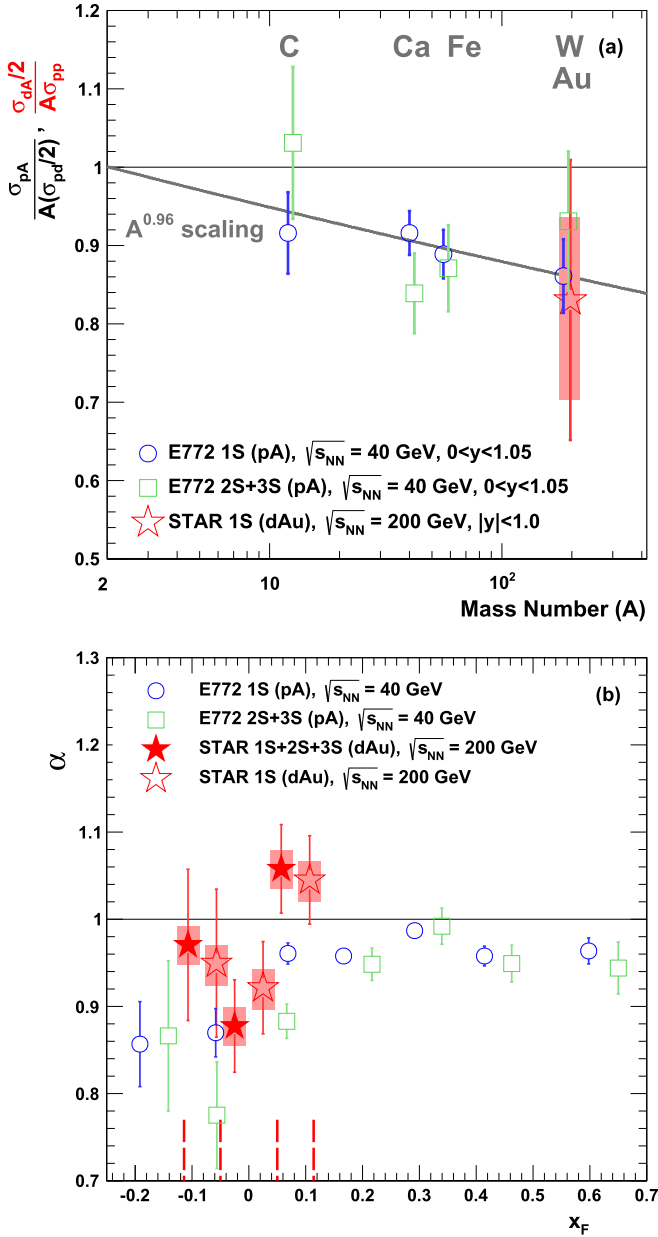


Fig. 3. (Color online.) Comparison of our $d + Au$ measurements to the pA measurements from E772. (a): Ratio of γ production in pA to pp scaled by mass number as a function of mass number. Shown are the 1S (hollow blue circles) and 2S + 3S (hollow green squares) γ measurements from E772 and our 1S measurement (red star). Also shown is the model used by E772 where $\sigma_{pA} = A^\alpha \sigma_{pp}$. E772 found $\alpha = 0.962 \pm 0.006$ [2]. (b): Exponent α as a function of x_F . The vertical, dashed red lines at the bottom of the plot denote the width of the x_F bins for the STAR measurements. Note that the STAR data points are offset within the bins for clarity.

which replaces the referring table in the original publication. In all cases the corrected statistical errors are smaller than the ones quoted in the original Letter. Due to these changes, panel (b) in Fig. 3, as well as panels (a) and (c) in Fig. 5 had to be updated; the complete figures are reprinted here. The errors on the nuclear modification factor in Au + Au collisions, R_{AA} , were not affected. All conclusions of the original Letter remain valid.

Three of the incorrect R_{dA} errors were quoted in the text:

- On page 133, left column, line 24, it should read: “For $d + Au$ collisions, we find $R_{dAu}(1S + 2S + 3S) = 0.79 \pm 0.14(d + Au$

