Impact of momentum cuts on A_{LL}

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WG SIDIS meeting 23 August 2022

Implemented cuts

- Data sample used for ECCE studies, with usual DIS cuts

- Momentum cuts:

for $-1.2 < \eta < 1.3$:

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p>0.10 GeV/c
p>0.25 GeV/c
p>0.60 GeV/c

for $\eta \leq -1.2$ or $\eta \geq 1.3$:

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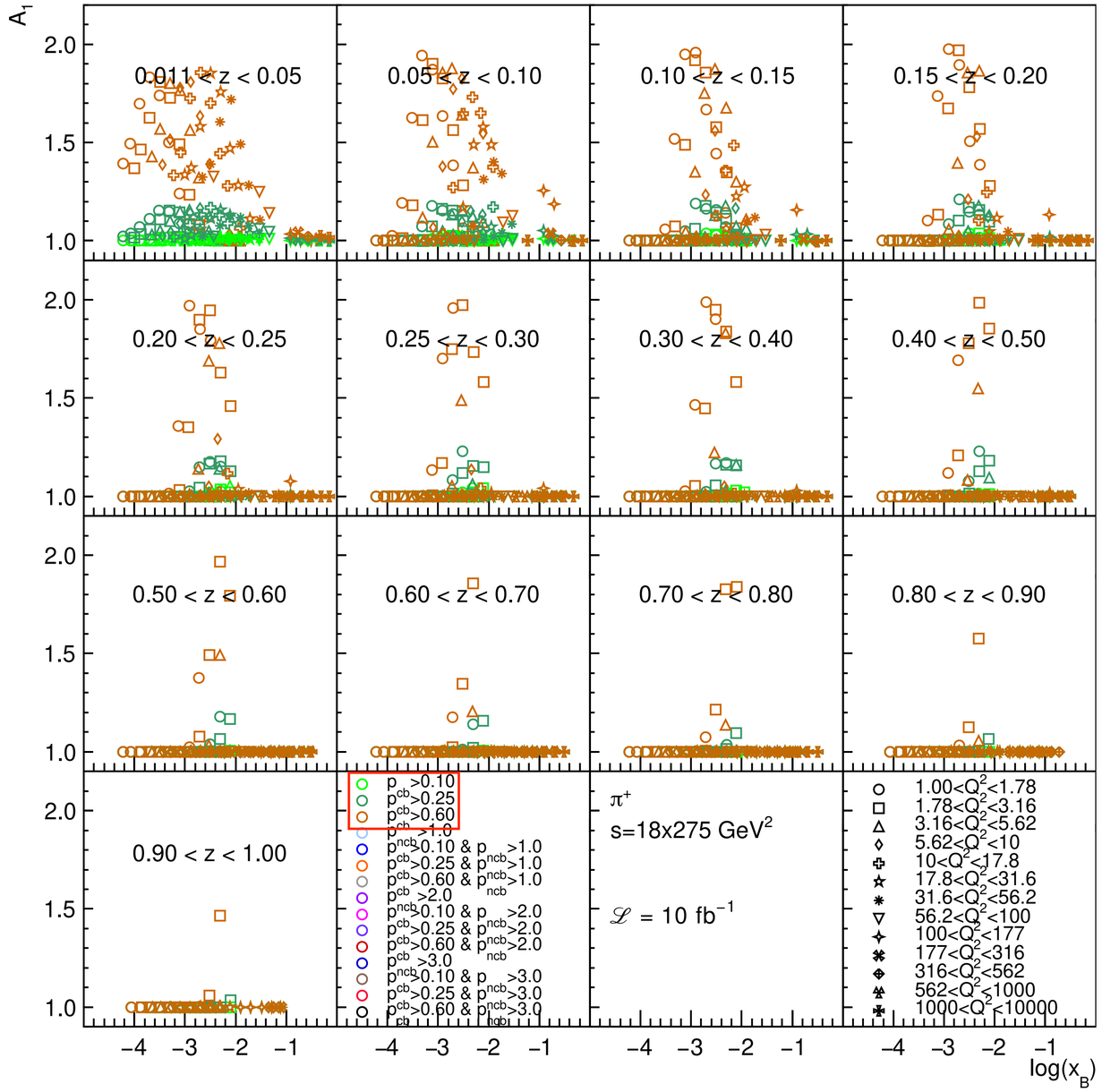
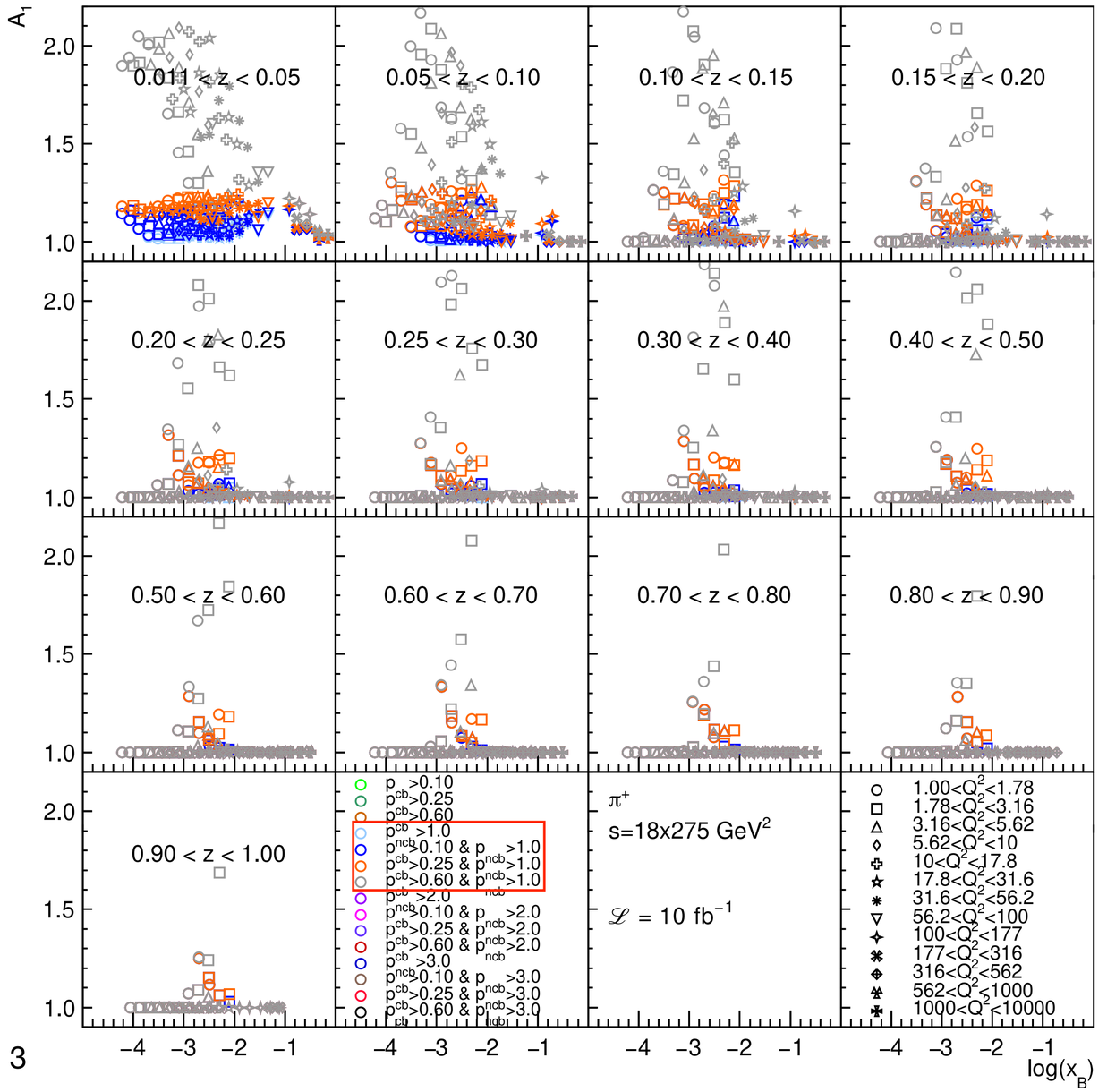
p>1.0 GeV/c
p>2.0 GeV/c
p>3.0 GeV/c

