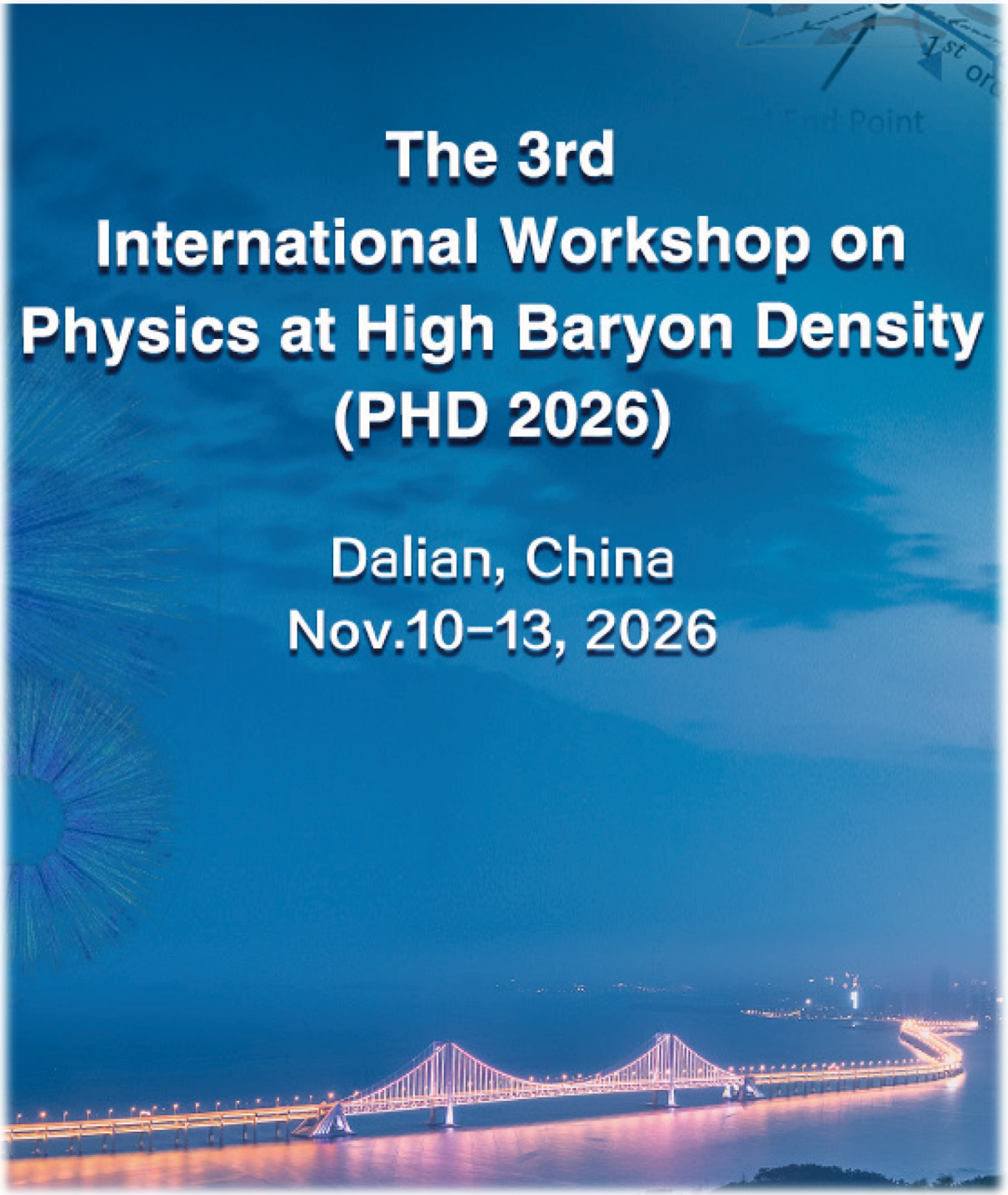
Global Polarization of Hyperons in High-Energy Nuclear Collisions

Xingrui Gou (苟兴瑞)

Central China Normal University
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2026/11/12



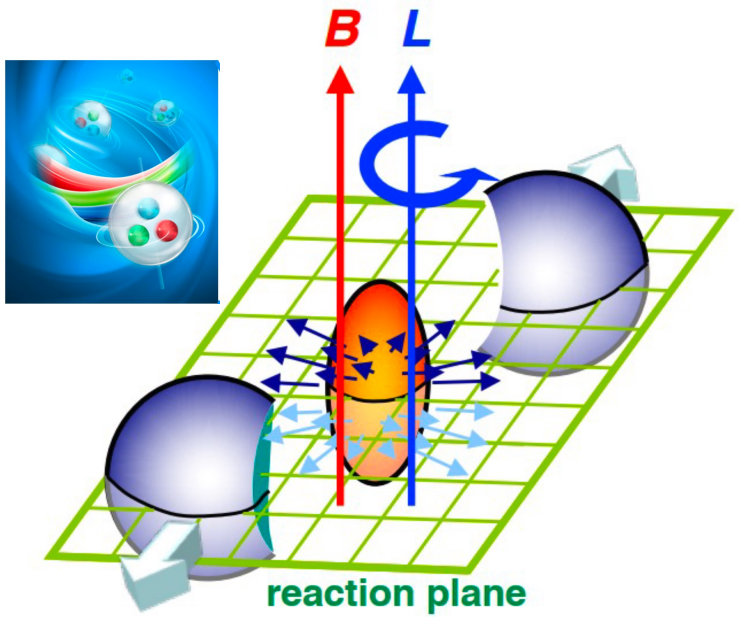
NSFC
National Natural Science Foundation of China

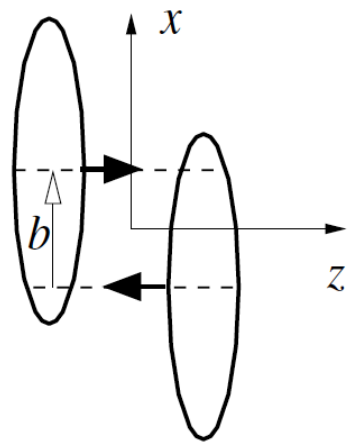
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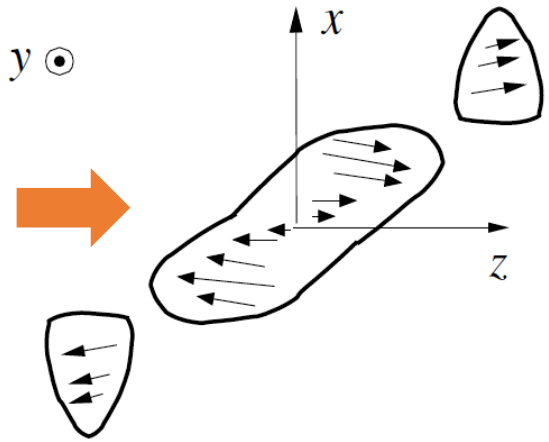
Outline

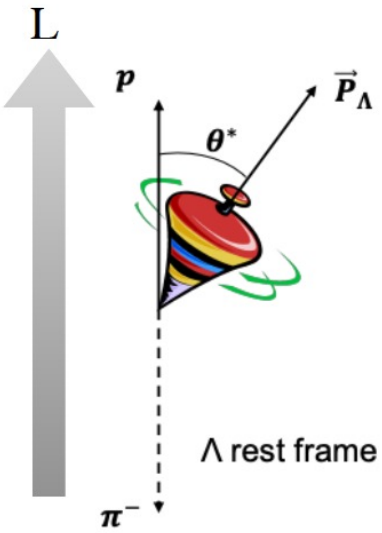
- Introduction
- Λ global polarization in Au+Au collisions at BES-II
  - Energy dependence
  - Centrality, rapidity and transverse momentum dependence
- Ξ and Ω global polarization in Au+Au collisions at BES-II
- Summary and Outlook
  - Future spin polarization measurements in STAR experiment

Orbital angular momentum and polarization









Orbital angular momentum

Local fluid vorticity $\omega = \frac{1}{2}\nabla \times v$

The most vortical fluid $\sim 10^{20} - 10^{21} s^{-1}$
(Au+Au@RHIC at ***b***=10 fm)

- Global orbital angular momentum leads to global polarization along ***L*** though spin-orbit coupling

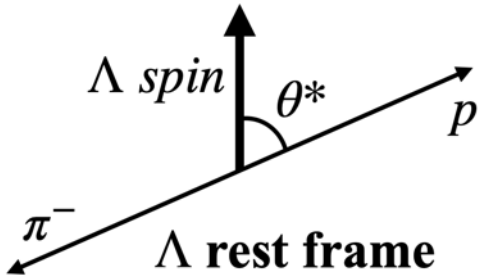
Z.-T. Liang and X.-N. Wang, PRL 94, 102301 (2005)

Global polarization measurement

- "Self-analyzing", parity-violating weak decay channel of hyperons
  - Daughter baryon is preferentially emitted in the direction of the hyperon spin

$$\frac{dN}{d\Omega^*} = \frac{1}{4\pi}(1 + \alpha_H P_H cos\theta^*)$$

α_H : hyperon decay parameter
P_H : hyperon polarization
θ^* : polarization angle



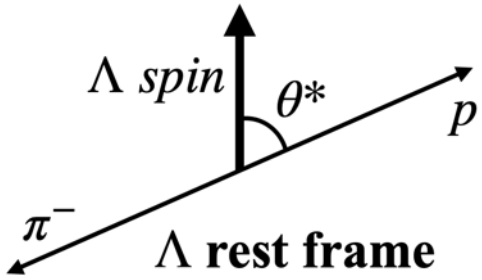
$\Lambda \rightarrow p + \pi^-$
(BR:63.9%,cτ~7.9cm)

Hyperon	Decay mode	α_H	Spin
Λ(uds)	$\Lambda \rightarrow p + \pi^-$	0.732	1/2
$\Xi^-(dss)$	$\Xi^- \rightarrow \Lambda + \pi^-$	-0.401	1/2
$\Omega^-(sss)$	$\Omega^- \rightarrow \Lambda + K^-$	0.0157	3/2

PDG2021

Global polarization measurement

- "Self-analyzing", parity-violating weak decay channel of hyperons
  - Daughter baryon is preferentially emitted in the direction of the hyperon spin
  - Measured via the distribution of the azimuthal angle of the hyperon decay baryon (in the hyperon rest frame) with respect to the reaction plane.

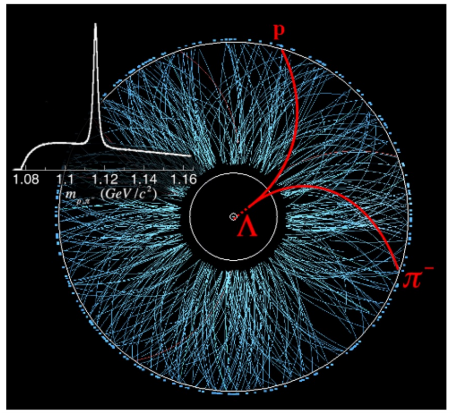


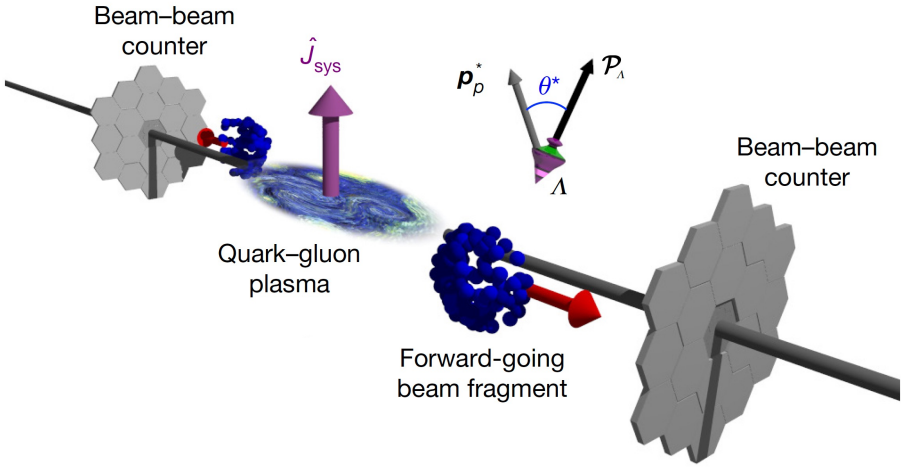
$\Lambda \rightarrow p + \pi^-$
(BR:63.9%,cτ~7.9cm)

$$P_\Lambda = \frac{8}{\pi \alpha_\Lambda} \frac{1}{A_0} \frac{\langle \sin(\Psi_1 - \phi_p^*) \rangle}{Res(\Psi_1)}$$

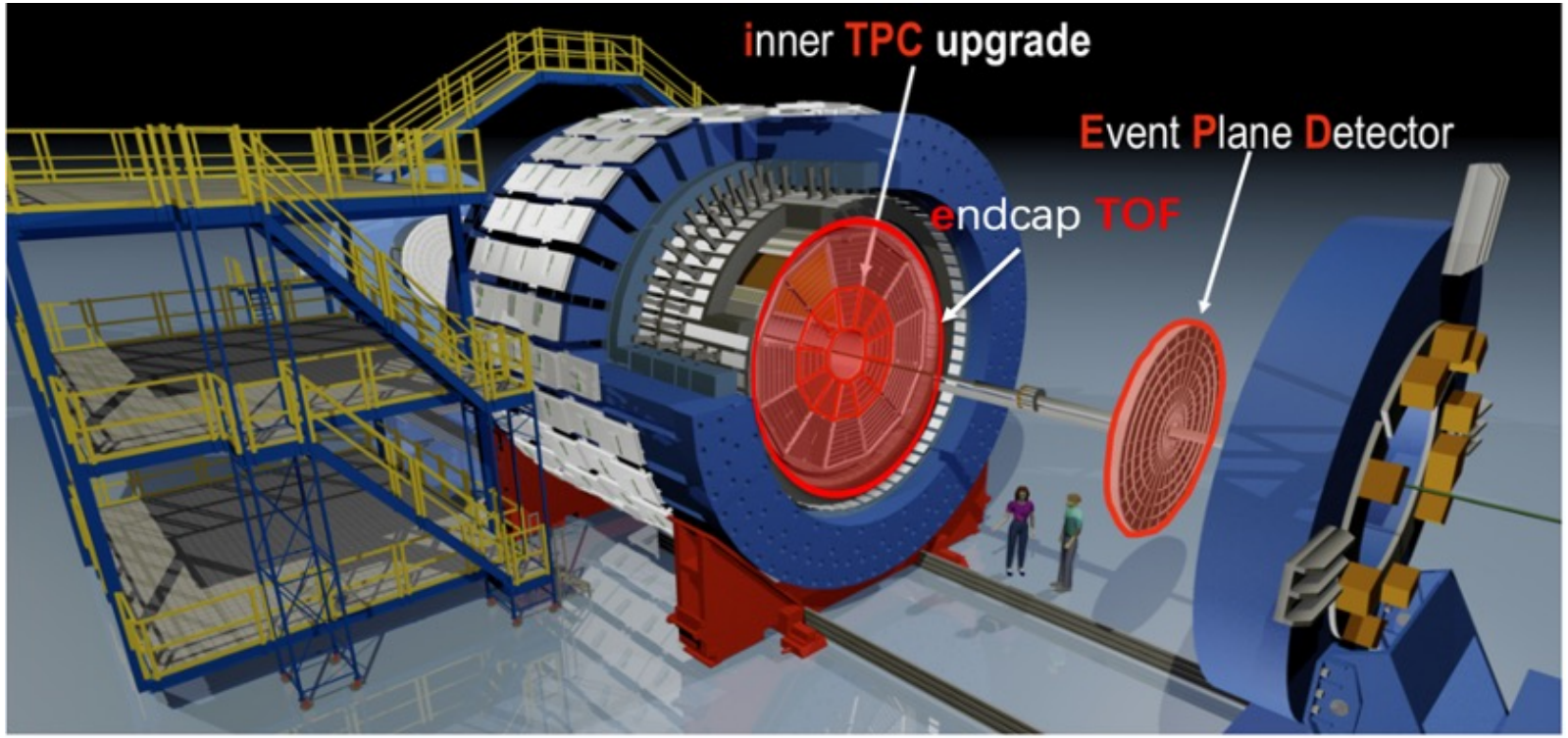
$\alpha_\Lambda = -\alpha_{\bar{\Lambda}} = 0.732 \pm 0.014$
A_0: Acceptance correction factor
Ψ_1: First-order event plane angle
$Res(\Psi_1)$: Event plane resolution

STAR, PRC76, 024915 (2007)





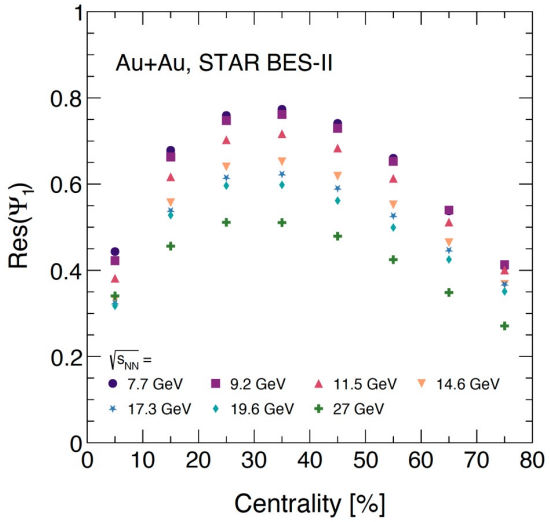
The STAR detector



Event Plane Detector

- Event plane reconstruction
- $2.1 < |\eta| < 5.1$
- First order event plane resolution

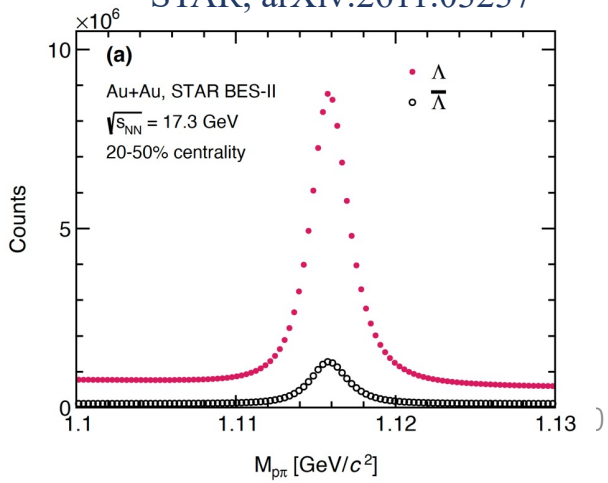
STAR, arXiv:2611.03237

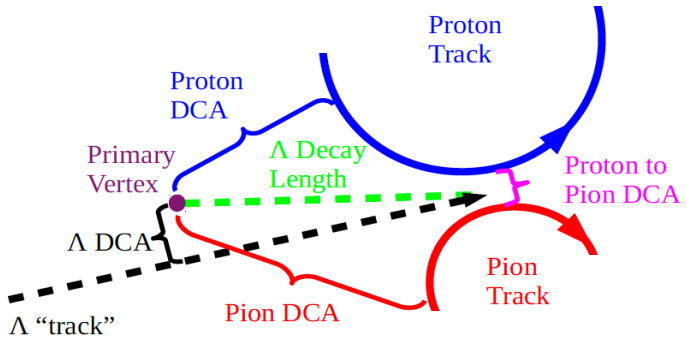


Time Projection Chamber

- $\Lambda/\bar{\Lambda}$ reconstruction
- $|\eta| < 1.5$ at 7.7-19.6 GeV
- $|\eta| < 1.0$ at 27 GeV
- Mass distribution of $\Lambda/\bar{\Lambda}$

