# Erratum: Global polarization of Λ and $\overline{\Lambda}$ hyperons in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV [Phys. Rev. C 101, 044611 (2020)]

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In the original paper, the sign used to determine the global polarization $P_{\rm H}$ was opposite to the convention used in previous papers, particularly, published by the STAR Collaboration to which the results are compared to in Fig. 5. The correct version of Eq. (3) in the paper for $P_{\rm H}$ is

$$P_{\rm H} = -\frac{8}{\pi \alpha_{\rm H}} \langle \sin(\varphi_{\rm p}^{*} - \Psi_{\rm RP}) \rangle. \tag{1}$$

Here, $\alpha_{\rm H}$ is the $\Lambda/\overline{\Lambda}$ decay parameter, $\Psi_{\rm RP}$ is the reaction plane angle, and $\varphi_{\rm p}^{*}$ is the azimuthal angle of the decay proton's momentum in the Λ rest frame.

All reported results for the polarization of Λ and $\bar{\Lambda}$ in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV shown in Figs. 3–5 and Table II are updated with the opposite sign (see Figs. 3–5 and Table II of this Erratum). Since publication of the paper, the Particle Data Group value of the $\alpha_{\Lambda}$ and $\alpha_{\overline{\Lambda}}$ decay parameters have been updated [1]. For consistency with the future polarization measurements by other experiments, the values of the polarization were recalculated using the new values of $\alpha_{\Lambda} = 0.732 \pm 0.014$ and $\alpha_{\overline{\Lambda}} = -0.758 \pm 0.012$. The corrected numerical values are available via HEPData [2].

Neither of the changes above alter the conclusion of the published paper, that the average Λ and $\overline{\Lambda}$ polarization for the 15–50% centrality range at the two collision energies is consistent with zero, $\langle P_{\rm H} \rangle (\%) \approx -0.01 \pm 0.05(\text{stat.}) \pm 0.03(\text{syst.})$.

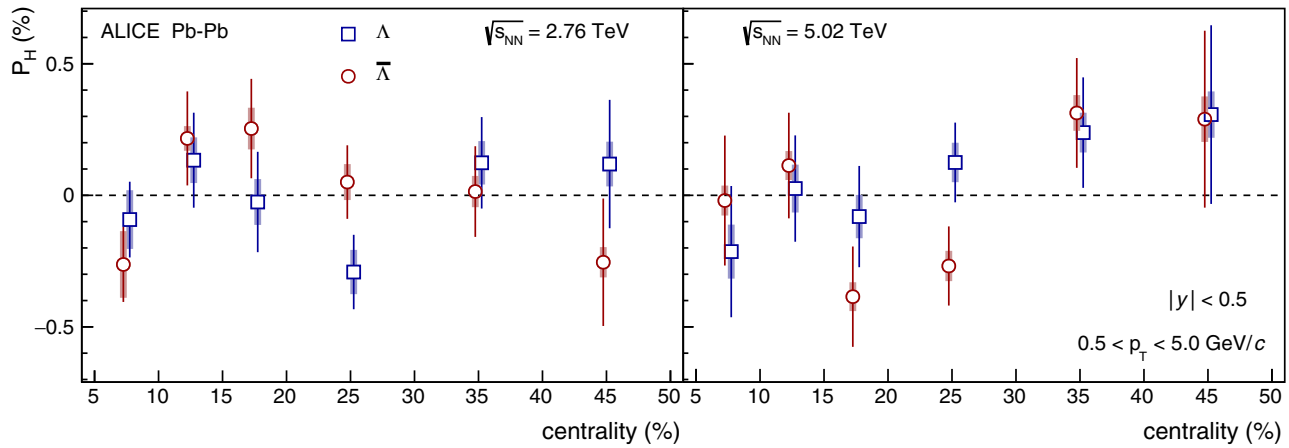


FIG. 3. The global hyperon polarization as function of centrality for Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ (left) and 5.02 TeV (right). The systematic uncertainties are shown as shaded boxes. Points are slightly shifted along the horizontal axis for better visibility.

