Erratum: Hierarchy of Azimuthal Anisotropy Harmonics in Collisions of Small Systems from the Color Glass Condensate [Phys. Rev. Lett. 121, 052301 (2018)]

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In our Letter, we reported on calculations describing the hierarchy of azimuthal anisotropies in $p/d/^3\mathrm{He}+\mathrm{Au}$ collisions at RHIC energies within the dilute-dense color glass condensate (CGC) framework. We have since discovered an error in the numerical code which produced the results presented in the Letter; a factor of $\hbar c$ was missing in converting units of momenta, whereby momenta expected to be in GeV were actually in fm^{-1}. For the calculated two-particle azimuthal harmonics $v_n(p_\perp)$, where

$$v_n^2(p_\perp) = \int \mathcal{D}\rho_p \mathcal{D}\rho_t W[\rho_p] W[\rho_t] V_n(p_\perp - \Delta/2, p_\perp + \Delta/2) V_n^\star(p_\perp^{\mathrm{ref,min}}, p_\perp^{\mathrm{ref,max}}), \tag{1}$$

with

$$V_n(p_1, p_2) = \frac{\int_{p_1}^{p_2} k_\perp dk_\perp \frac{d\phi}{2\pi} e^{in\phi} \frac{dN(\mathbf{k}_\perp)}{d^2kdy}[\rho_p, \rho_t]}{\int_{p_1}^{p_2} k_\perp dk_\perp \frac{d\phi}{2\pi} \frac{dN(\mathbf{k}_\perp)}{d^2kdy}[\rho_p, \rho_t]}, \tag{2}$$

this affects both the measured gluon momenta ($p_\perp$) as well as the momentum of the reference gluons ($p_\perp^{\mathrm{ref}}$). Additionally, the presented results did not correctly take into account the reference bin; instead results for $p_\perp^{\mathrm{ref}} = p_\perp$ were shown. However we have checked that for a reasonable reference bin of $0.5 < p_\perp^{\mathrm{ref}} < 3.0$ in the uncorrected units the previously observed ordering $v_2(^3\mathrm{He} > d > p)$ is preserved.

Corrected results for $v_n(p_\perp)$ using Eq. (1) are presented in Figs. 1 and 2. Here we use the same parameters utilized in our Letter with no further tuning; results are shown for $p_\perp^{\mathrm{ref}} = 0.5$–3 GeV. In comparison to Fig. 3 of our Letter, it is clear that in Fig. 1 the previously observed hierarchy for $v_2(^3\mathrm{He} > d > p)$ is now reversed; i.e., we now find $v_2(p > d > {}^3\mathrm{He})$. Additionally, we observe that the magnitude of v_2 is significantly lower than that presented previously, and is in

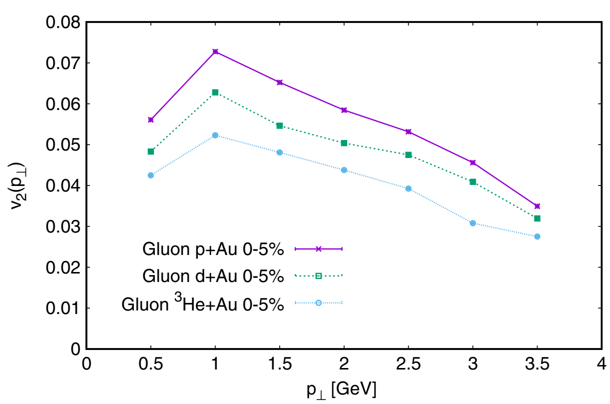

FIG. 1. Hierarchy of anisotropies $v_2(p_\perp)$ of gluons produced in the 0%–5% centrality class of light-heavy ion collisions computed in the dilute-dense CGC framework.

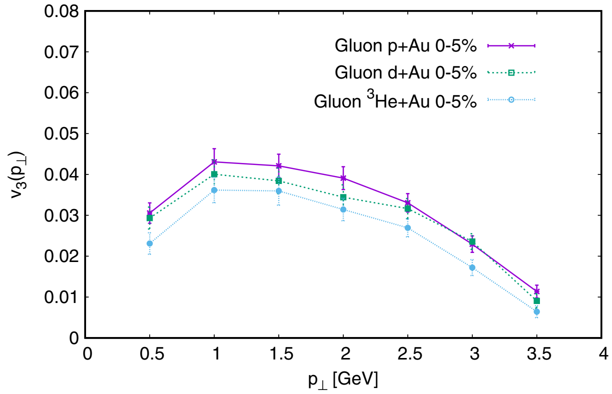

FIG. 2. Hierarchy of anisotropies $v_3(p_\perp)$ of gluons produced in the 0%–5% centrality class of light-heavy ion collisions computed in the dilute-dense CGC framework.

disagreement with the published experimental data from PHENIX [1]. In Fig. 2, we show our revised results for v_3. Again, we observe that the hierarchy in the magnitudes of v_3 is reversed for the three systems relative to [1].

In summary, due to the numerical error specified, the hierarchy of $v_{2,3}$ seen in the PHENIX data is not seen in our model. It cannot therefore provide a viable description of the data.

The code used to produce these results is available by request to the corresponding author.

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[1] C. Aidala *et al.* (PHENIX Collaboration), Creation of quark-gluon plasma droplets with three distinct geometries, Nat. Phys. **15**, 214 (2019).