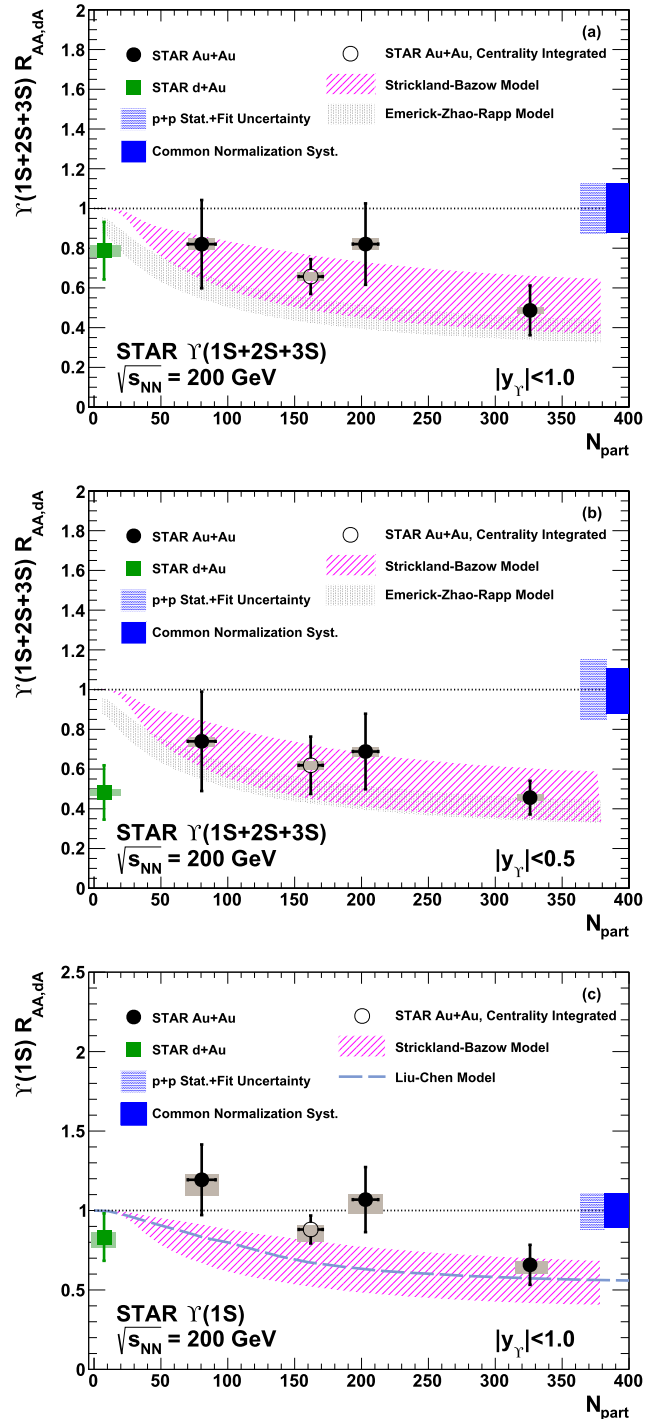


Fig. 5. (Color online.) Nuclear modification factor for $\Upsilon(1S+2S+3S)$, in $|y| < 1.0$ (a) and in $|y| < 0.5$ (b), and $\Upsilon(1S)$ in $|y| < 1.0$ (c), in $d + Au$ (green square) and Au + Au (black circles) collisions as a function of N_{part} . The boxes around unity show the statistical (shaded) and systematic (filled) uncertainty from the $p + p$ measurement. The gray bands around the data points are the systematic uncertainties. The data are compared to calculations from Refs. [3–5].

stat.) $\pm 0.10(p + p$ stat.) $\pm 0.03(d + Au$ syst.) $\pm 0.09(p + p$ syst.) in the range $|y| < 1$.”

- On page 133, right column, line 7 it should read: “For $d + Au$ collisions we find $R_{dAu}(1S) = 0.83 \pm 0.15(d + Au$ stat.) $\pm 0.11(p + p$ stat.) $^{+0.03}_{-0.07}(d + Au$ syst.) $\pm 0.10(p + p$ syst.) in the range $|y| < 1.0$.”

- On page 136, left column, line 3, the correct sentence is: “We obtain a nuclear modification factor in this rapidity region ($|y| < 1$) of $R_{dAu}(1S + 2S + 3S) = 0.79 \pm 0.14(d + Au \text{ stat.}) \pm 0.10(p + p \text{ stat.}) \pm 0.03(d + Au \text{ syst.}) \pm 0.09(p + p \text{ syst.})$.”

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References

- [1] L. Adamczyk, et al., STAR Collaboration, Phys. Lett. B 735 (2014) 127, arXiv:1312.3675 [nucl-ex].
- [2] D.M. Alde, H.W. Baer, T.A. Carey, G.T. Garvey, A. Klein, C. Lee, M.J. Leitch, J.W. Lillberg, et al., Phys. Rev. Lett. 66 (1991) 2285.
- [3] M. Strickland, D. Bazow, Nucl. Phys. A 879 (2012) 25, arXiv:1112.2761 [nucl-th].
- [4] A. Emerick, X. Zhao, R. Rapp, Eur. Phys. J. A 48 (2012) 72, arXiv:1111.6537 [hep-ph].
- [5] Y. Liu, B. Chen, N. Xu, P. Zhuang, Phys. Lett. B 697 (2011) 32, arXiv:1009.2585 [nucl-th].