Ratio of statistical uncertainty of A_{LL} for various p cuts

pions E=18x275 GeV^2





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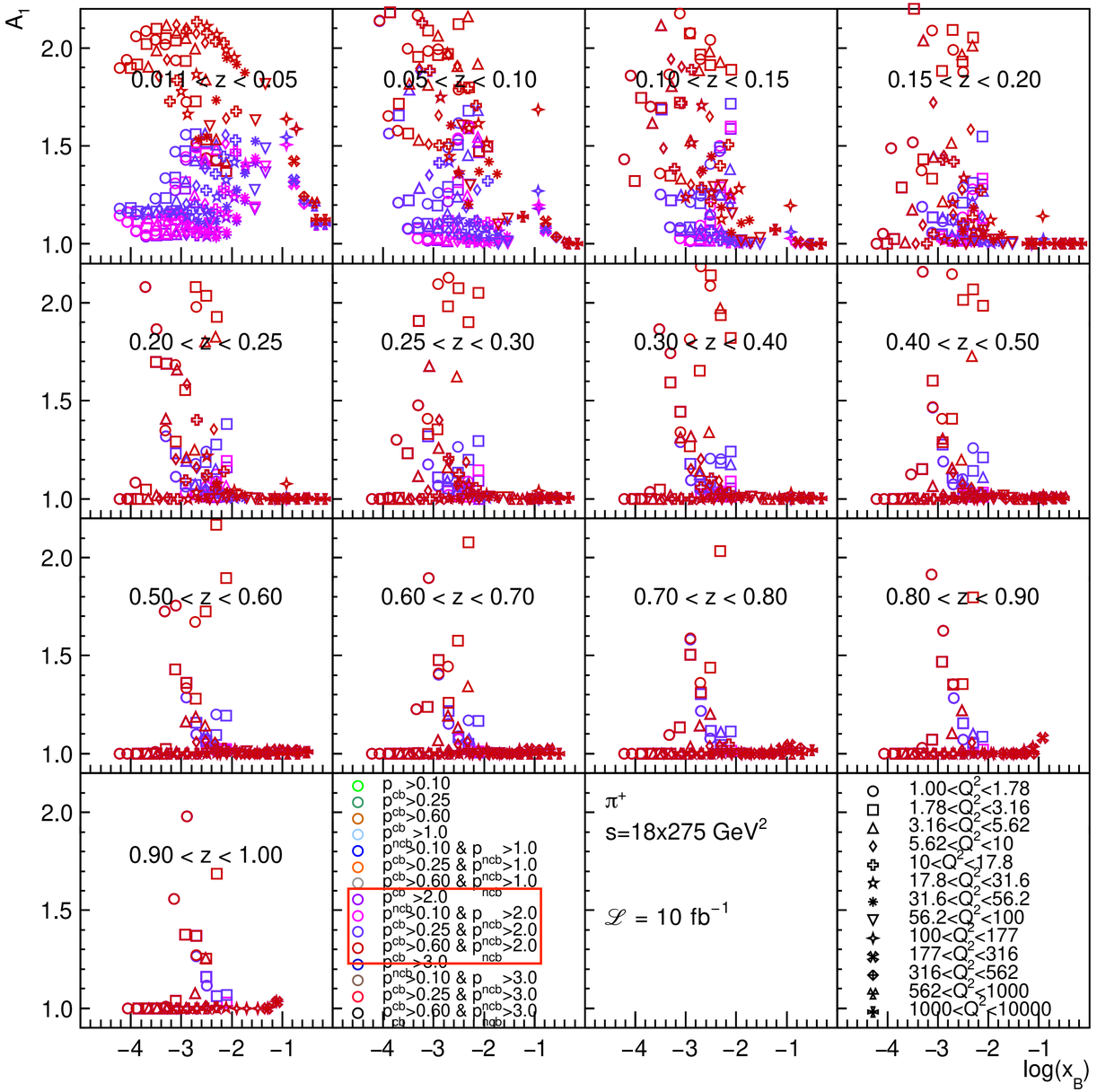