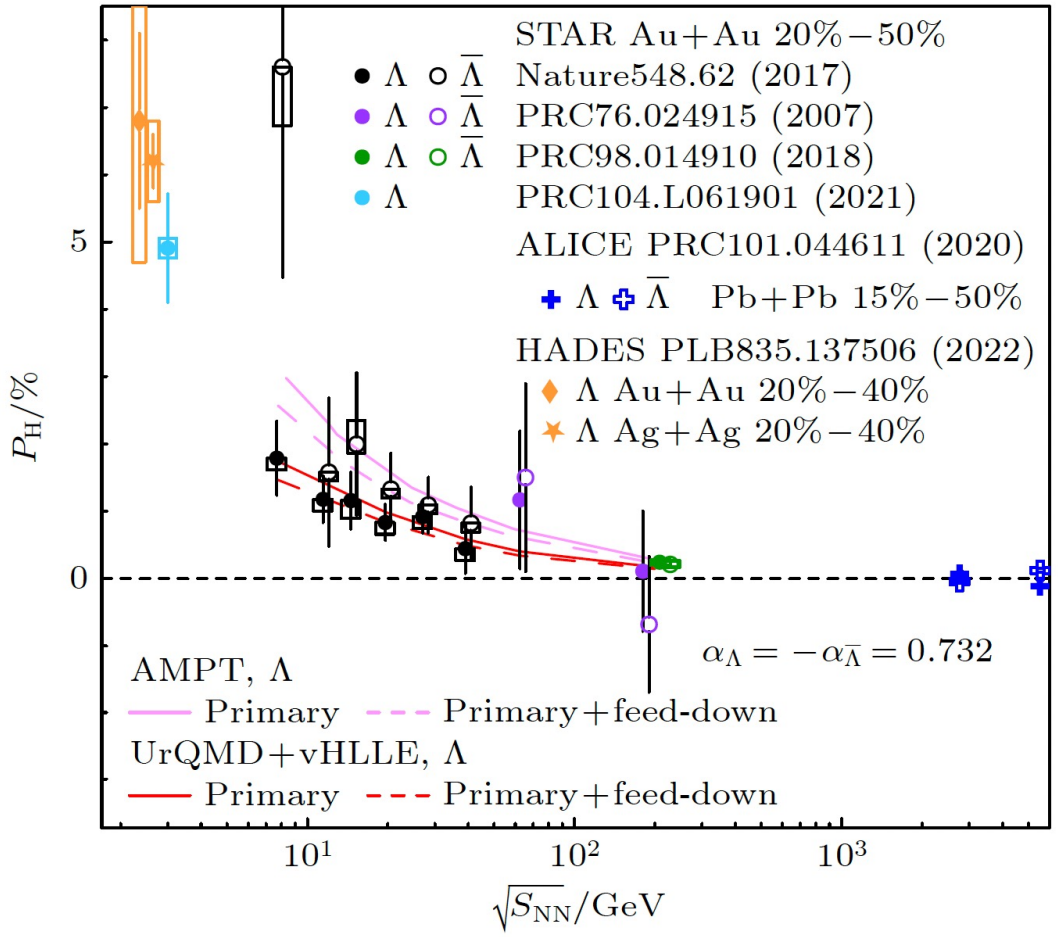
STAR, arXiv:2611.03237





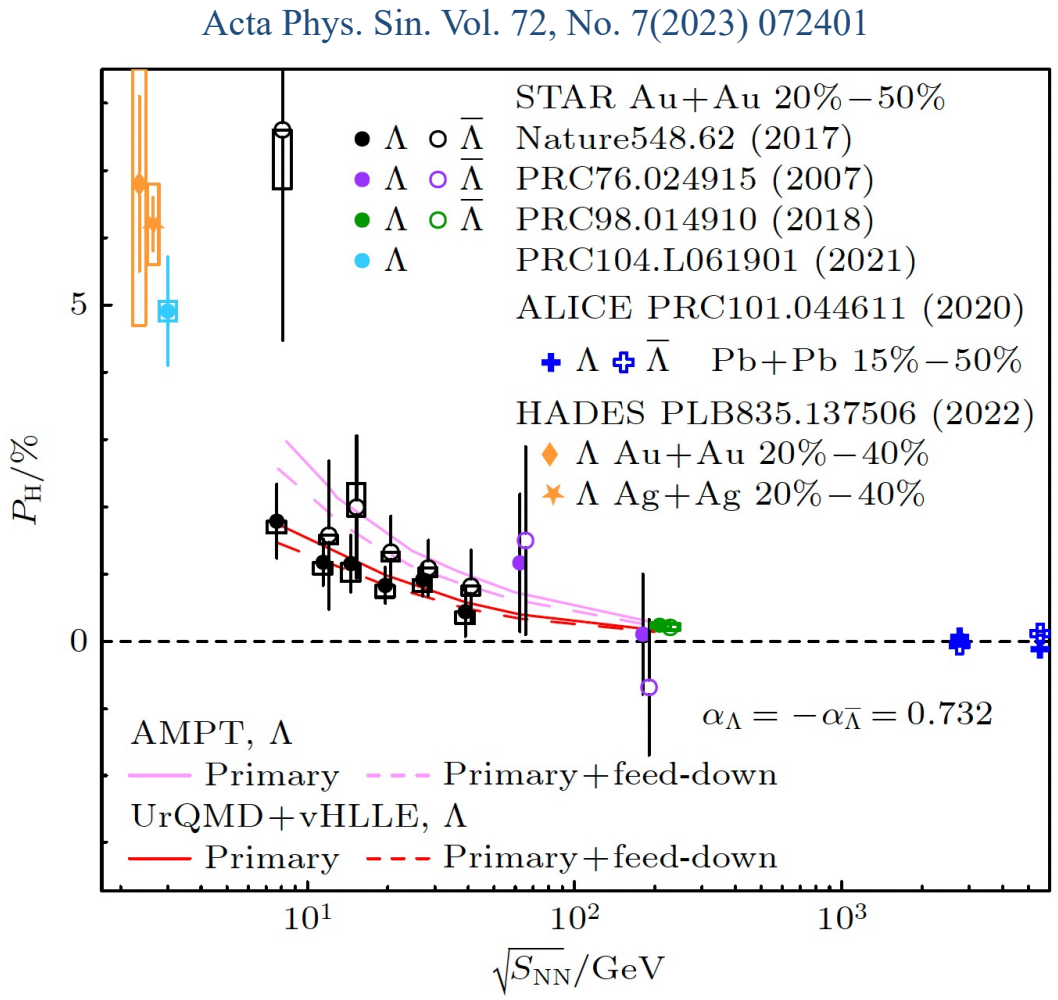
Observation of Λ global polarization

Acta Phys. Sin. Vol. 72, No. 7(2023) 072401



- STAR, first measurement in AuAu 200 GeV
  PRC 76, 024915 (2007)
- STAR, first observation in BES-I
  Nature 548, 62 (2017)
- STAR, high precision P_H at 200 GeV
  PRC 90, 014910 (2018)
- ALICE, LHC energy region
  PRC 101, 044611 (2020)
- STAR, P_H at 3 GeV
  PRC 104, L061901 (2021)
- HADES energy region, consistent with STAR
  PLB 835,137506(2022)
- STAR, high precision P_H at 7.7 - 27 GeV BES-II
  PRC108,014910(2023),
  STAR, arXiv:2611.03237, STAR, arXiv:2611.03044

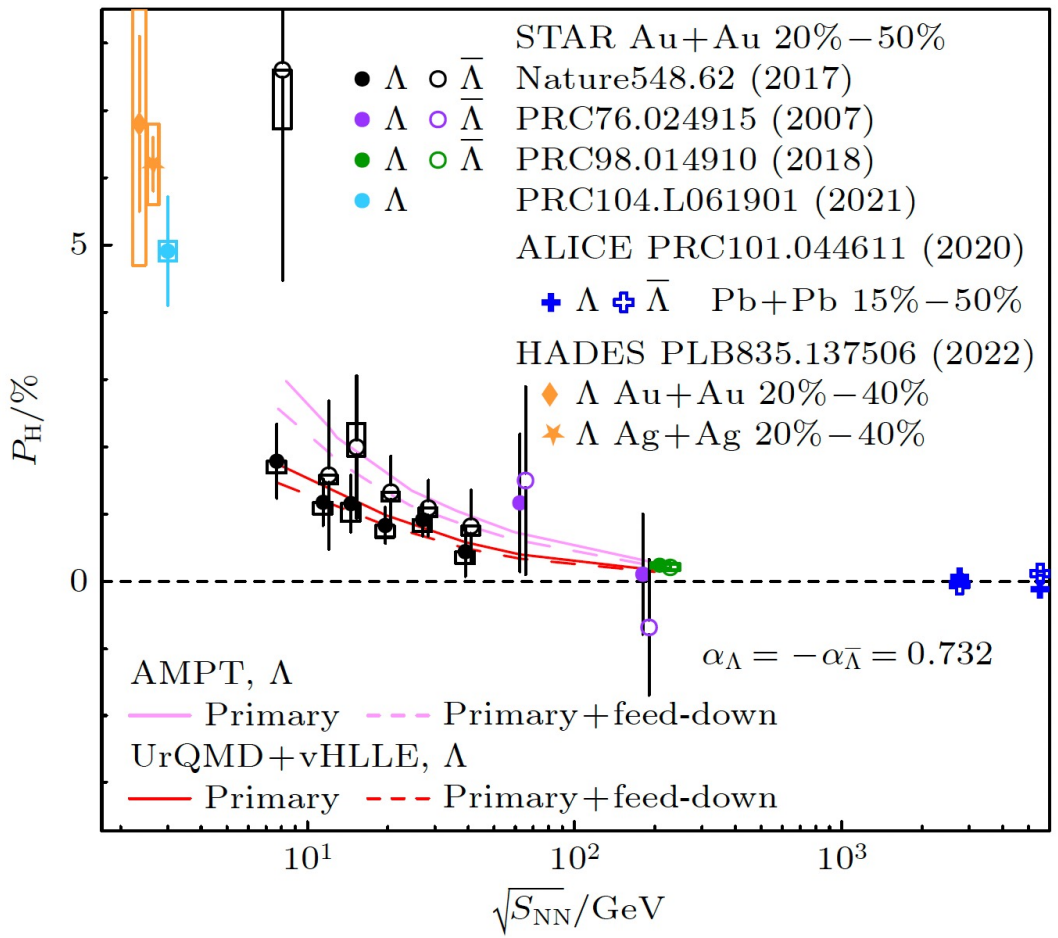
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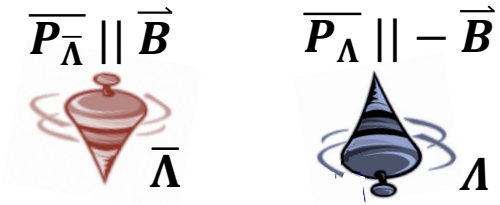


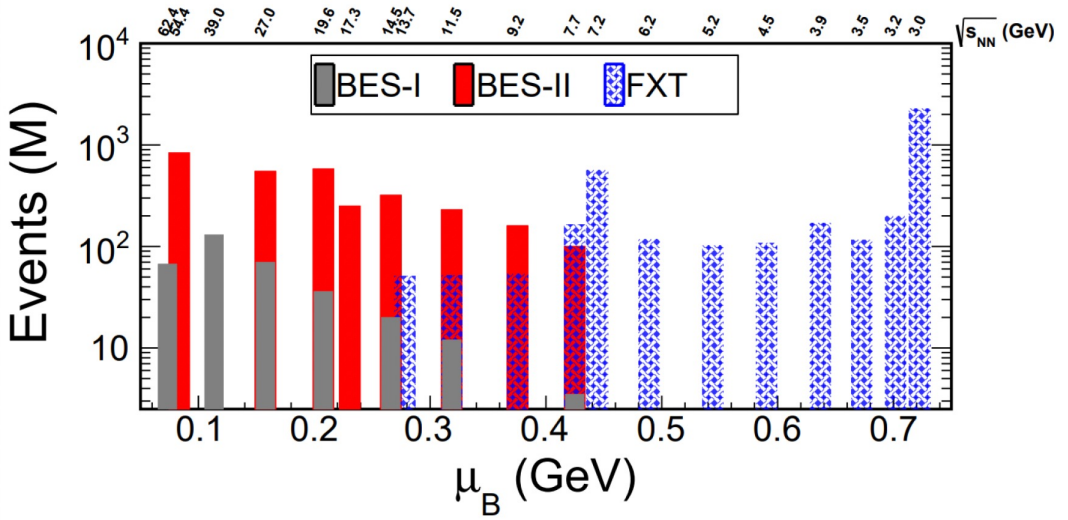
- Significant collision energy dependence, described well by various theoretical models
  - Liang and Wang, PRL 94,102301(2005),
  - Gao, Chen, Deng, Liang, Wang, Wang, PRC 77, 044902(2008)
  - Fang, Pang, Q. Wang, X. Wang, PRC 94, 024904(2016)
  - I. Karpenko and F. Becattini, EPJC(2017)77:213, UrQMD+vHLLE
  - H. Li et al., PRC 96, 054908 (2017), AMPT
  - Huang, Liao, Wang, Xia, Lect. Notes Phys. 987, 281 (2021).
  - Becattini, Rept. Prog. Phys. 85, No.12, 122301 (2022)
  - Wang, Liang, Ma, ActaPhys. Sin. 72, No. 7 & 11 (2023)
  - Lv, Yu, Liang, Wang, Wang, PRD 109 (2024) 11, 114003
  - Zhang, Lv, Yu, Liang, PRD 110 (2024) 7, 074019
  - Yi, Wu, Zhu, Pu, Qin, PRC 111 4, 044901 (2025)
  - Sun, et al., PRL 134 (2025) 2, 022301
  - Anum Arslan et al. PRC 111, 044911(2025)
  - L. Oliva, et al., PRC 114, 014914 (2026), B. Fu, et al., PRC 113, L041901 (2026), F. Liu, et al., PRD 113, 114051 (2026)
  - .....

Observation of Λ global polarization

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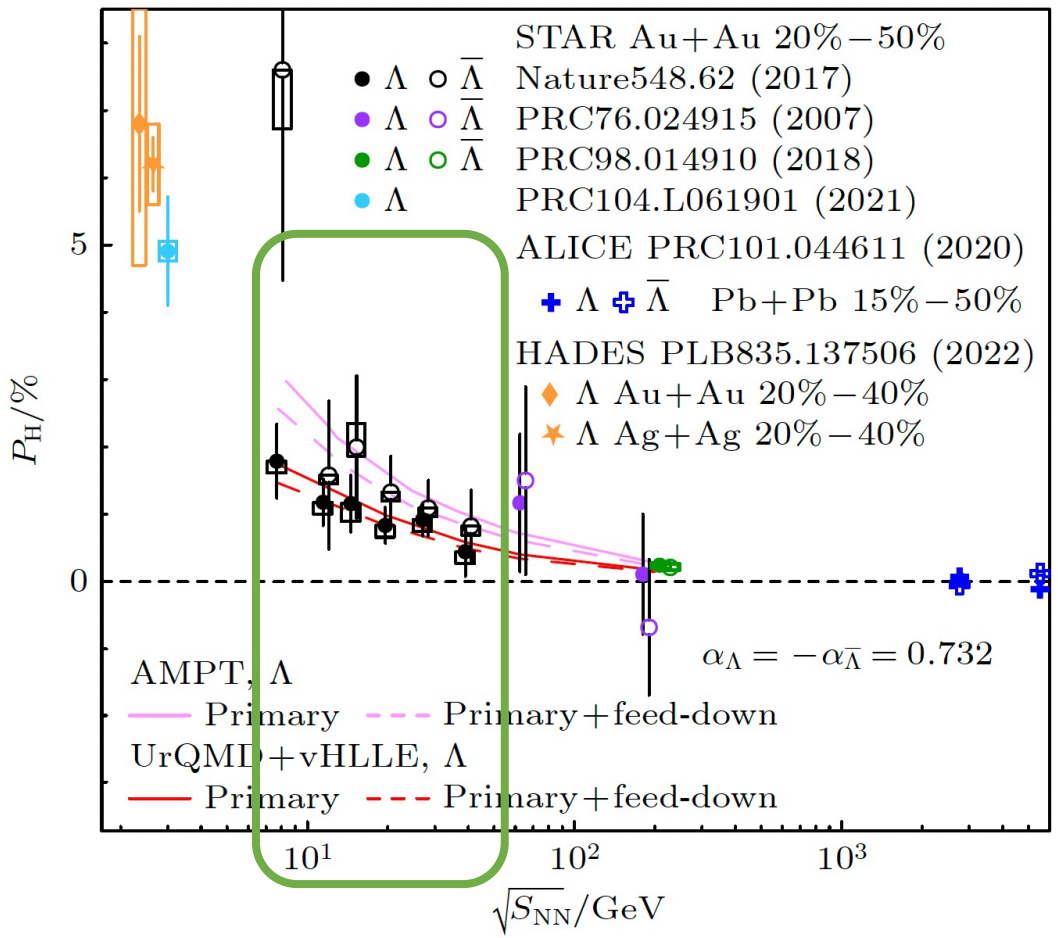
➢ *Possible difference between Λ and $\bar{\Lambda}$ due to magnetic field effect?*

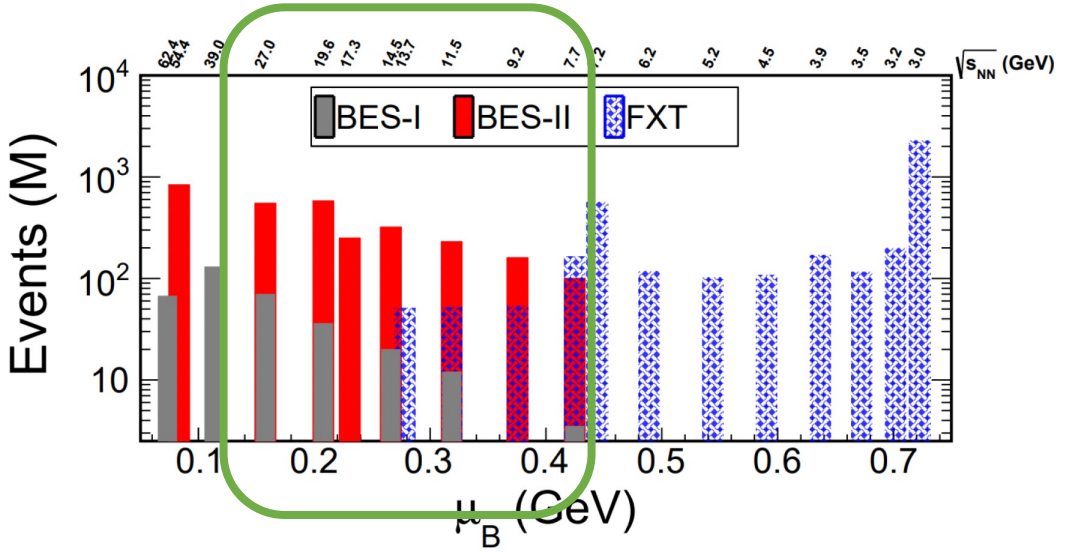
- STAR, P_H at 19.6 and 27 GeV BES-II, no splitting
  PRC108,014910(2023)
- Greatly improved precision from Beam Energy Scan phase-II at 7.7, 9.2, 11.5, 14.6, 17.3 GeV
- STAR recent highlights
  - Λ, Ξ, Ω global polarization from BES-II

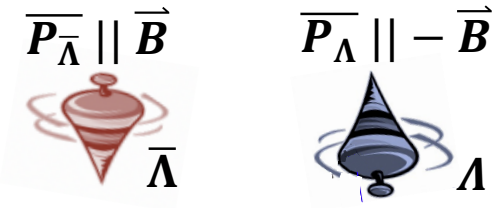
STAR, arXiv:2611.03044 STAR, arXiv:2611.03237