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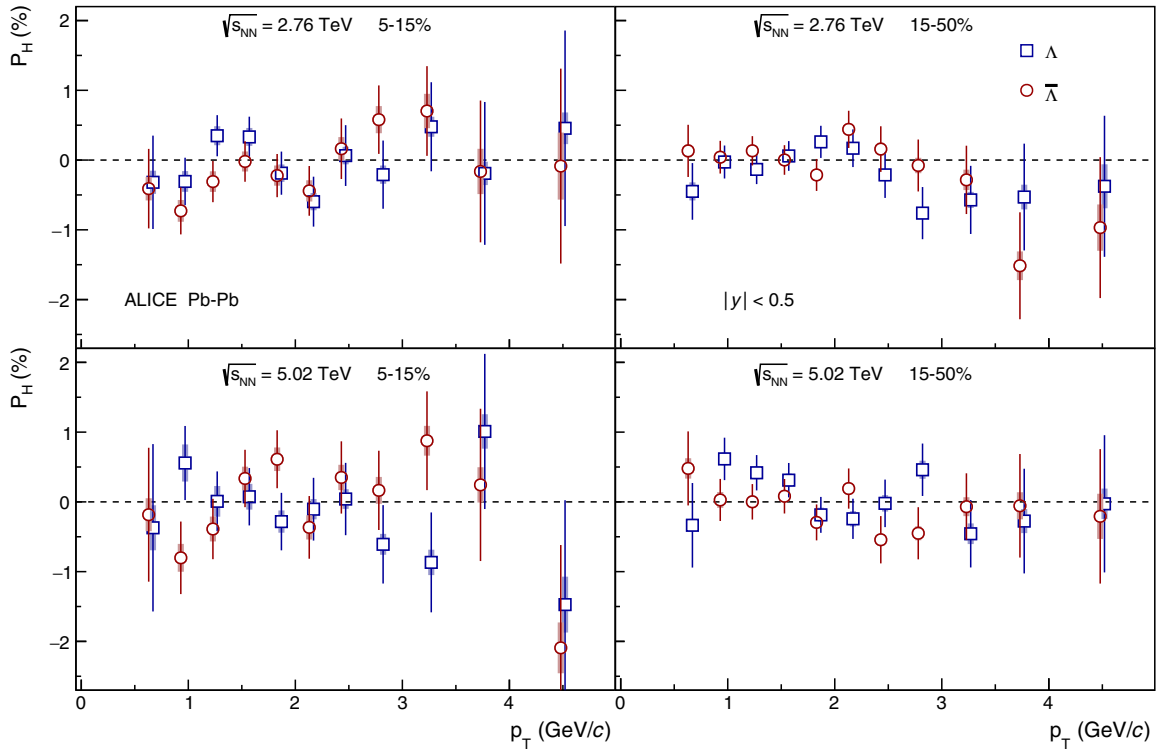


FIG. 4. The global hyperon polarization as function of transverse momentum $p_T$ for Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ (upper) and 5.02 TeV (lower) in 5–15% (left) and 15–50% (right) centrality classes. The systematic uncertainties are shown as shaded boxes. Points are slightly shifted along the horizontal axis for better visibility.