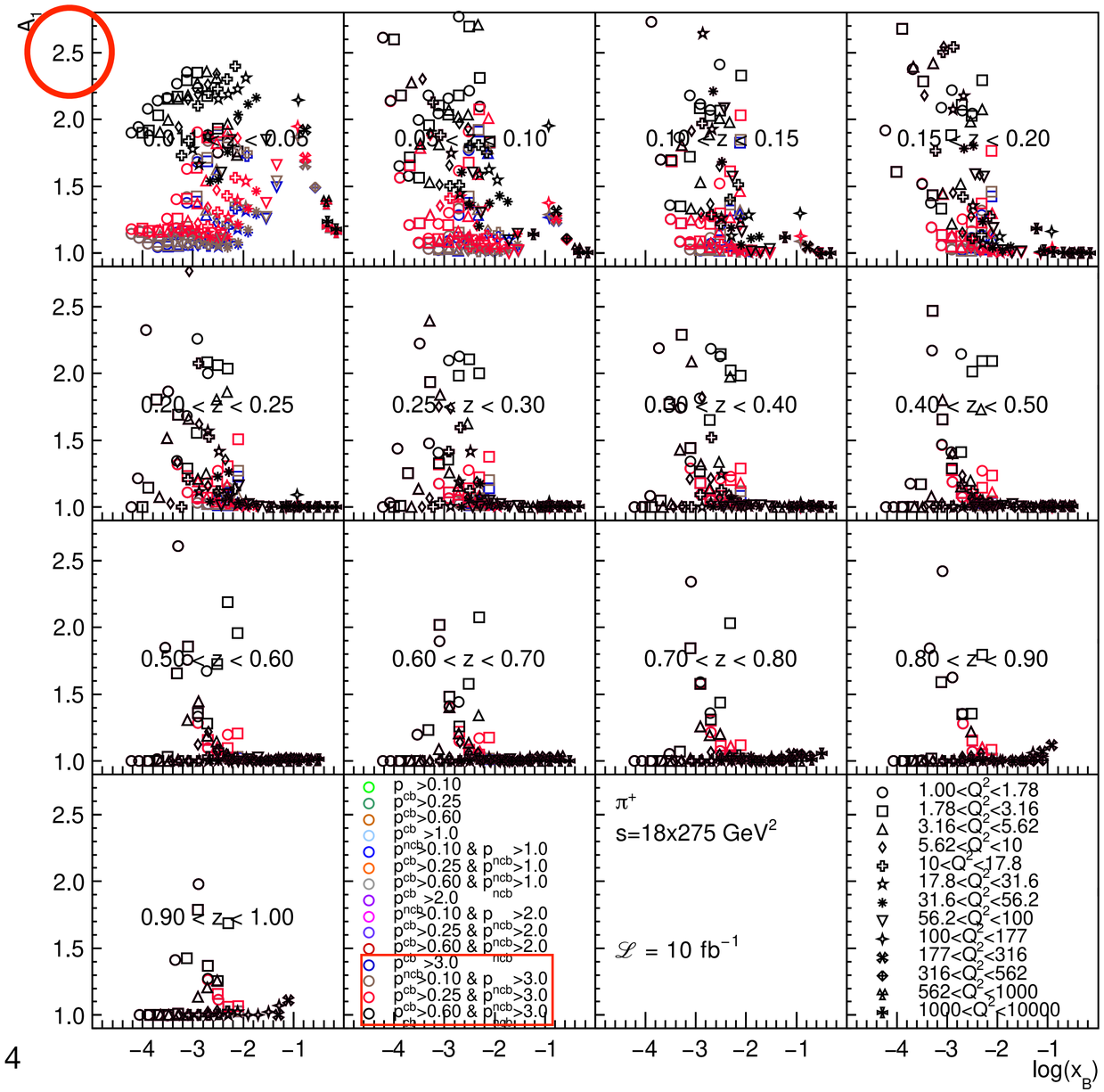