Observation of Λ global polarization

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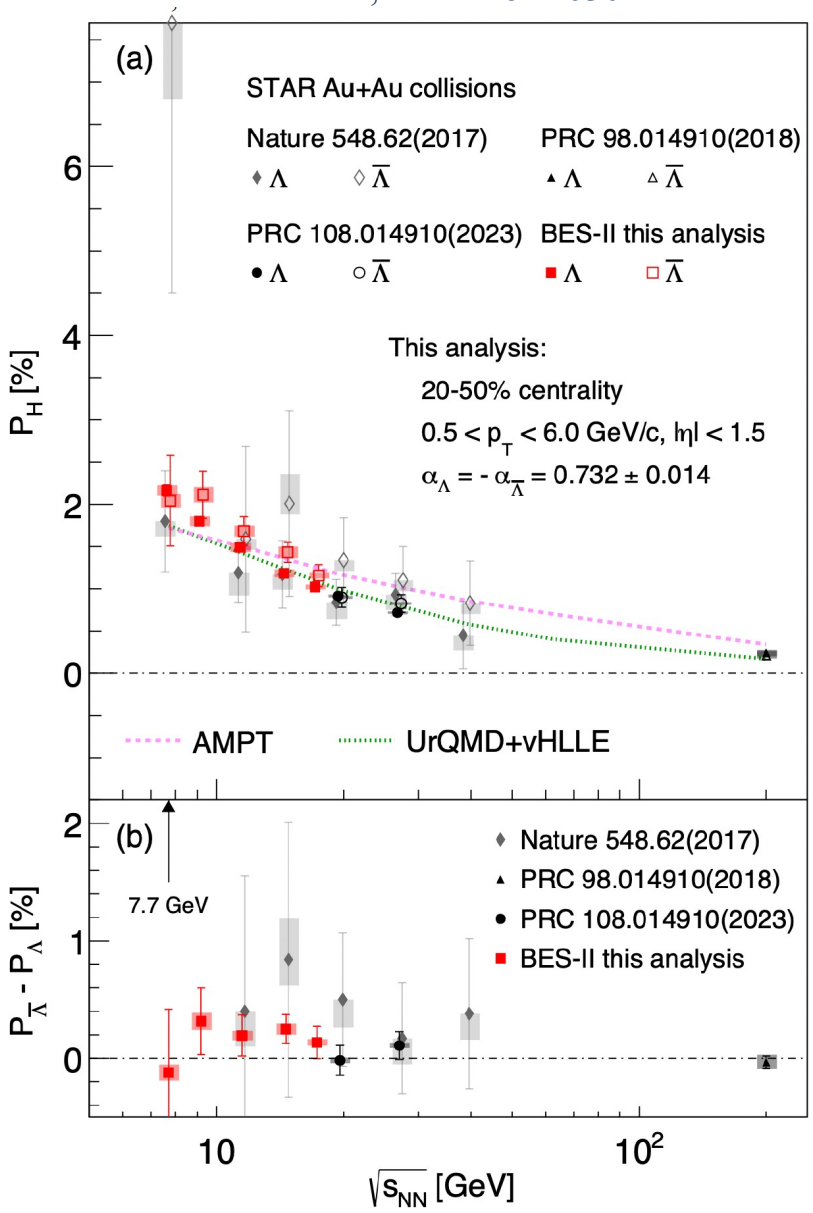
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STAR, arXiv:2611.03044 STAR, arXiv:2611.03237

Global polarization : energy dependence

STAR, arXiv:2611.03044



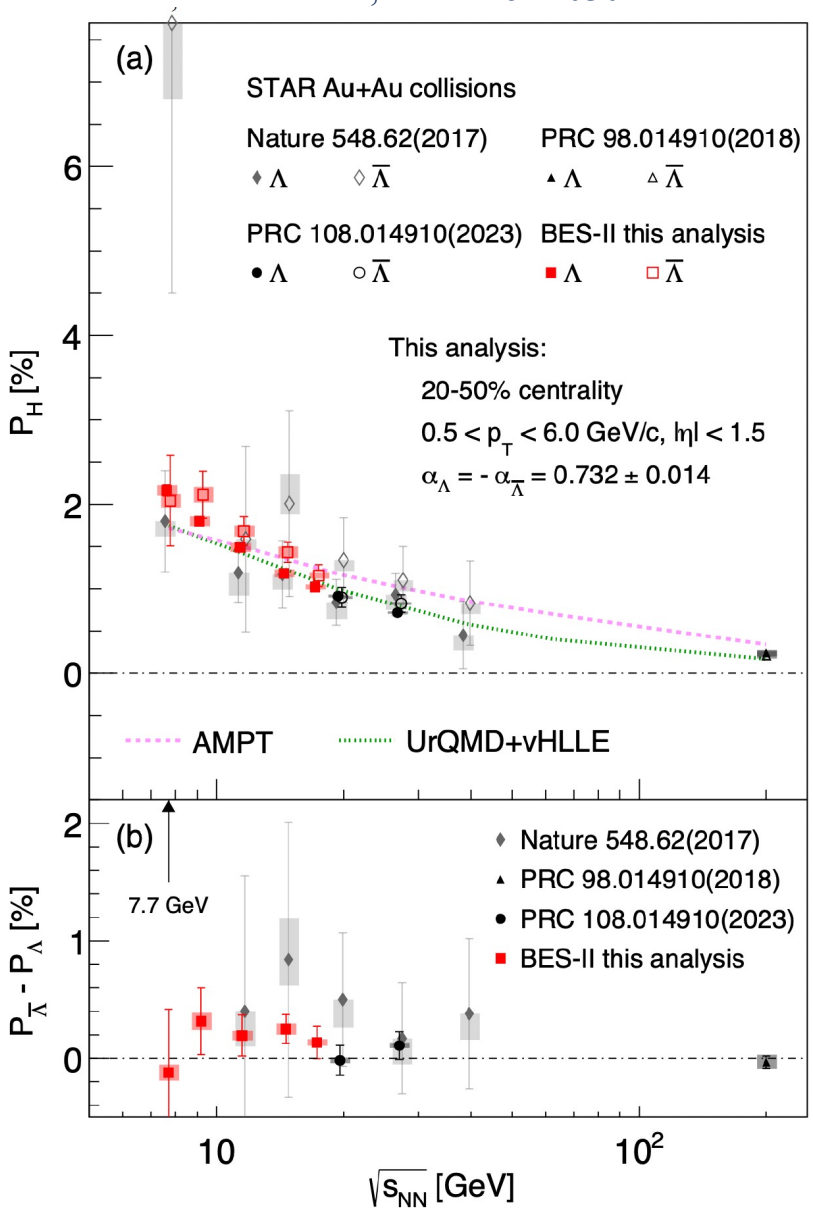
- New STAR results at $\sqrt{s_{NN}}$ = 7.7-17.3 GeV from BES-II, significant improvement in precision was achieved
  - $P_H = 1.17 \pm 0.40(stat) \pm 0.27(syst)$ **[BES-I]** at 14.6 GeV

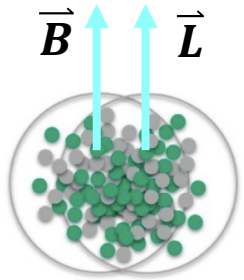


  - $P_H = 1.19 \pm 0.04(stat) \pm 0.05(syst)$ **[BES-II]** at 14.6 GeV
- Global polarization increases toward lower collision energies

Global polarization : energy dependence

STAR, arXiv:2611.03044





$$P_\Lambda \approx \frac{1}{2}\frac{\omega}{T} + \frac{\mu_\Lambda B}{T}$$

$$P_{\bar{\Lambda}} \approx \frac{1}{2}\frac{\omega}{T} - \frac{\mu_\Lambda B}{T}$$





$$\Delta P_H = |P_{\bar{\Lambda}} - P_\Lambda| \approx \frac{2|\mu_\Lambda|B}{T}$$

$T = 150\ MeV, \mu_\Lambda = -1.93\times10^{-1}\ MeV/T$

F. Becattini et al, PRC 95, 054902(2017)

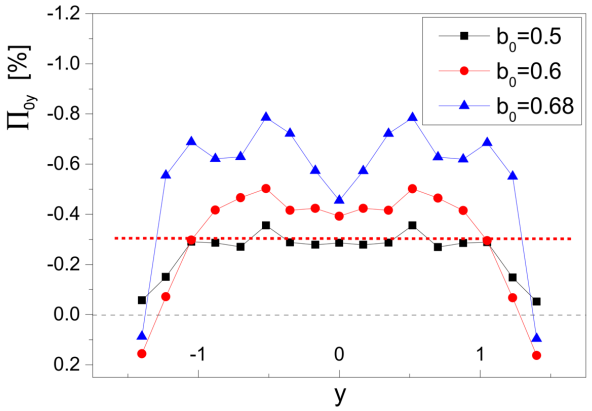
- The $\Lambda - \bar{\Lambda}$ polarization difference remains consistent with zero over 7.7-27 GeV
- 95% confidence level upper limit on late-stage magnetic field

$\sqrt{s_{NN}}$ (GeV)	7.7	9.2	11.5	14.6	17.3	19.6	27
B ($\times10^{13}$ T)	3.8	3.5	2.2	2.0	1.6	0.9	1.4

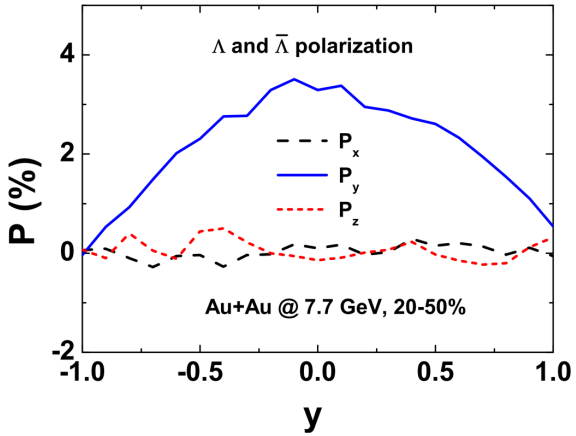
19.6, 27GeV from STAR, PRC 108, 014910 (2023)

Global polarization : model predictions for rapidity dependence

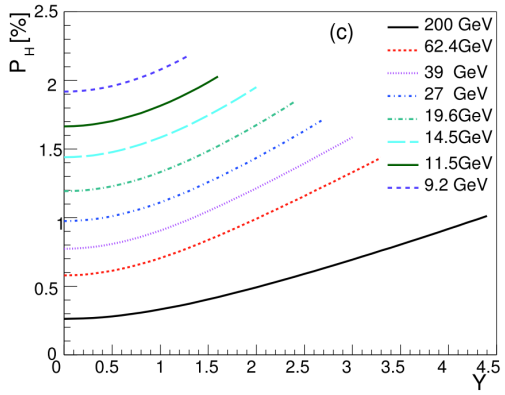
Y-L Xie et al, EPJC 80(2020)1,39



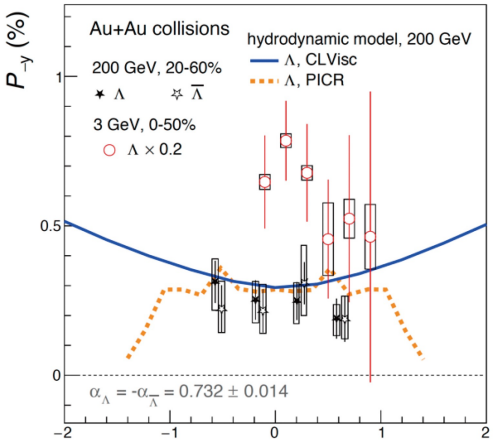
Y-F Sun et al, PRC 96, 024906 (2017)

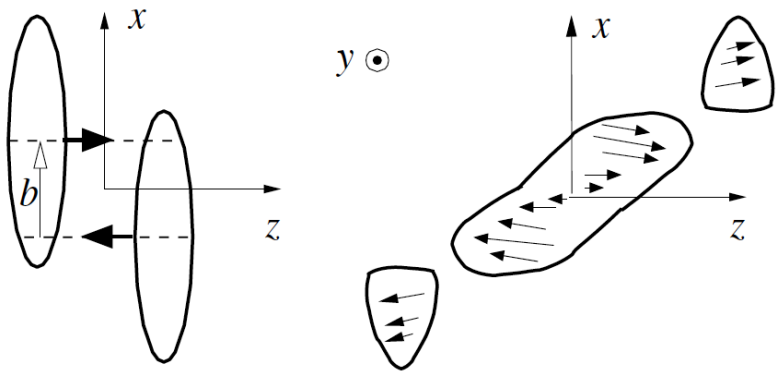


Z.-T. Liang et al, CPC 45, 014102 (2021)

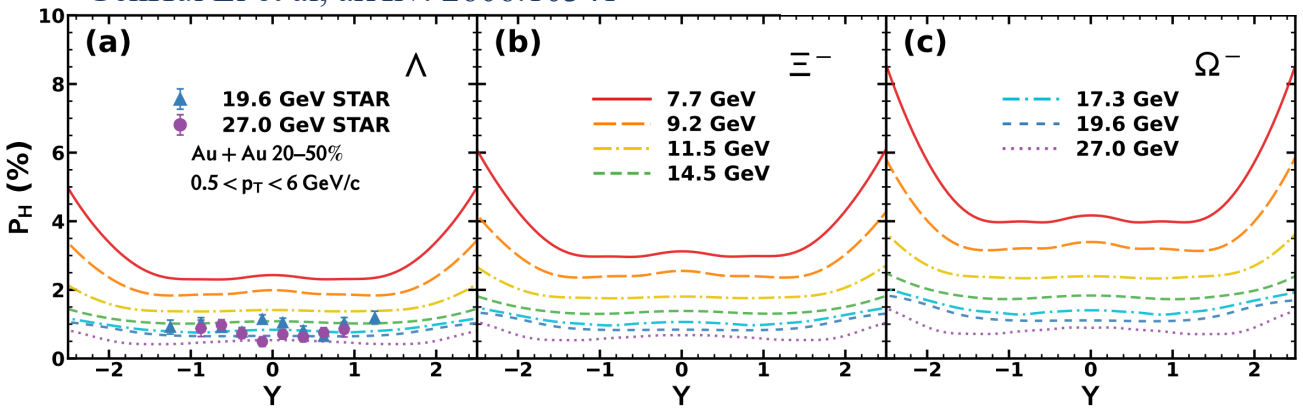


H-Z Wu et al, PRR 1,033058(2019)





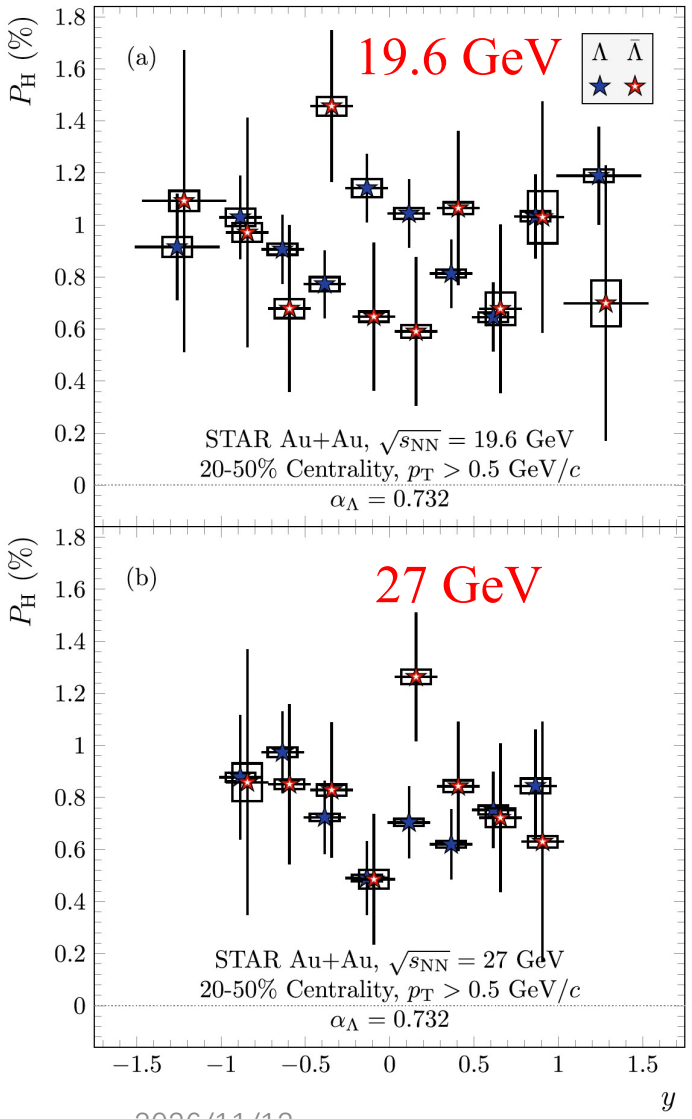
GenHui Li et al, arXiv: 2606.10341



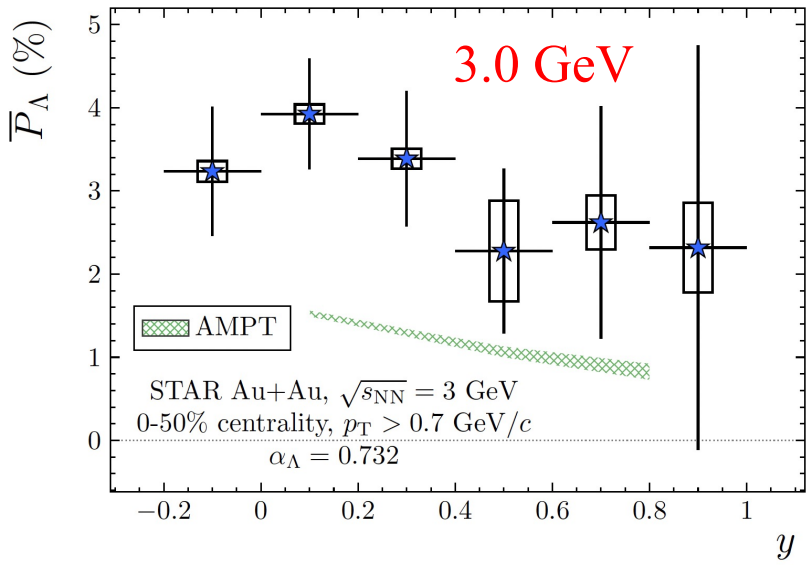
- Models predict increasing, decreasing, or approximately flat global polarization with increasing rapidity
- The rapidity dependence reflects the longitudinal flow shear and angular-momentum distribution, together with spin-polarization dynamics and the subsequent evolution of the medium

Global polarization : rapidity dependence

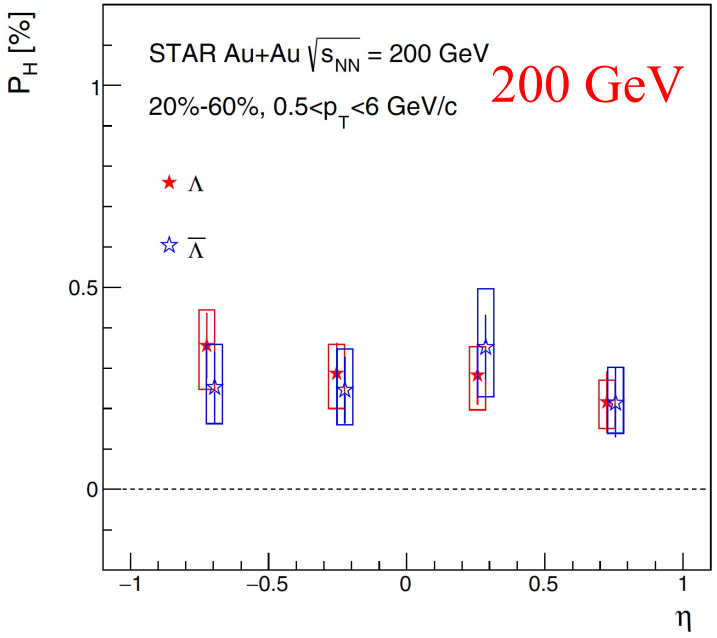
STAR, PRC 108, 014910 (2023)