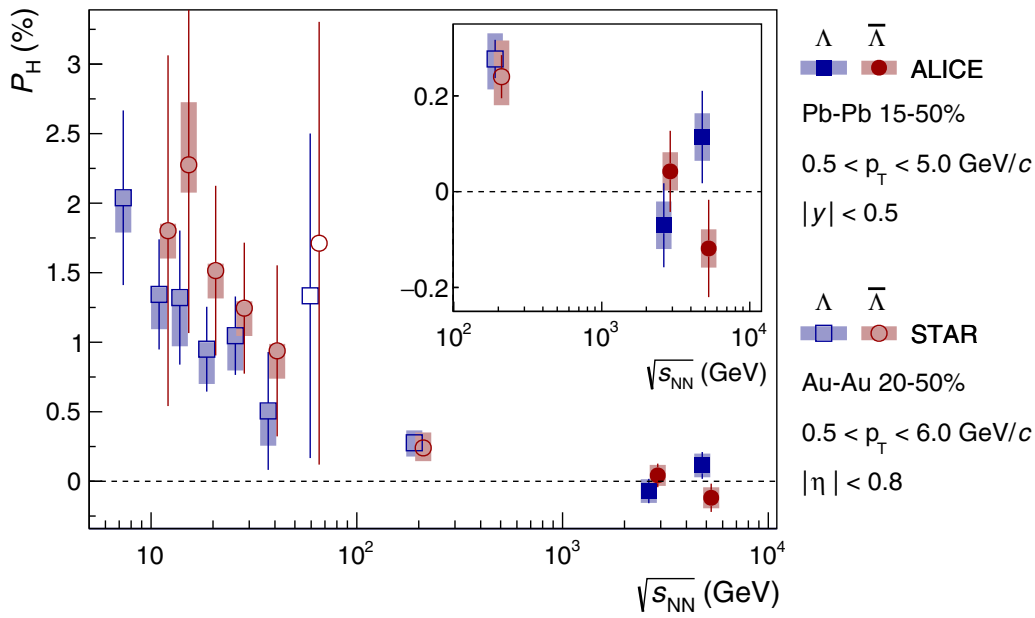


FIG. 5. The global hyperon polarization as a function of collision energy. Results are compared with the STAR Collaboration data at lower energies [3,4]. The inset shows zoomed-in comparison with the data at the top Relativistic Heavy Ion Collider energy. The systematic uncertainties are shown as shaded boxes. Points are slightly shifted along the horizontal axis for better visibility.

TABLE II. The global polarization of $\Lambda$ and $\overline{\Lambda}$ hyperons in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV for centrality ranges 5–15% and 15–50%.

| $\sqrt{s_{NN}}$ | Centrality | $P_\Lambda$ (%) | $P_{\overline{\Lambda}}$ (%) |
|---|---|---|---|
| 2.76 TeV | 5–15% | $-0.01 \pm 0.12$(stat.) $\pm 0.04$(syst.) | $-0.08 \pm 0.12$(stat.) $\pm 0.07$(syst.) |
| | 15–50% | $-0.07 \pm 0.09$(stat.) $\pm 0.04$(syst.) | $0.05 \pm 0.09$(stat.) $\pm 0.03$(syst.) |
| 5.02 TeV | 5–15% | $-0.07 \pm 0.16$(stat.) $\pm 0.07$(syst.) | $0.06 \pm 0.16$(stat.) $\pm 0.03$(syst.) |
| | 15–50% | $0.12 \pm 0.10$(stat.) $\pm 0.04$(syst.) | $-0.13 \pm 0.11$(stat.) $\pm 0.03$(syst.) |
| Average | 15–50% | $\langle P_{\rm H} \rangle (\%) \approx -0.01 \pm 0.05$(stat.) $\pm 0.03$(syst.) | |


[1] P. A. Zyla *et al.* (Particle Data Group Collaboration), Review of particle physics, Prog. Theor. Exp. Phys. **2020**, 083C01 (2020).

[2] S. Acharya *et al.* (ALICE Collaboration), Global polarization of $\Lambda\bar{\Lambda}$ hyperons in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV, HEPData https://www.hepdata.net/record/ins1752507 (2021).

[3] L. Adamczyk *et al.* (STAR Collaboration), Global $\Lambda$ hyperon polarization in nuclear collisions: Evidence for the most vortical fluid, Nature (London) **548**, 62 (2017).

[4] J. Adam *et al.* (STAR Collaboration), Global polarization of $\Lambda$ hyperons in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV, Phys. Rev. C **98**, 014910 (2018).