STAR, PRC 104, L061901 (2021)



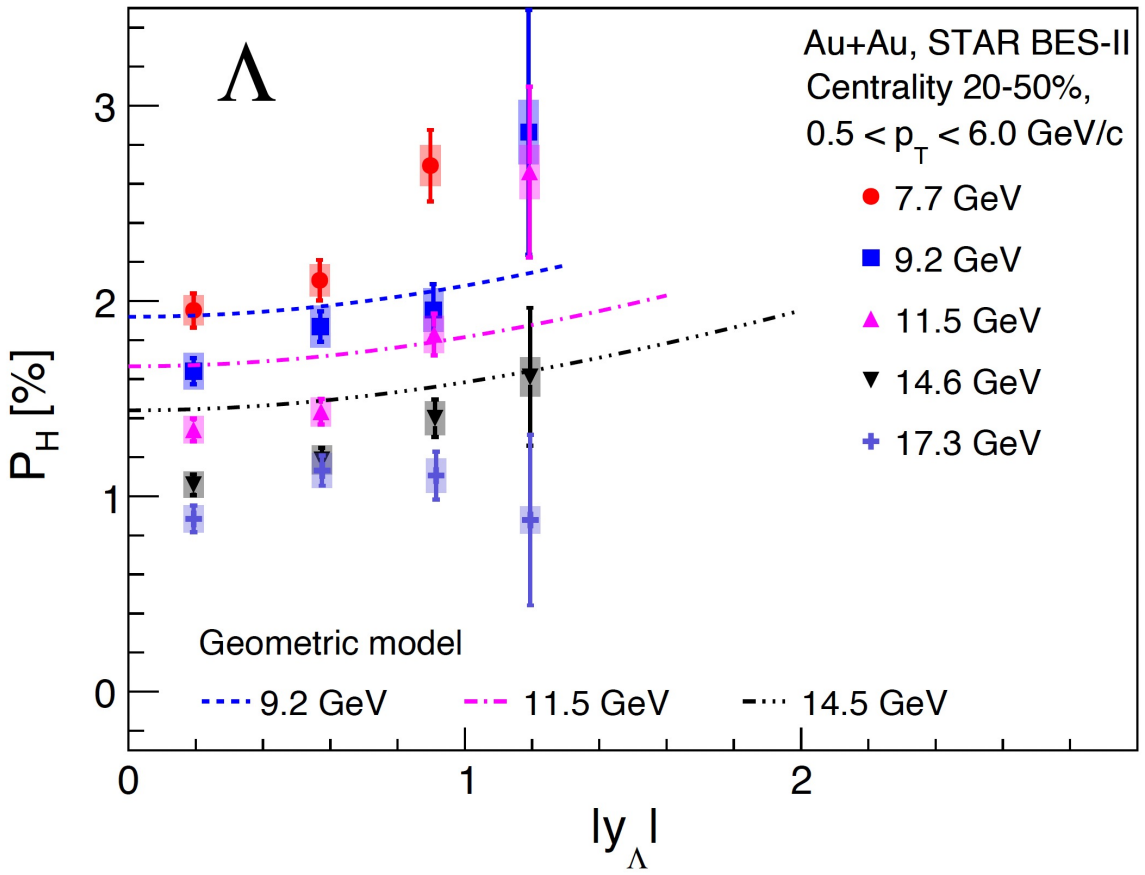
STAR, PRC 98, 014910 (2018)



- No significant rapidity dependence observed in Au+Au collisions at 3.0, 19.6, 27, and 200 GeV

Global polarization : rapidity dependence

STAR, arXiv:2611.03044
Model : Z.-T. Liang, J. Song et al, CPC 45, 014102 (2021)

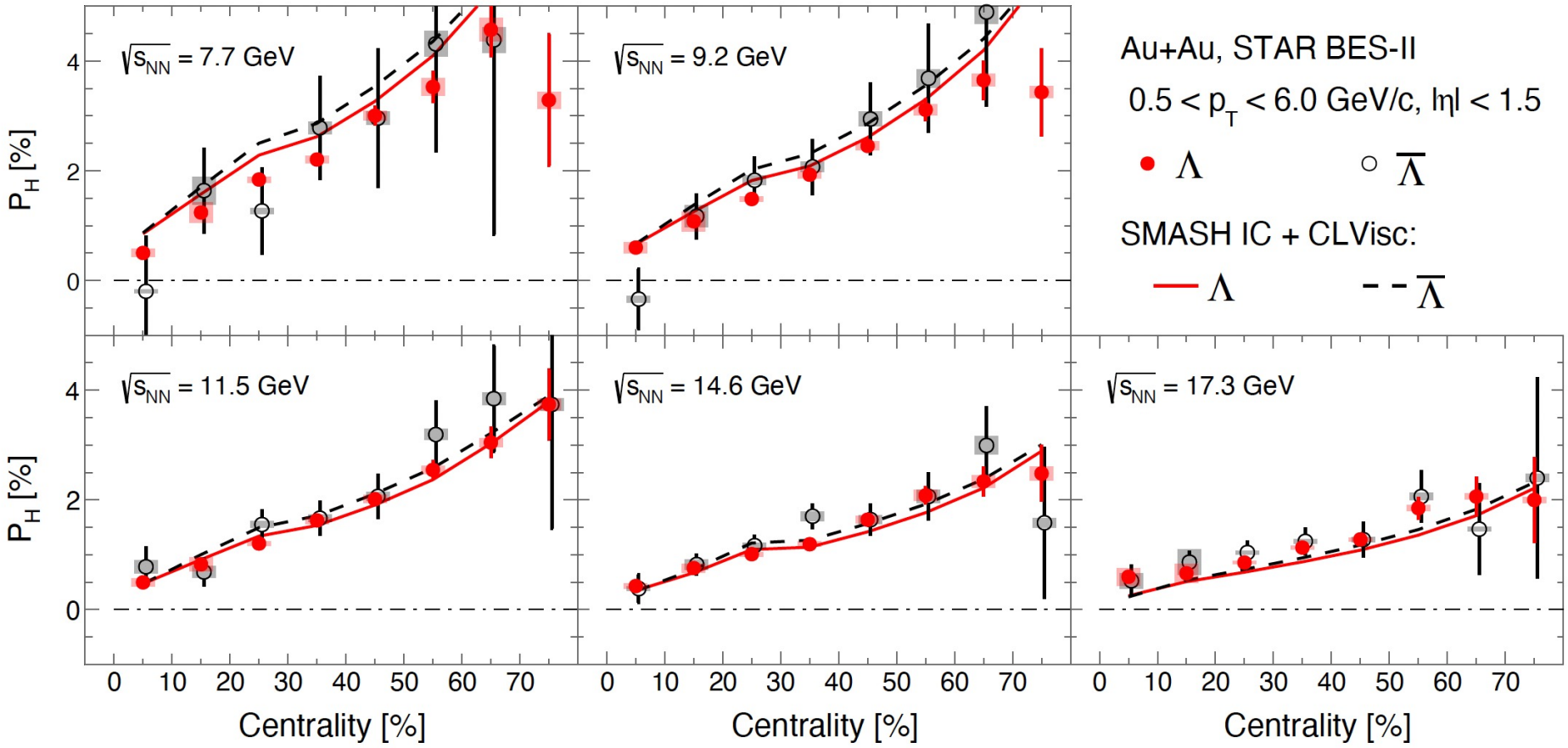


- The first evidence for a nonzero rapidity dependence
- Λ polarization increases with absolute rapidity $|y_\Lambda|$, more strongly at lower energies
- A linear fit $P_H = a + b|y_\Lambda|$ uses the combined 7.7-17.3 GeV data
  - $b = 0.498 \pm 0.103 \ \ (4.8\sigma)$
- Different models predict different trends

Z.-T. Liang, J. Song et al, CPC 45, 014102 (2021)
Yilong Xie et al, EPJC 80(2020)1,39
Yifeng Sun et al, PRC 96, 024906 (2017)
.....

Global polarization : centrality dependence

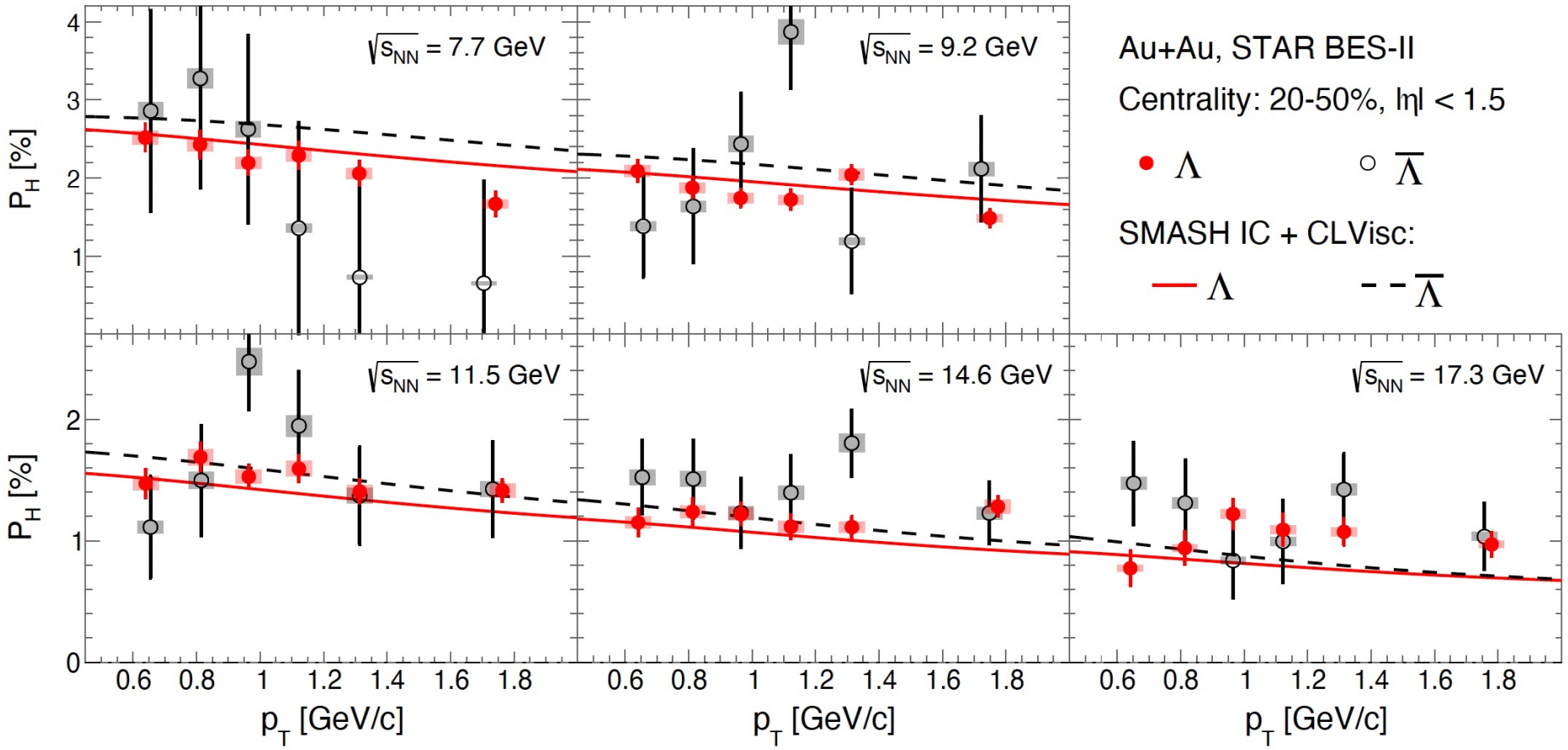
STAR, arXiv:2611.03237
Model : G.-H. Li, C. Yi, X.-Y. Wu, S. Pu, and G.-Y. Qin, arXiv:2606.10341



- Λ and $\overline{\Lambda}$ polarization increases towards peripheral collisions
- Larger vorticity generated in peripheral centrality, leading to an enhanced global polarization

Global polarization : transverse momentum dependence

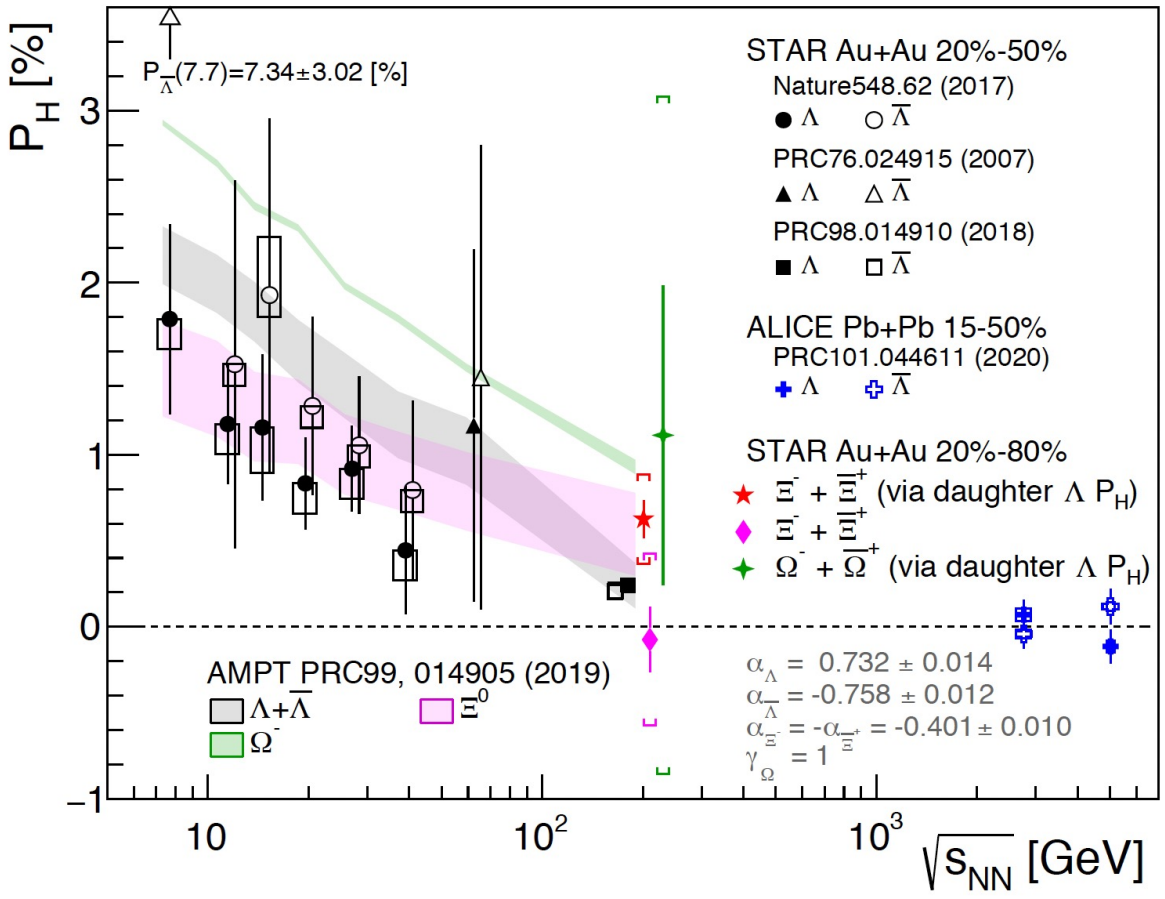
STAR, arXiv:2611.03237
Model : G.-H. Li, C. Yi, X.-Y. Wu, S. Pu, and G.-Y. Qin, arXiv:2606.10341



- Λ and $\overline{\Lambda}$ polarization as a function of p_T
- No significant p_T dependence observed over the measured range

Global polarization of Ξ and Ω

STAR, PRL126, 162301 (2021)



Hyperon	Deacy mode	α_H	Spin
Λ(uds)	$\Lambda \to p + \pi^-$	0.732	1/2
Ξ^-(dss)	$\Xi^- \to \Lambda + \pi^-$	-0.401	1/2
Ω^-(sss)	$\Omega^- \to \Lambda + K^-$	0.0157	3/2

- Mult-strange hyperons are expected to be polarized along $\boldsymbol{L}$ though spin-orbit coupling
- Possible larger Ξ global polarization than Λ due to earlier production, vorticity evolution or spin quantum number

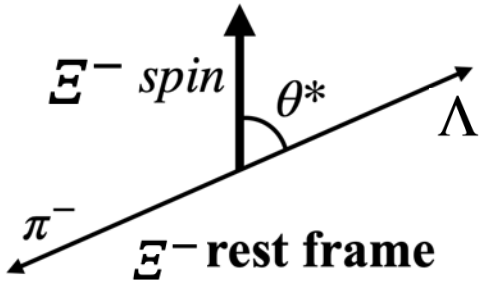
$P_\Lambda \cong P_s$, assuming that $P_{u.d} \sim P_s \Longrightarrow P_\Xi \sim P_\Lambda$, $P_\Omega \sim \frac{5}{3} P_\Lambda$

Z.-T. Liang and X.-N. Wang, PRL 94, 102301 (2005)
Hui Li et al., PLB 827, 136971(2022)

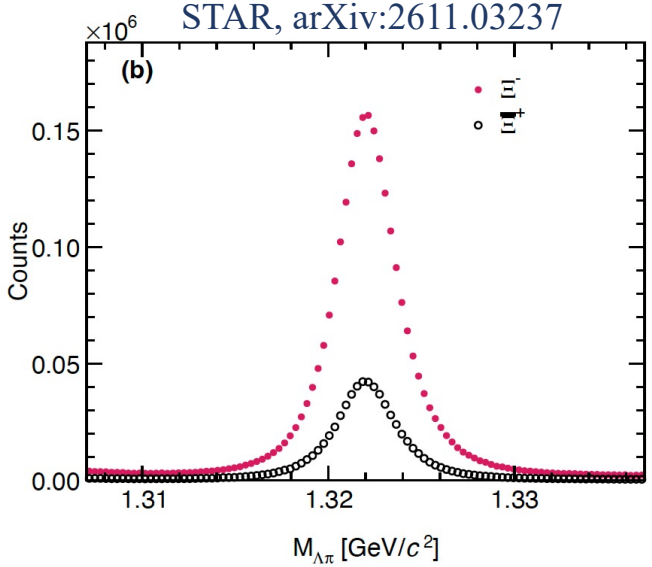
- **Collision energy, centrality, p_T, η dependence?**
- **Possible Λ, Ξ, Ω global polarization difference?**

Global polarization measurement of Ξ and Ω

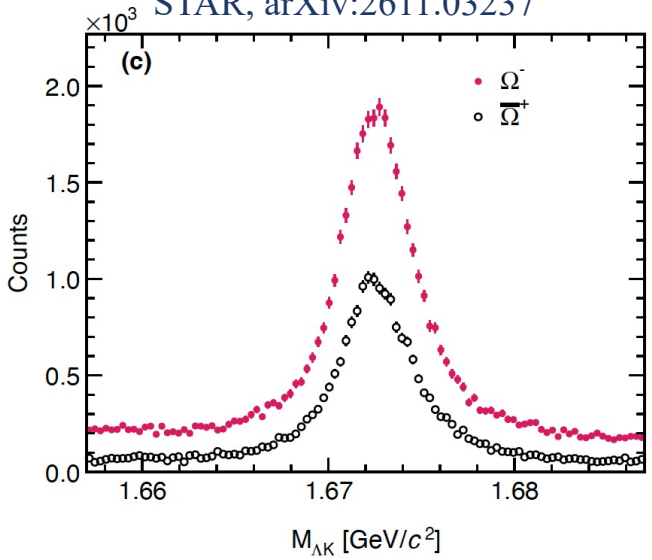
Hyperon	Deacy mode	α_H
$\Lambda(uds)$	$\Lambda \to p + \pi^-$	0.732
$\Xi^-(dss)$	$\Xi^- \to \Lambda + \pi^-$	-0.401
$\Omega^-(sss)$	$\Omega^- \to \Lambda + K^-$	0.0157



STAR, arXiv:2611.03237



STAR, arXiv:2611.03237



- Two methods for extracting the Ξ and Ω polarization
  - Direct measurement: measured via daughter Λ angle distribution in Ξ rest frame

$$P_H = \frac{8}{\pi \alpha_H} \frac{1}{A_0} \frac{\langle \sin(\Psi_1 - \phi_\Lambda^*) \rangle}{Res(\Psi_1)}$$

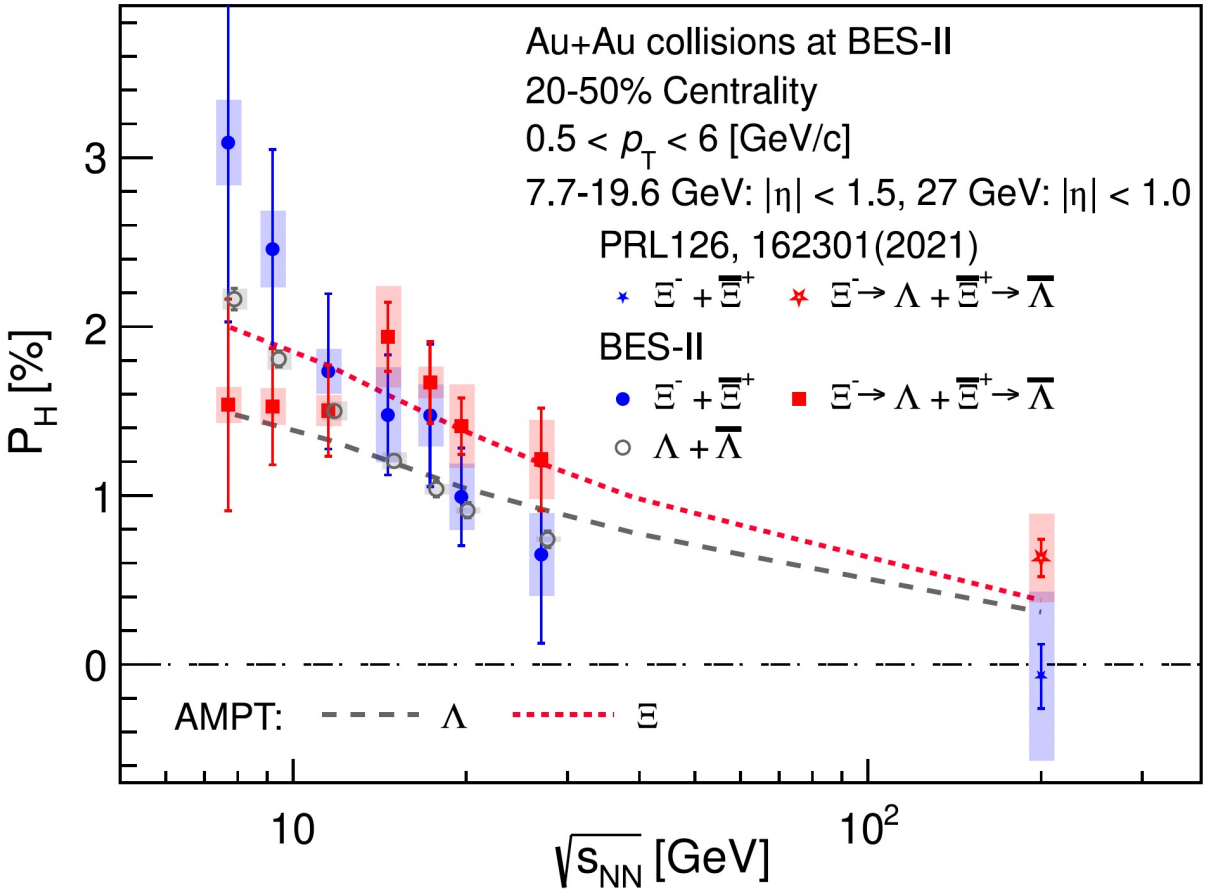
  - Indirect measurement: via daughter Λ polarization with spin transfer factor($C_{\Xi^- \to \Lambda} = 0.944, C_{\Omega^- \to \Lambda} = 1.0$ is assumed)

$$\mathbf{P}_\Lambda = \begin{cases} \mathbf{P}_\Omega & \text{if } \gamma_\Omega = 1 \ , \\ -0.6\mathbf{P}_\Omega & \text{if } \gamma_\Omega = -1 \end{cases}$$

K. B. Luk et al. PRD 38, 19 (1988)

$\Xi^- + \bar{\Xi}^+$ global polarization

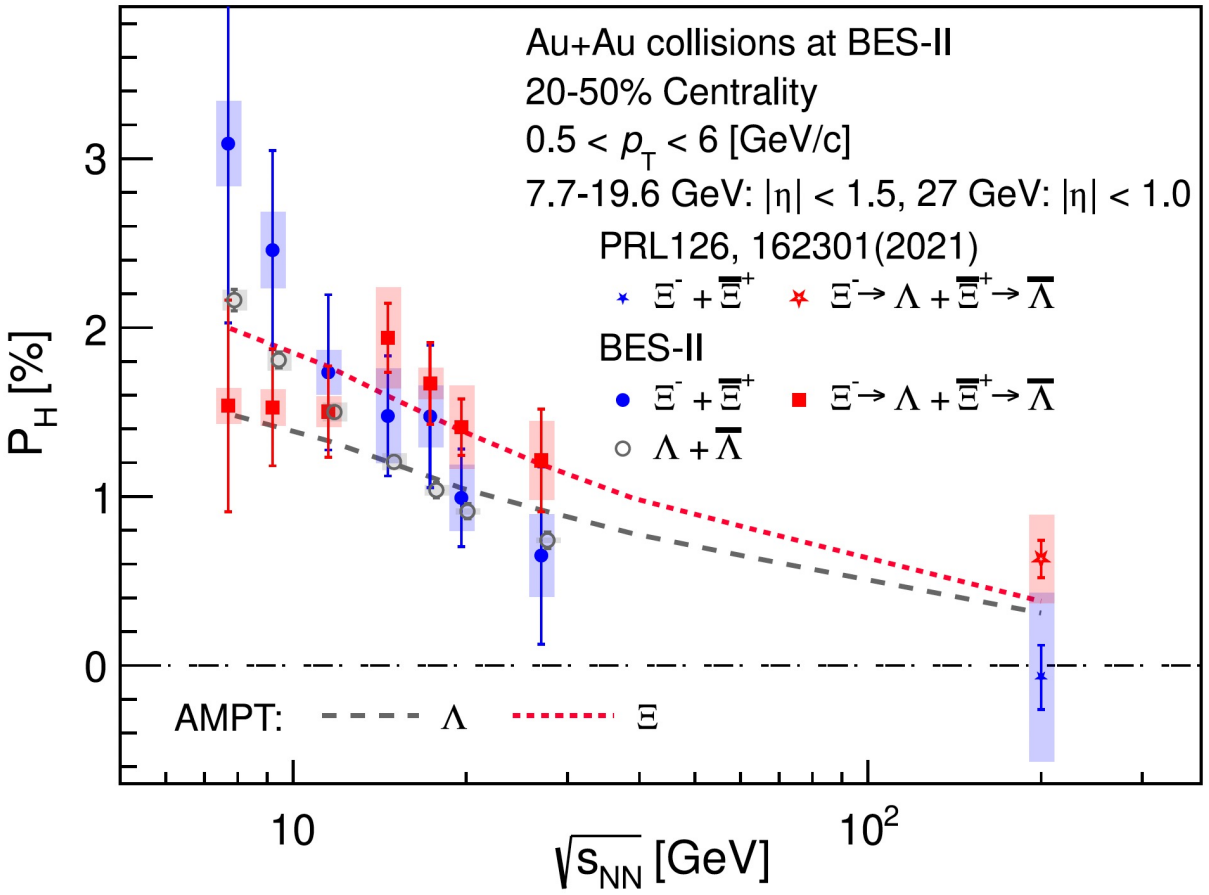
STAR, arXiv:2611.03044
Model : H. Li, X. Xia, X. G. Huang, H. Z. Huang PLB 827, 136971 (2022)



- Significant $\Xi^- + \bar{\Xi}^+$ global polarization is observed, increase in lower collision energies

$\Xi^- + \bar{\Xi}^+$ global polarization

STAR, arXiv:2611.03044
Model : H. Li, X. Xia, X. G. Huang, H. Z. Huang PLB 827, 136971 (2022)

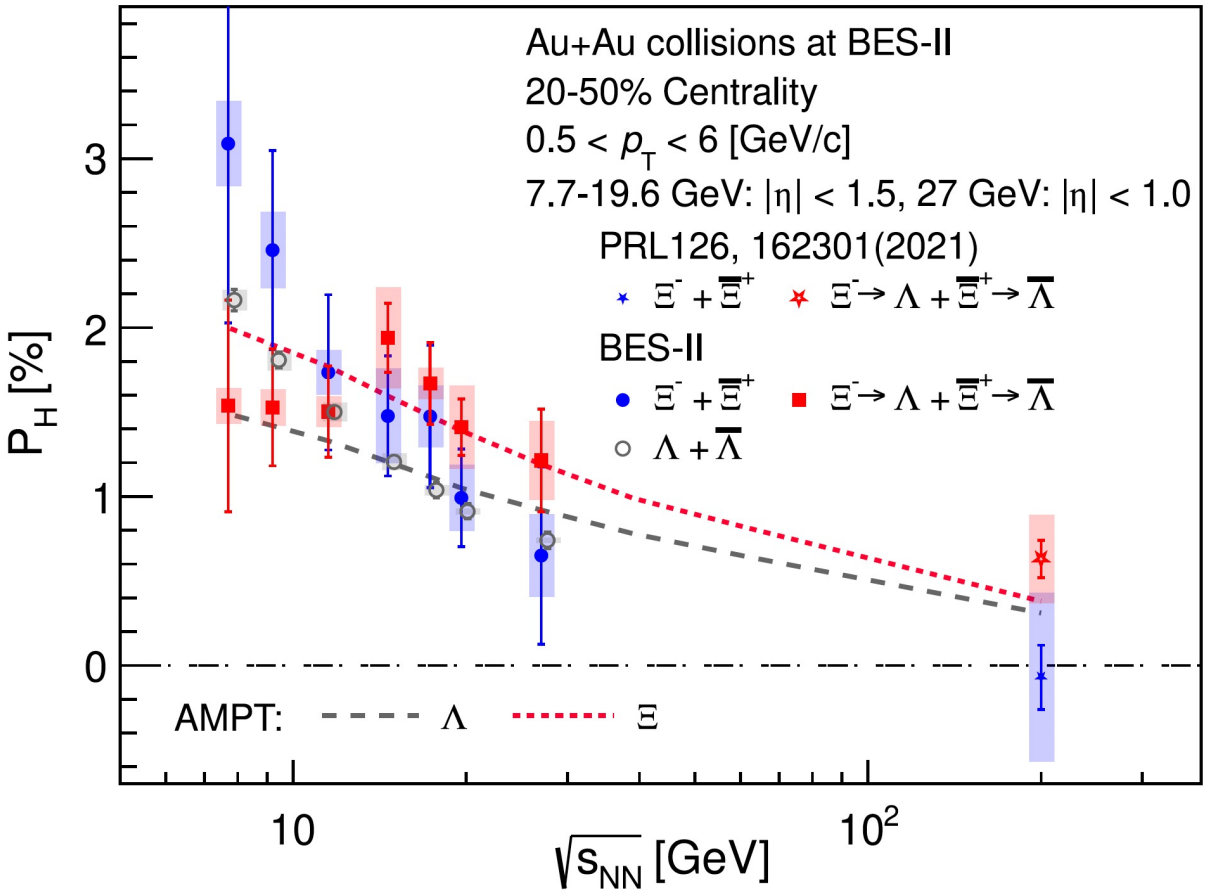


- Significant $\Xi^- + \bar{\Xi}^+$ global polarization is observed, increase in lower collision energies
- Polarization from two measurements are consistent within uncertainties

Energy-combined (7.7 – 27 GeV)	Direct measurement (5.2σ)	Indirect measurement (7.1σ)
$P_H(\%)$	$1.389 \pm 0.163(\text{stat.}) \pm 0.212(\text{syst.})$	$1.565 \pm 0.094(\text{stat.}) \pm 0.200(\text{syst.})$

$\Xi^- + \bar{\Xi}^+$ global polarization

STAR, arXiv:2611.03044
Model : H. Li, X. Xia, X. G. Huang, H. Z. Huang PLB 827, 136971 (2022)

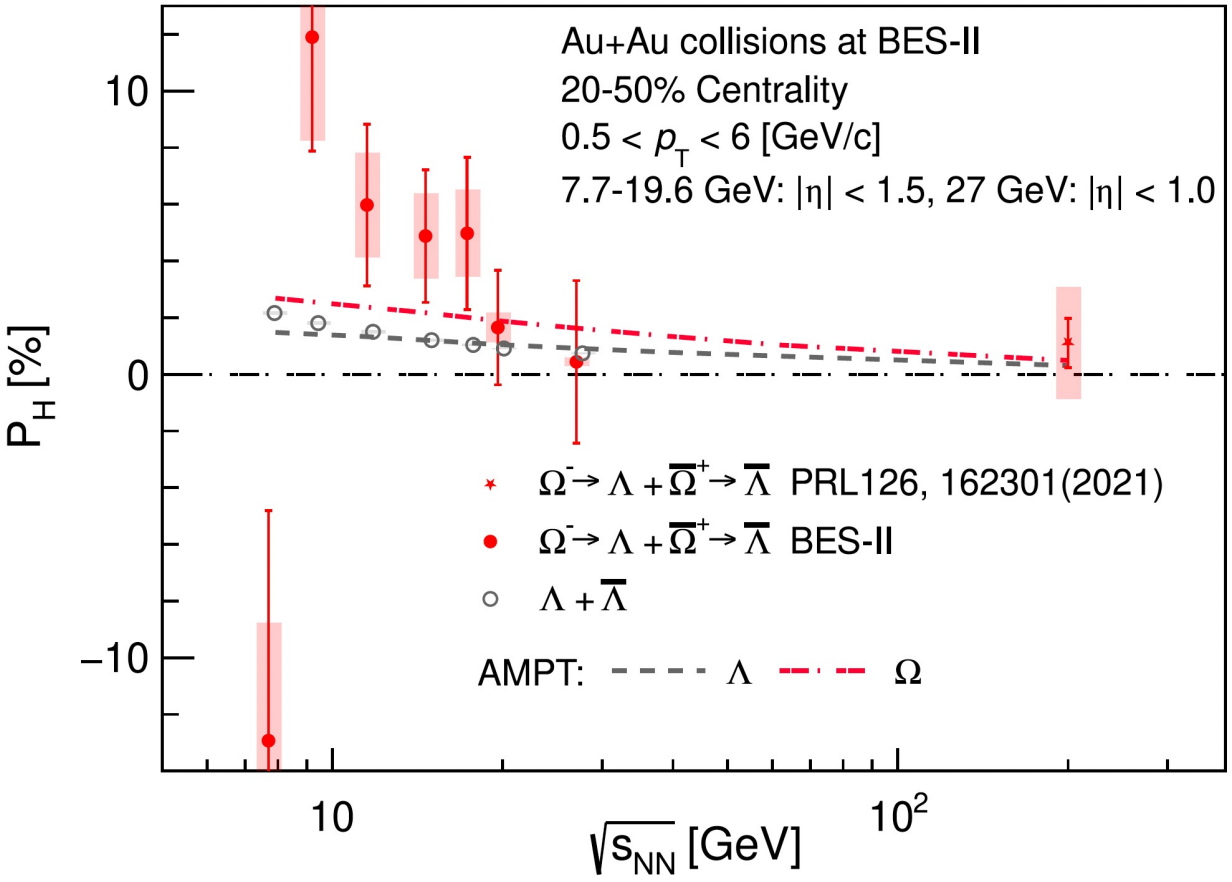


- Significant $\Xi^- + \bar{\Xi}^+$ global polarization is observed, increase in lower collision energies
- Polarization from two measurements are consistent within uncertainties
- No significant difference between $\Lambda + \bar{\Lambda}$ and $\Xi^- + \bar{\Xi}^+$ global polarization within uncertainties

Energy-combined (7.7 – 27 GeV)	$\Xi^- + \bar{\Xi}^+$	$\Lambda + \bar{\Lambda}$
P_H(%)	1.389 ± 0.163(stat.) ± 0.212(syst.)	1.284 ±0.017(stat.) ±0.039(syst.)

$\Omega^- + \bar{\Omega}^+$ global polarization

STAR, arXiv:2611.03044
Model : H. Li, X. Xia, X. G. Huang, H. Z. Huang PLB 827, 136971 (2022)

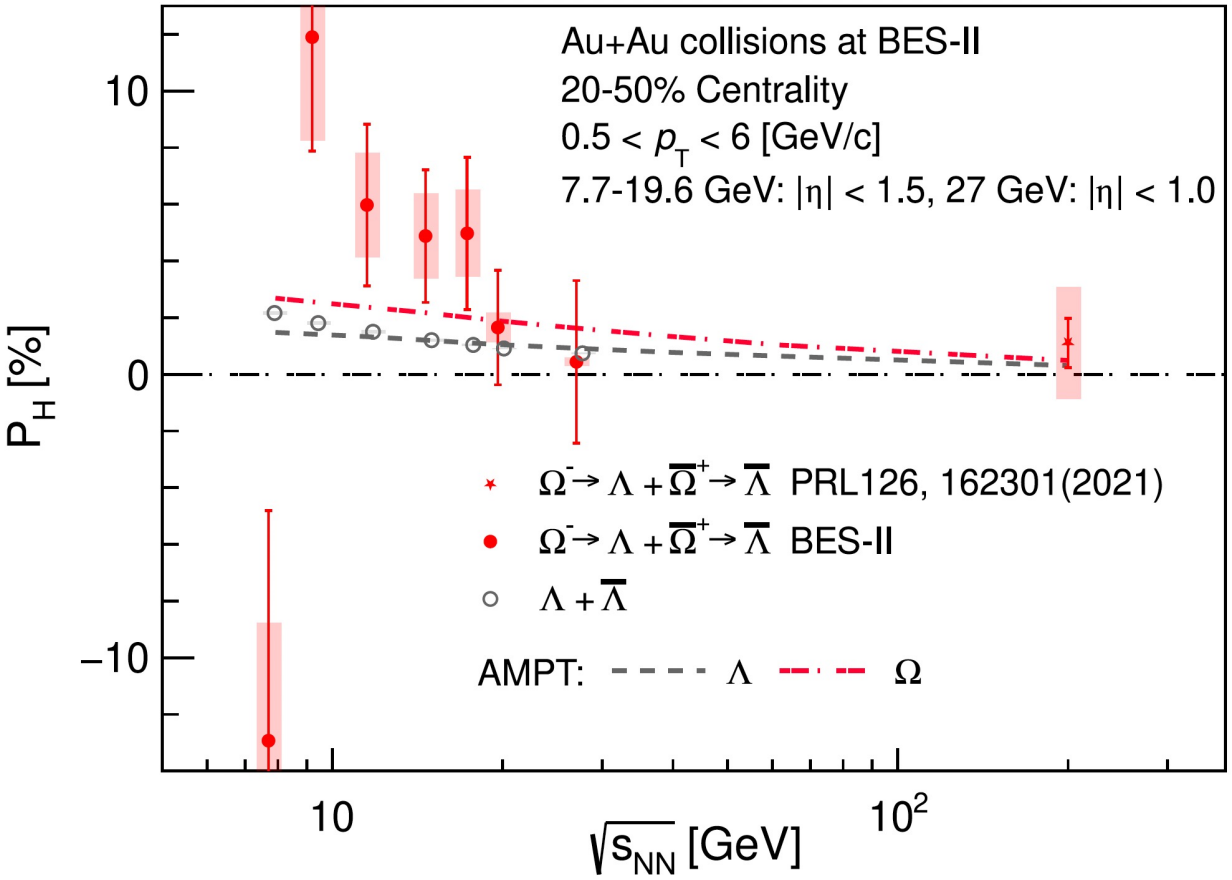


- Polarization of $\Omega^- + \bar{\Omega}^+$ show a decreasing trend with increasing collision energy
- A hint of larger $\Omega^- + \bar{\Omega}^+$ polarization than $\Lambda + \bar{\Lambda}$ and $\Xi^- + \bar{\Xi}^+$ in lower energies

Energy-combined (7.7 – 27 GeV)	$\Omega^- + \bar{\Omega}^+$	$\Lambda + \bar{\Lambda}$
$P_H(\%)$	$3.731 \pm 1.062(\text{stat.}) \pm 1.289(\text{syst.})$	$1.284 \pm 0.017(\text{stat.}) \pm 0.039(\text{syst.})$

$\Omega^- + \bar{\Omega}^+$ global polarization

STAR, arXiv:2611.03044
Model : H. Li, X. Xia, X. G. Huang, H. Z. Huang PLB 827, 136971 (2022)



- Indirect measured Ω polarization via spin transfer factor $C_{\Omega\to\Lambda} \sim +1$ or -0.6, based on the $\gamma_\Omega \sim \pm 1$
- Averaged BES-II energies,
  $P_{\Omega^-+\bar{\Omega}^+} = 3.731 \pm 1.062(stat.) \pm 1.289(syst.)\%$
  $P_{\Lambda+\bar{\Lambda}} = 1.284 \pm 0.017(stat.) \pm 0.039(syst.)\%$
- Under the assumption $P_\Omega = \frac{5}{3} P_\Lambda$, difference between $P_{\Omega^-+\bar{\Omega}^+}$ and 5/3 $P_{\Lambda+\bar{\Lambda}}$

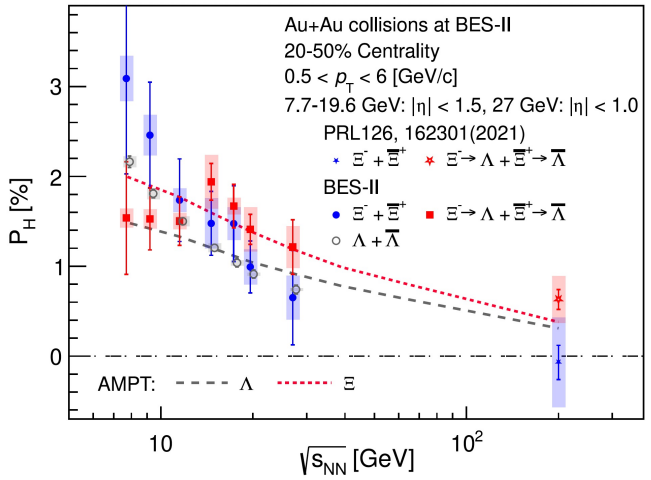
Decay parameter	χ^2/NDF
$\gamma_\Omega \approx +1$	9.25/7
$\gamma_\Omega \approx -1$	22.81/7

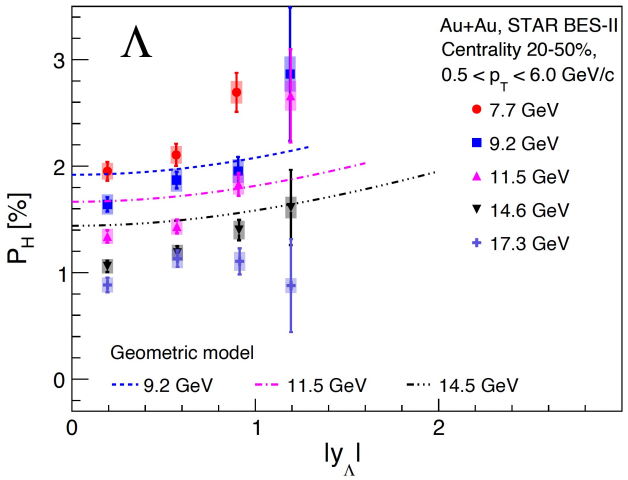
- $\Omega^- + \bar{\Omega}^+$ polarization help to determine the unknown decay parameter γ_Ω, which preferred value of $\sim +1$

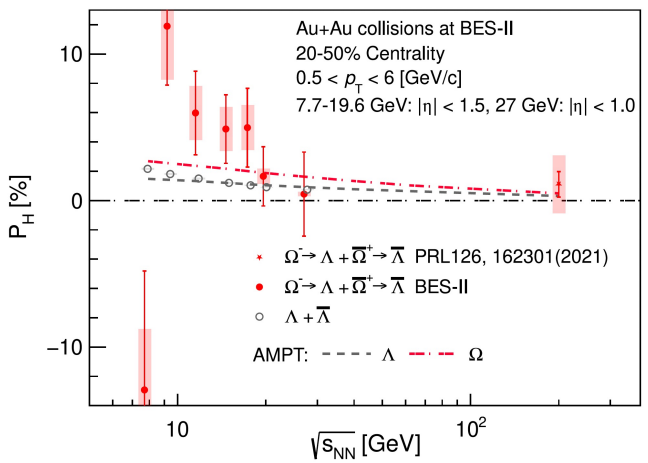
Summary

☐ Global polarization of Λ, Ξ and Ω hyperons in Au+Au collisions at BES-II

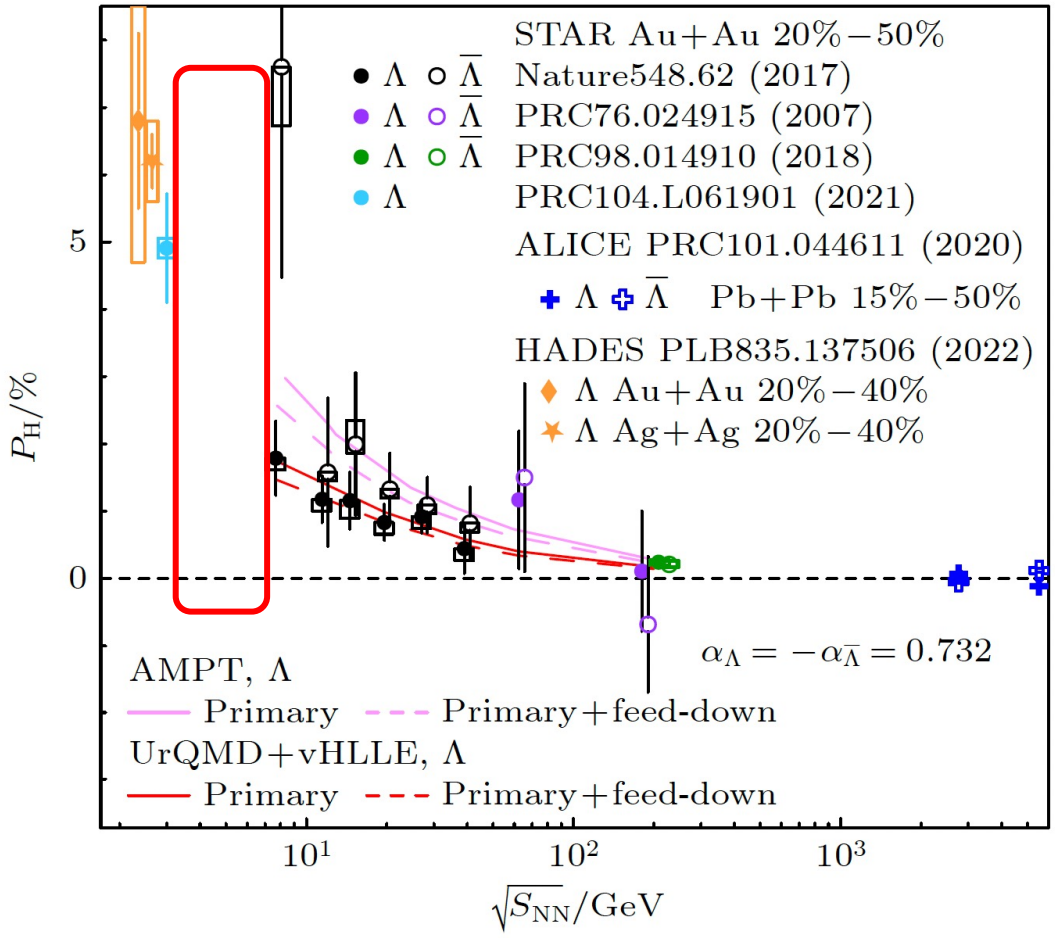
- ✓ For the first time, significant $\Xi^- + \bar{\Xi}^+$ global polarization is observed ($\sim 5\ \sigma$) at lower collision energies
- ✓ The first evidence for a nonzero rapidity dependence of Λ global polarization, 4.8σ differing from zero
- ✓ $\Omega^- + \bar{\Omega}^+$ polarization are compatible with a similar energy dependence and favor the decay parameter $\gamma_\Omega = +1$ under the assumption of the global polarization picture
- ✓ Collision energy, centrality dependence is observed, no significant transverse momentum dependence

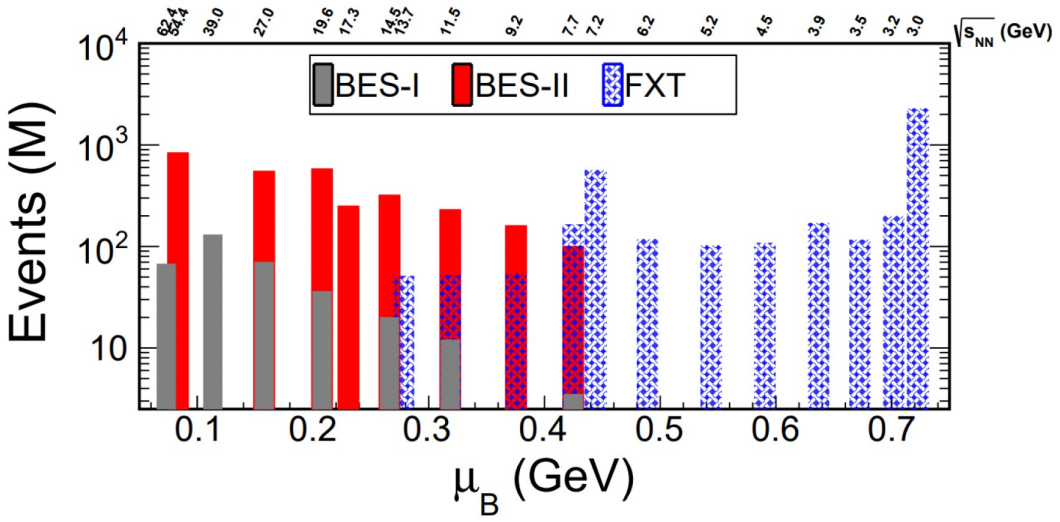






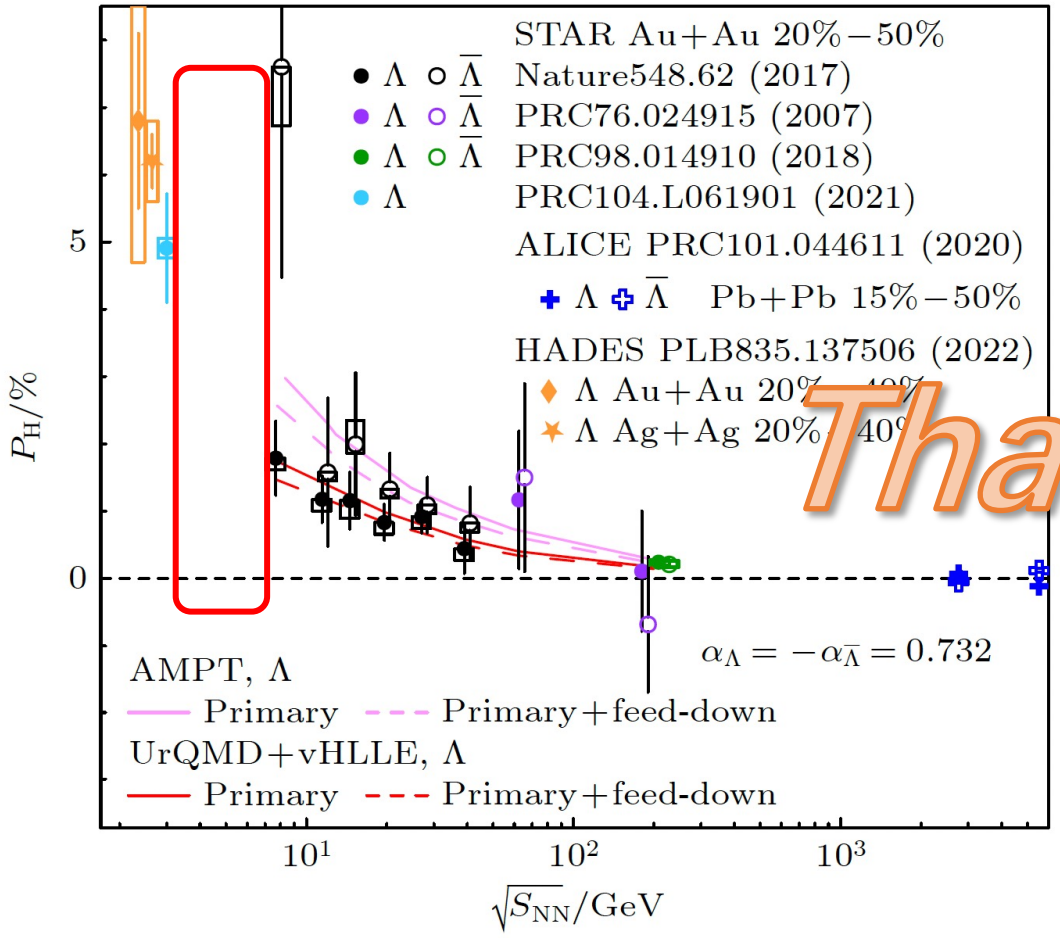
Outlook – Global polarization in FXT energies

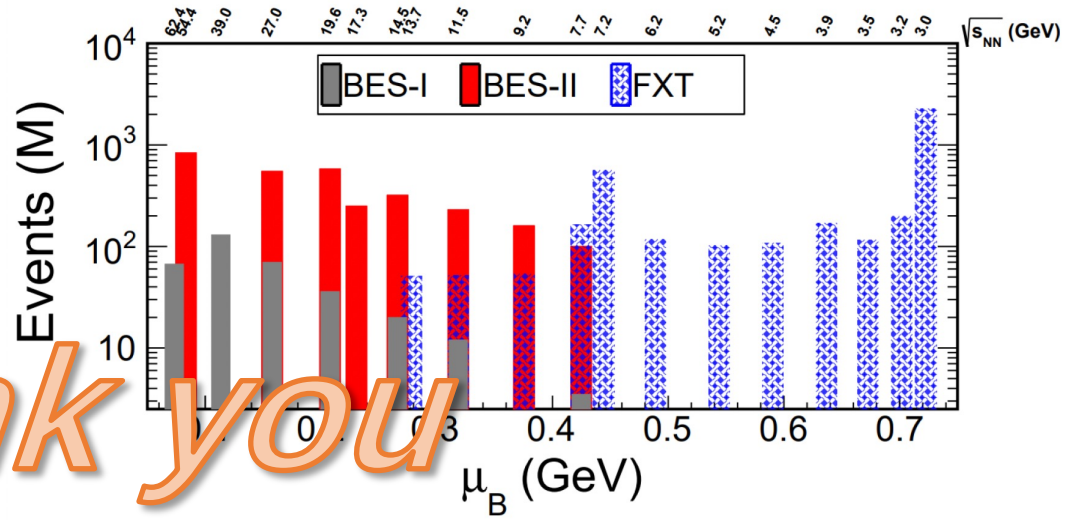




- Global polarization of Λ in FXT 3.0, 3.2, 3.5, 3.9, 4.5, 5.2, 6.2, and 7.2 GeV
- 2018 3GeV data~253M, 2021 3GeV data~2000M
- Measurements in FXT energies on-going

Outlook – Global polarization in FXT energies





Thank you

- Global polarization of Λ in FXT 3.0, 3.2, 3.5, 3.9, 4.5, 5.2, 6.2, and 7.2 GeV
- 2018 3GeV data~253M, 2021 3GeV data~2000M
- Measurements in FXT energies on-going

Back Up

Why $C_{\Omega^-\to\Lambda} = 1.0$

K. B. Luk et al. Phys. Rev. D 38, 19 (1988)

The weak decay $\Omega^- \to \Lambda + K^-$ proceeds to the final states of orbital angular momentum L= 1,2 through the amplitudes A_L. The asymmetry parameters in the decay process can be written as:

$$\alpha = \frac{2\,\mathrm{Re}(A_1^* A_2)}{|A_1|^2 + |A_2|^2}, \quad \beta = \frac{2\,\mathrm{Im}(A_1^* A_2)}{|A_1|^2 + |A_2|^2}, \quad \gamma = \frac{|A_1|^2 - |A_2|^2}{|A_1|^2 + |A_2|^2}, \quad \alpha^2 + \beta^2 + \gamma^2 = 1 .$$

When the joint probability distribution for the decay chain is integrated over the A angular distribution, the angular distribution of the daughter proton is given by:

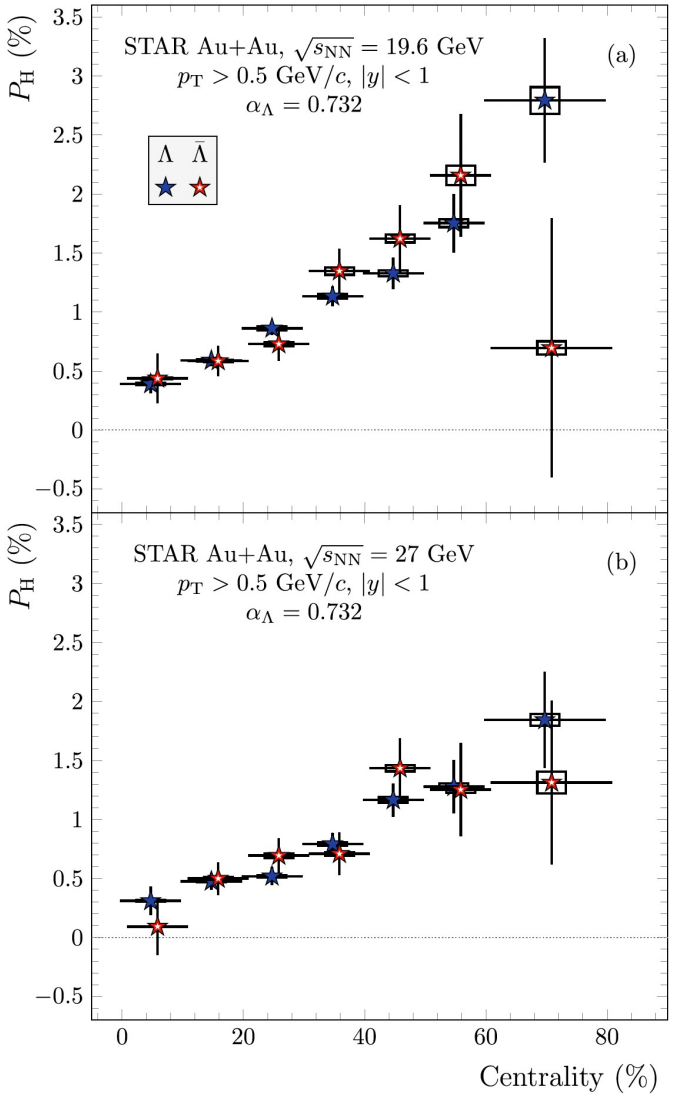
$$\frac{dn}{d\Omega_p} = \frac{1}{4\pi}(1 + \alpha_\Lambda \mathbf{P}_\Lambda \cdot \hat{\mathbf{p}}) , \quad \frac{dN}{d\Omega_p} = \frac{1}{4\pi}\left[1 + \frac{\alpha_\Lambda}{2(J+1)}[1 + (2J+1)\gamma_\Omega]\mathbf{P}_\Omega \cdot \hat{\mathbf{p}}\right] . \quad \Rightarrow \quad \mathbf{P}_\Lambda = \frac{1}{2(J+1)}[1 + (2J+1)\gamma_\Omega]\mathbf{P}_\Omega .$$

Using $J = \frac{3}{2}$:

$$\mathbf{P}_\Lambda = \begin{cases} \mathbf{P}_\Omega & \text{if } \gamma_\Omega = 1 , \\ -0.6\mathbf{P}_\Omega & \text{if } \gamma_\Omega = -1 \end{cases}$$

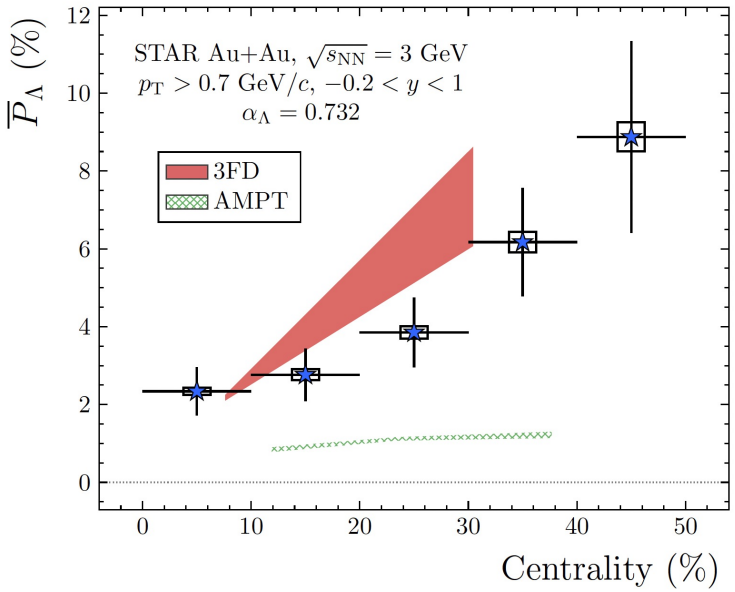
T.D. Lee and C.N. Yang, Phys. Rev.108.1645 (1957)

Global polarization : centrality dependence

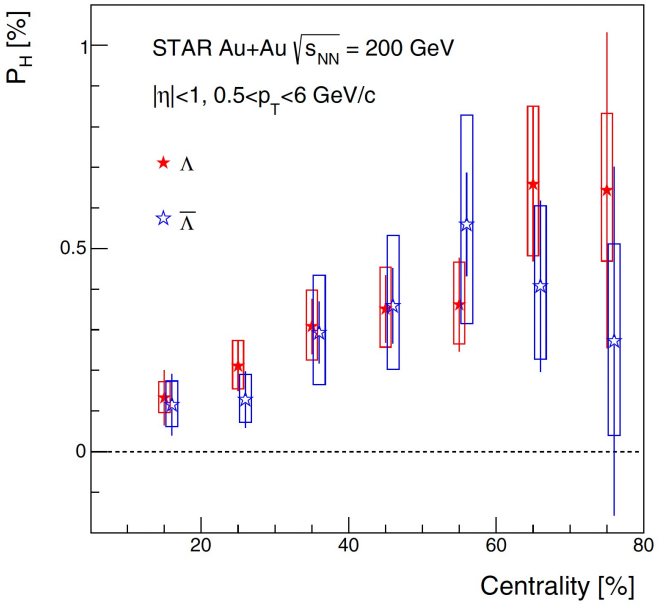


STAR, PRC 108, 014910 (2023)

STAR, PRC 104, L061901 (2021)

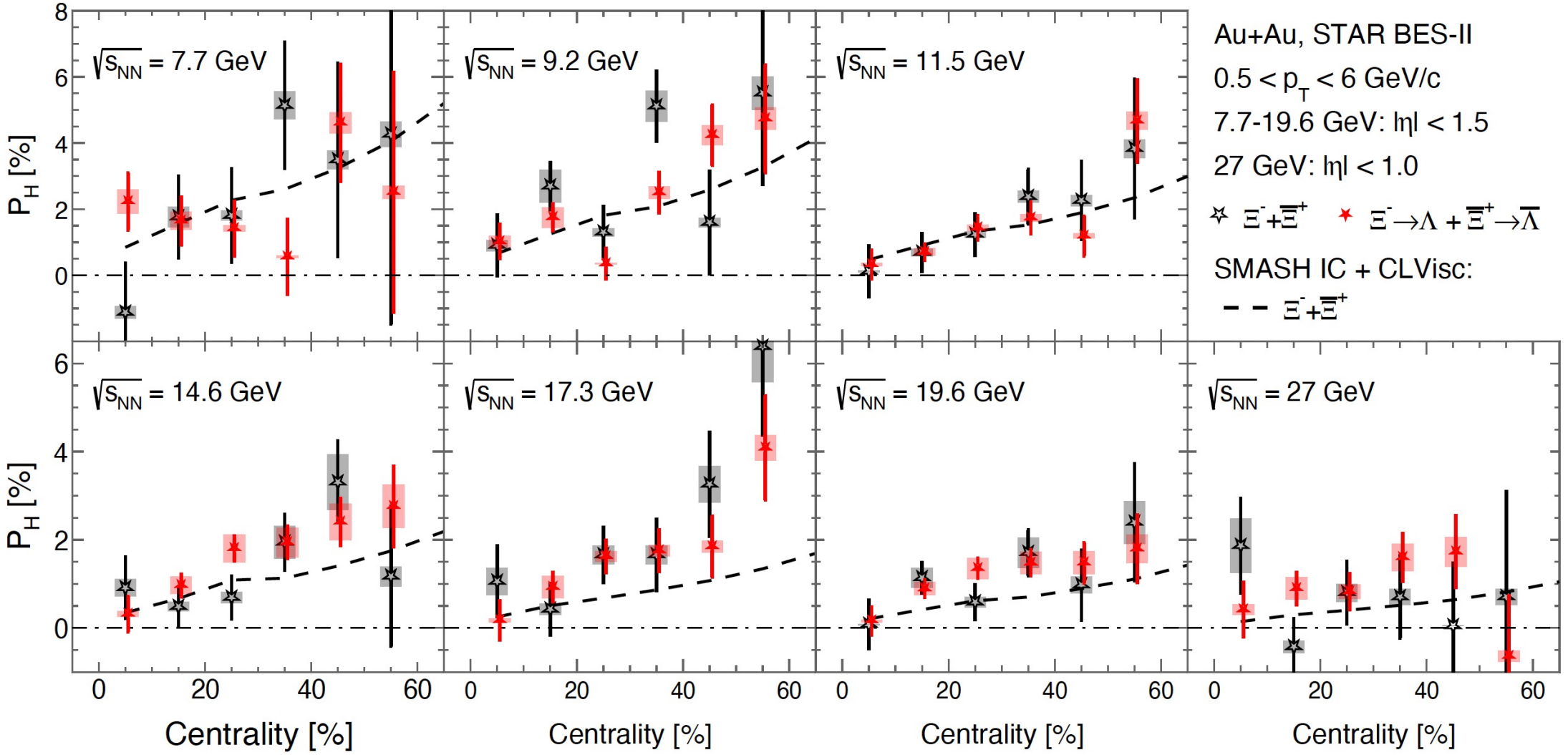


STAR, PRC 98, 014910 (2018)

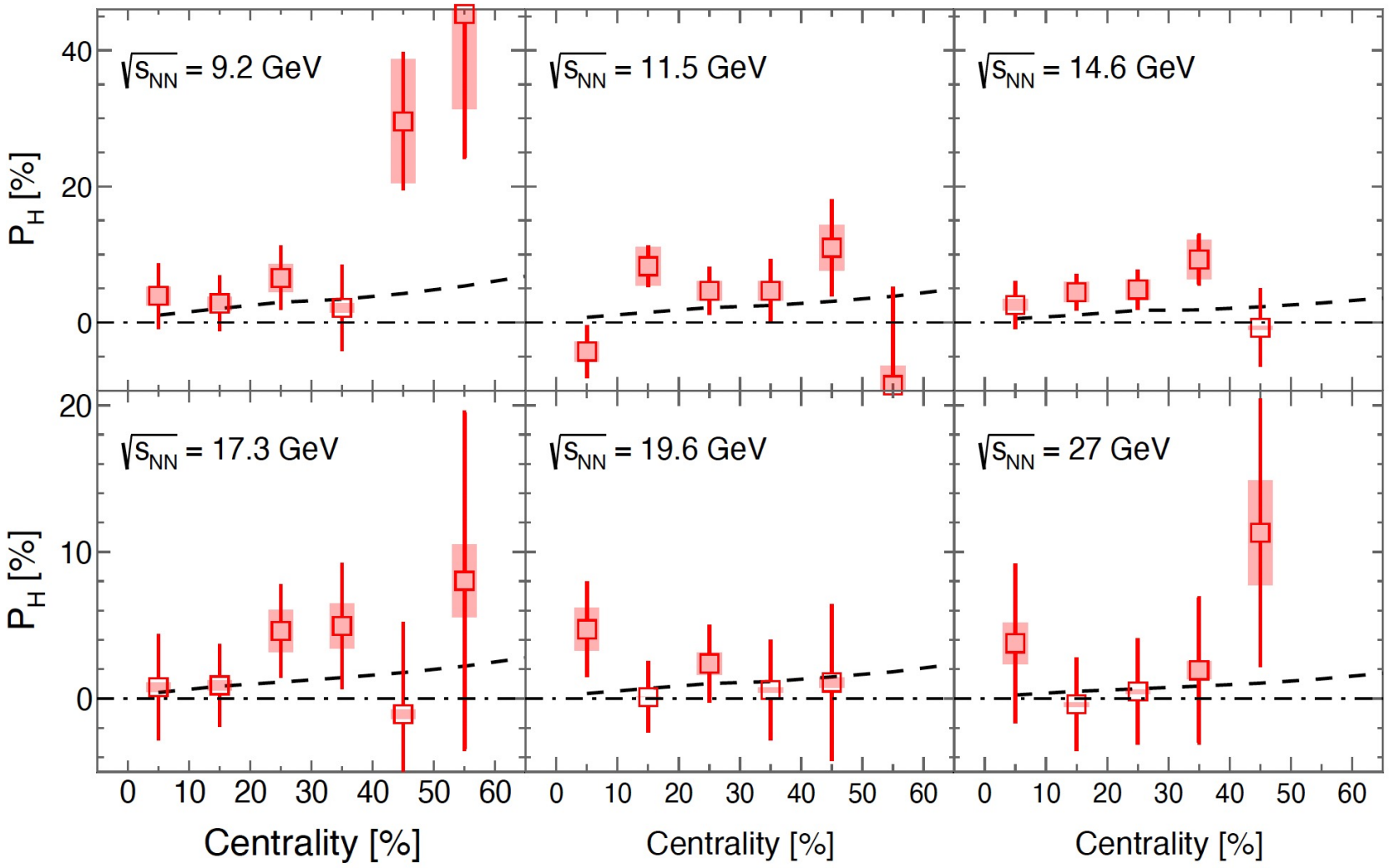


- Significant centrality dependence observed from 3 to 200 GeV

Global polarization : centrality dependence



Global polarization : centrality dependence



Au+Au, STAR BES-II

$0.5 < p_T < 6$ GeV/c

9.2-19.6 GeV: $|\eta| < 1.5$

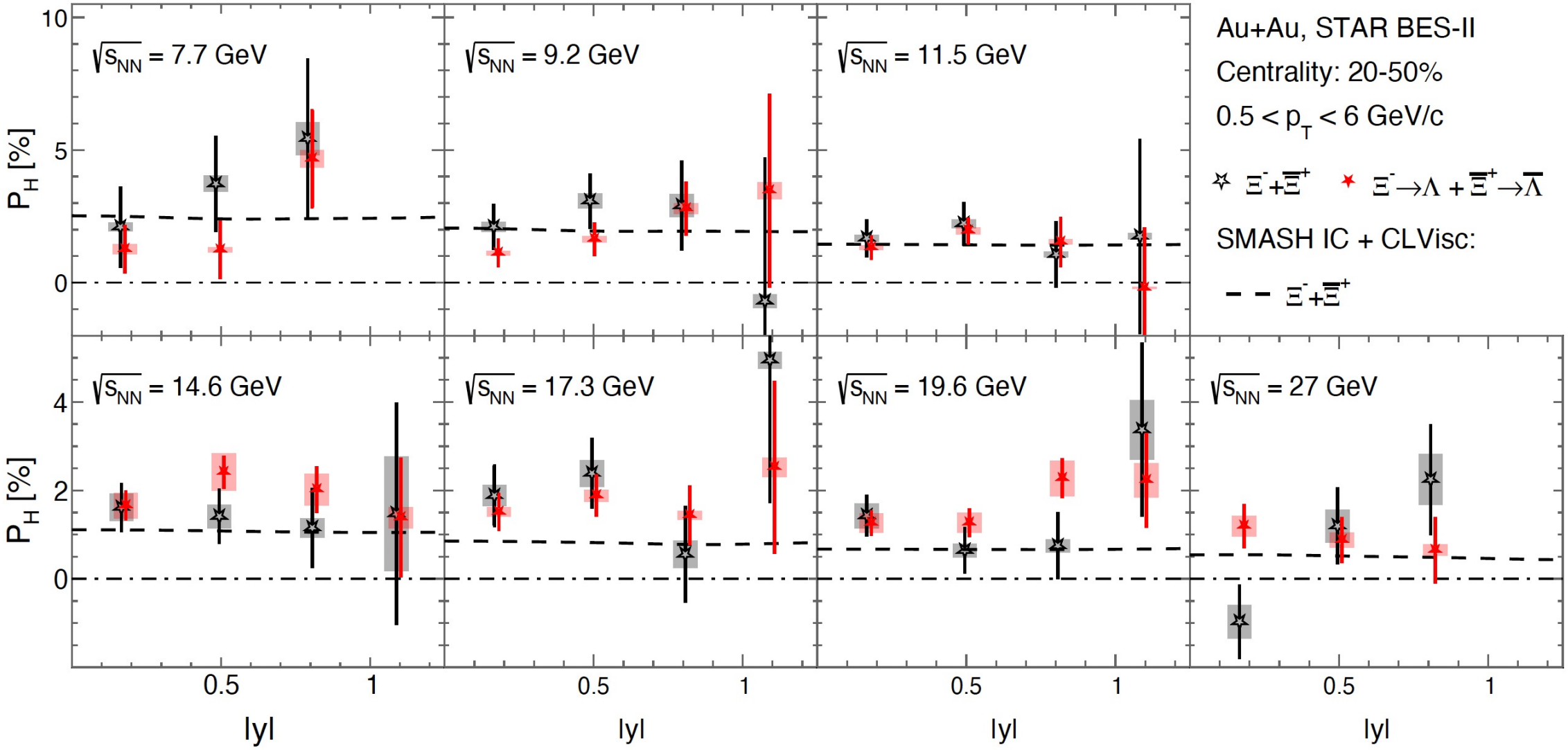
27 GeV: $|\eta| < 1.0$

$\Omega^- \to \Lambda + \overline{\Omega}^+ \to \overline{\Lambda}$

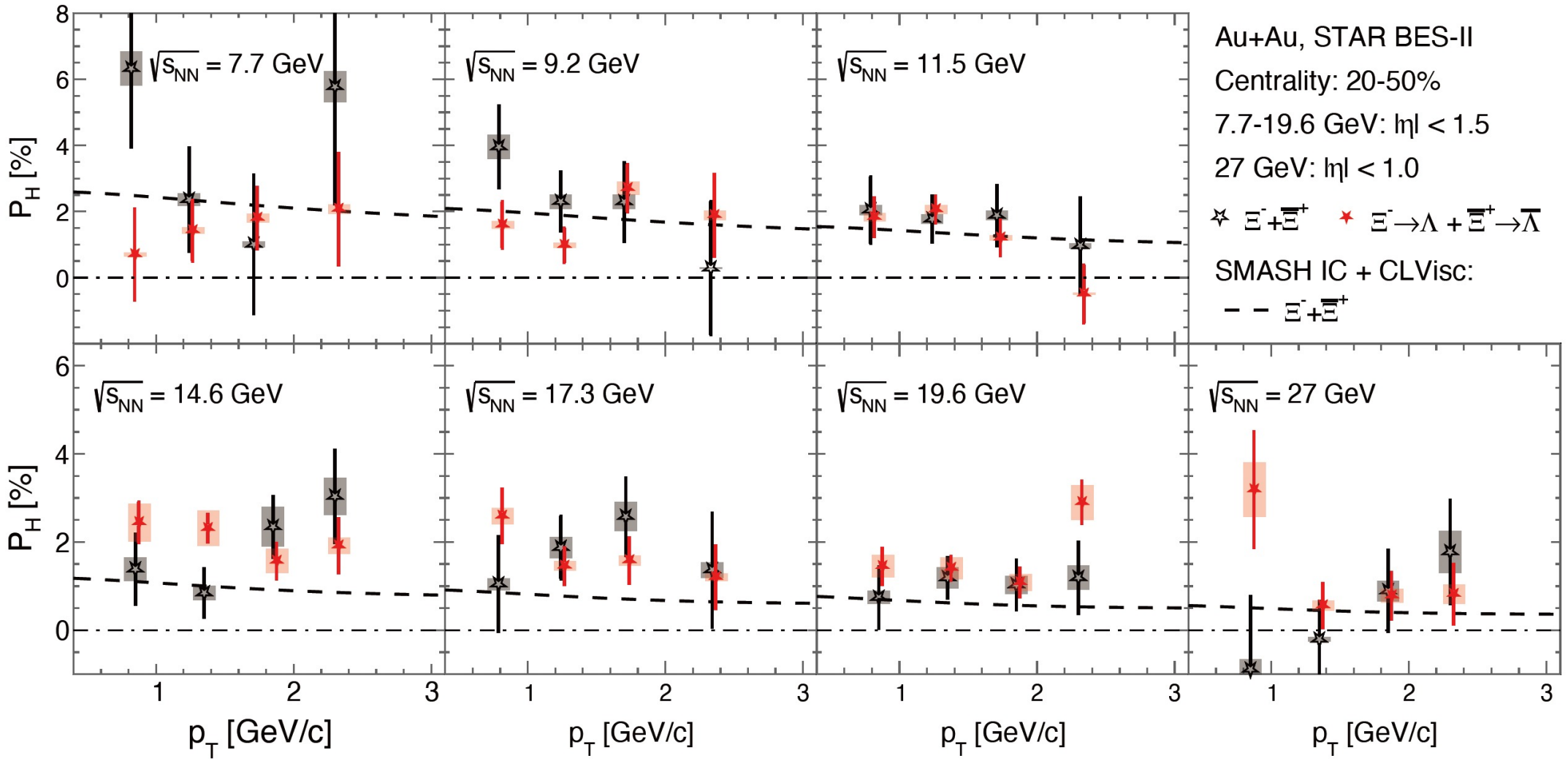
SMASH IC + CLVisc:

$\Omega^- + \overline{\Omega}^+$

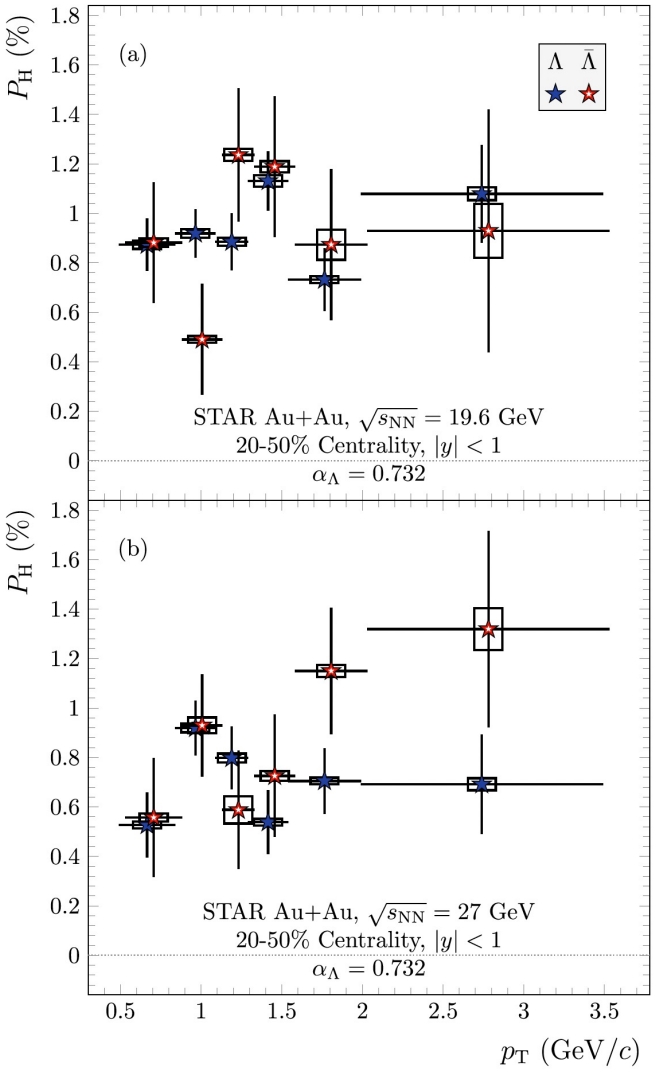
Global polarization : rapidity dependence



Global polarization : pT dependence

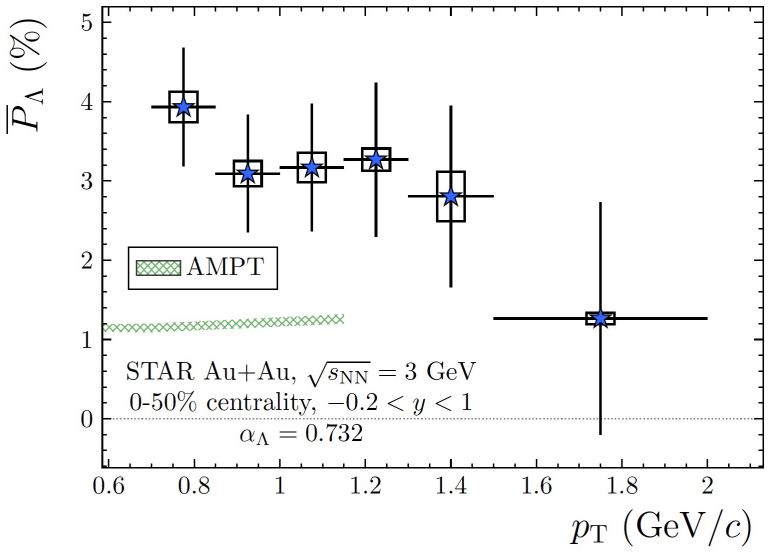


Global polarization : transverse momentum dependence

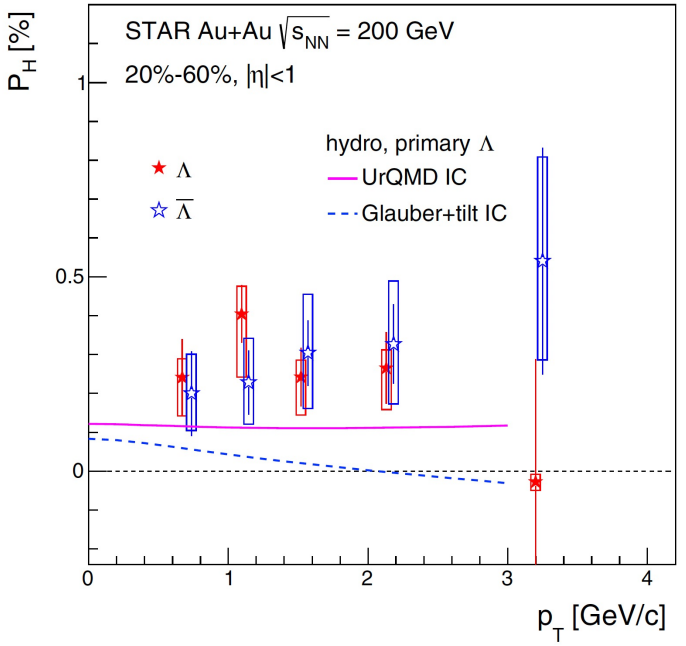


STAR, PRC 108, 014910 (2023)

STAR, PRC 104, L061901 (2021)

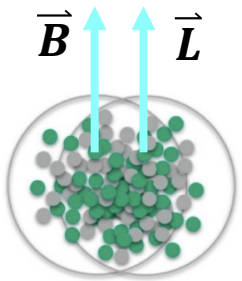


STAR, PRC 98, 014910 (2018)

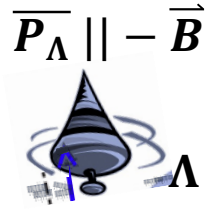


- No significant transverse momentum dependence observed in current measurements

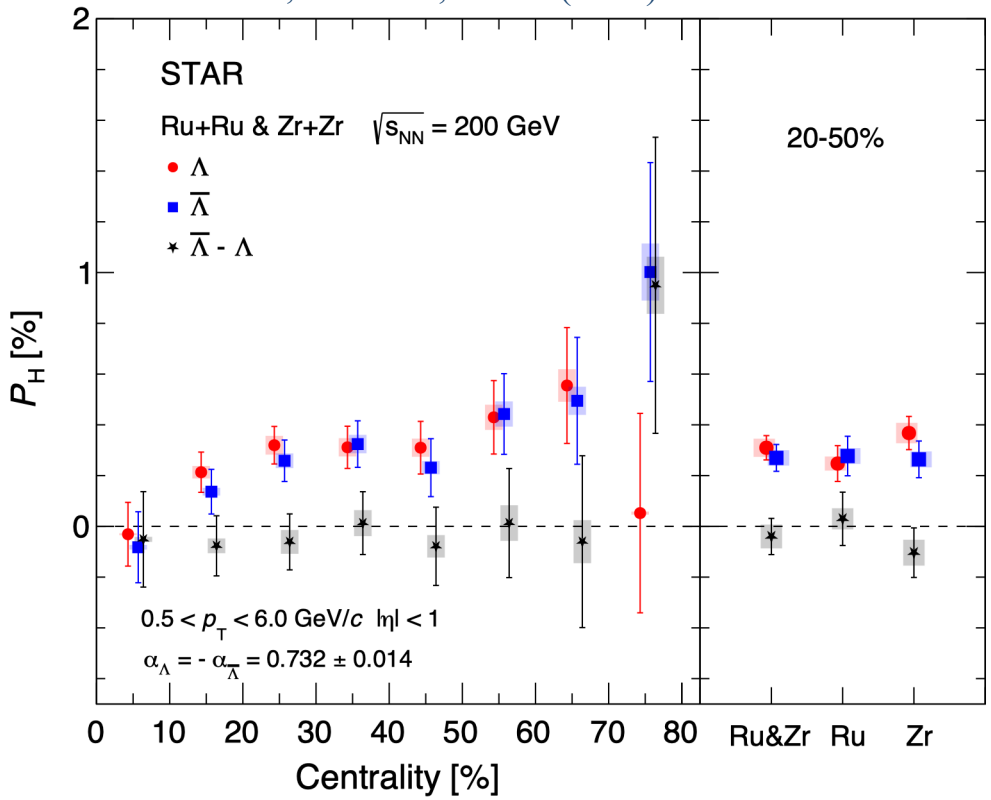
Global polarization : splitting of Λ and $\bar{\Lambda}$ from isobar collisions







STAR, PLB 807,139891(2025)



$$P_\Lambda \approx \frac{1}{2}\frac{\omega}{T} + \frac{\mu_\Lambda B}{T}$$

$$P_{\bar{\Lambda}} \approx \frac{1}{2}\frac{\omega}{T} - \frac{\mu_\Lambda B}{T}$$

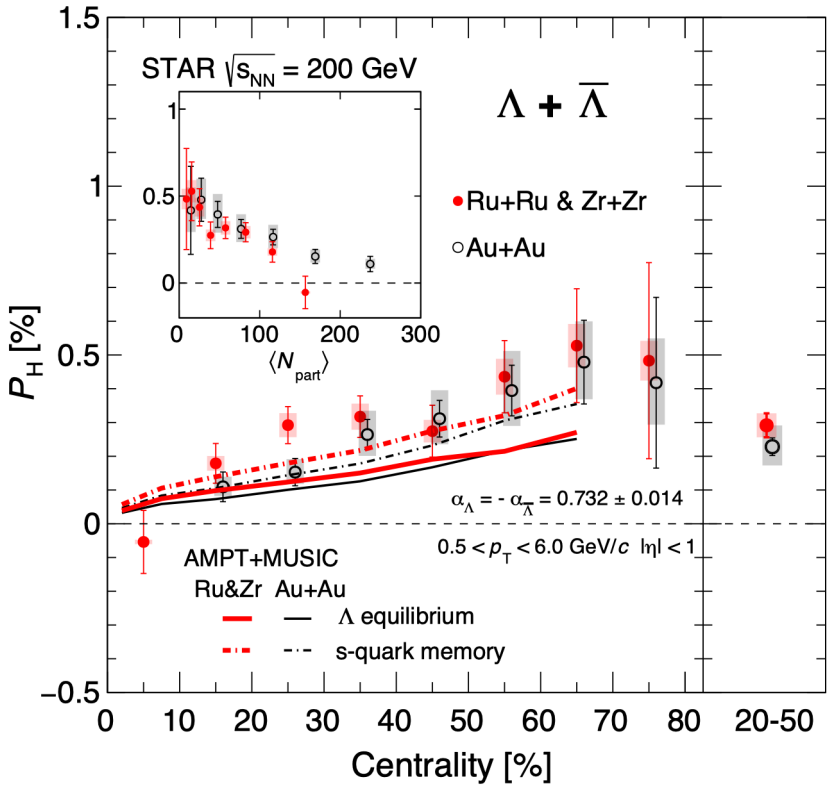
$$\Delta P_H = |P_{\bar{\Lambda}} - P_\Lambda| \approx \frac{2|\mu_\Lambda| B}{T}$$

$T = 150\ MeV, \mu_\Lambda = -1.93\times10^{-1}\ MeV/T$

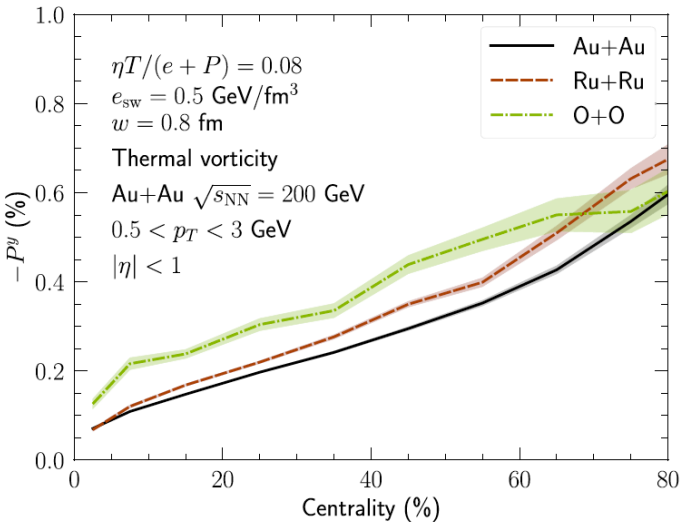
- Significant global polarization observed in isobar collisions, increase with centrality
- No obvious splitting between P_Λ and $P_{\bar{\Lambda}}$
- No significant difference of P_Λ between $^{96}_{44}\mathrm{Ru} + ^{96}_{44}\mathrm{Ru}$ and $^{96}_{40}\mathrm{Zr} + ^{96}_{40}\mathrm{Zr}$ collisions

Global polarization : system size dependence

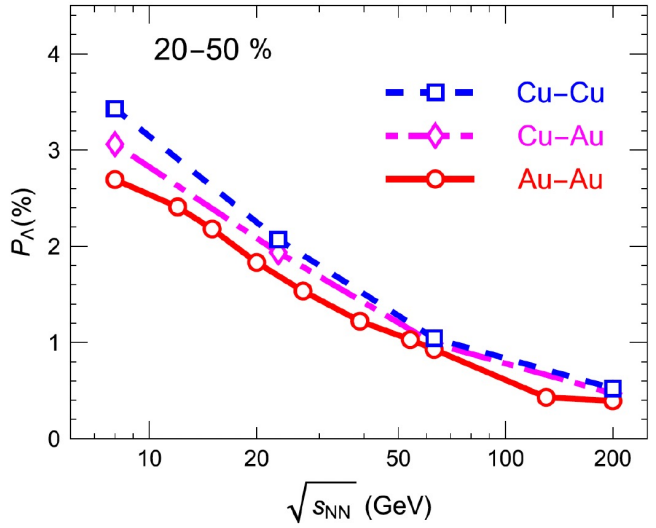
STAR, PLB 807,139891(2025)



S. Alzhrani et al., PRC 106.014905



S.Z, Shi, K.L. Li, J.F. Liao, PLB 788 (2019) 409–413

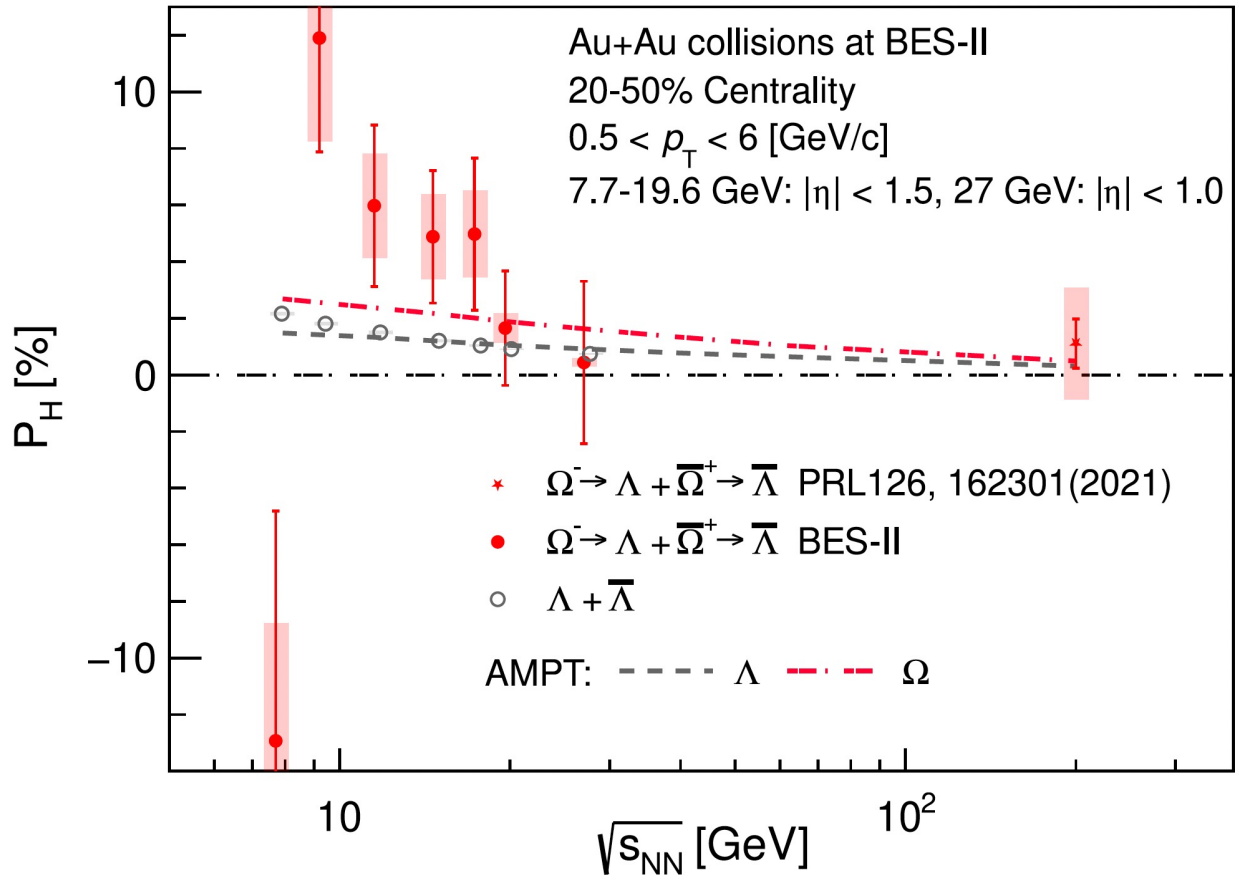


$$^{197}_{79}Au > ^{96}_{44}Ru, ^{96}_{40}Zr > ^{63}_{29}Cu > ^{16}_{8}O$$

$$P_\Lambda^{Au} < P_\Lambda^{Ru} \approx P_\Lambda^{Zr} < P_\Lambda^{Cu} < P_\Lambda^{O}$$

- Smaller polarization predicted for larger system due to longer lifetime
- Significant global polarization observed in isobar collisions, increase with centrality
- No significant difference between Ru+Ru, Zr+Zr and Au+Au collisions

$\Omega^- + \bar{\Omega}^+$ global polarization



- No quark spin correlation

$$P_\Omega = \frac{5}{3} P_\Lambda$$

- Include quark spin correlation

$$P_\Omega \approx \frac{5}{3} P_\Lambda + \frac{\delta_\Omega}{C_\Omega}$$

$\frac{\delta_\Omega}{c_\Omega}$: ss quark spin correlation

J. P. Lv, et al PRD 109, 114003(2024)
L.Oliva, et al PRC 114,014914(2026)

- Global polarization of $\Omega^- + \Omega^+$ seems to decrease with increase in collision energy
- A hint of larger $\Omega^- + \bar{\Omega}^+$ polarization than $\Lambda + \bar{\Lambda}$ and $\Xi^- + \bar{\Xi}^+$ in lower energies

Model calculation:
H. Li, X. Xia et al Phys. Lett. B 827, 136971 (2022)