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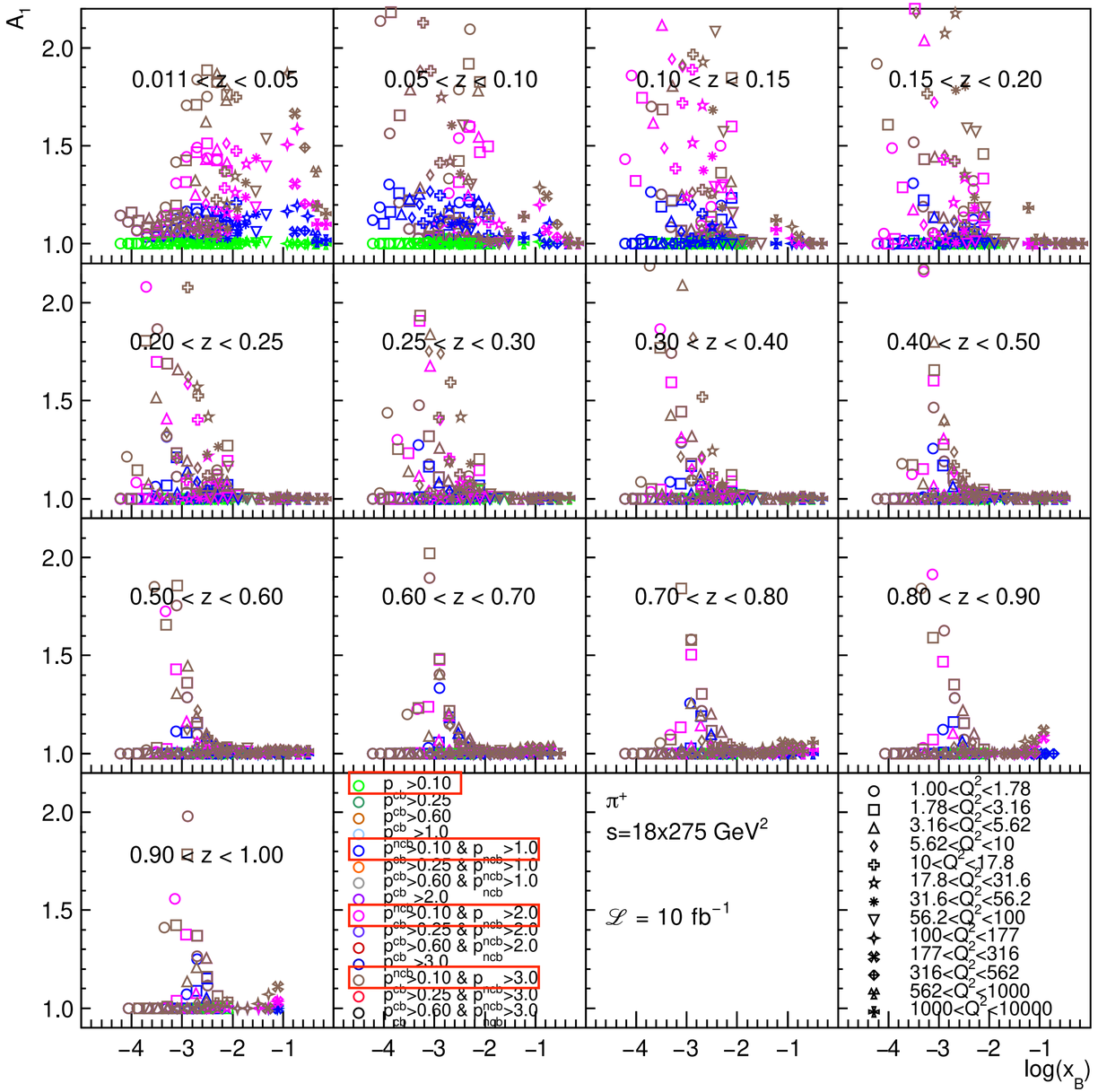

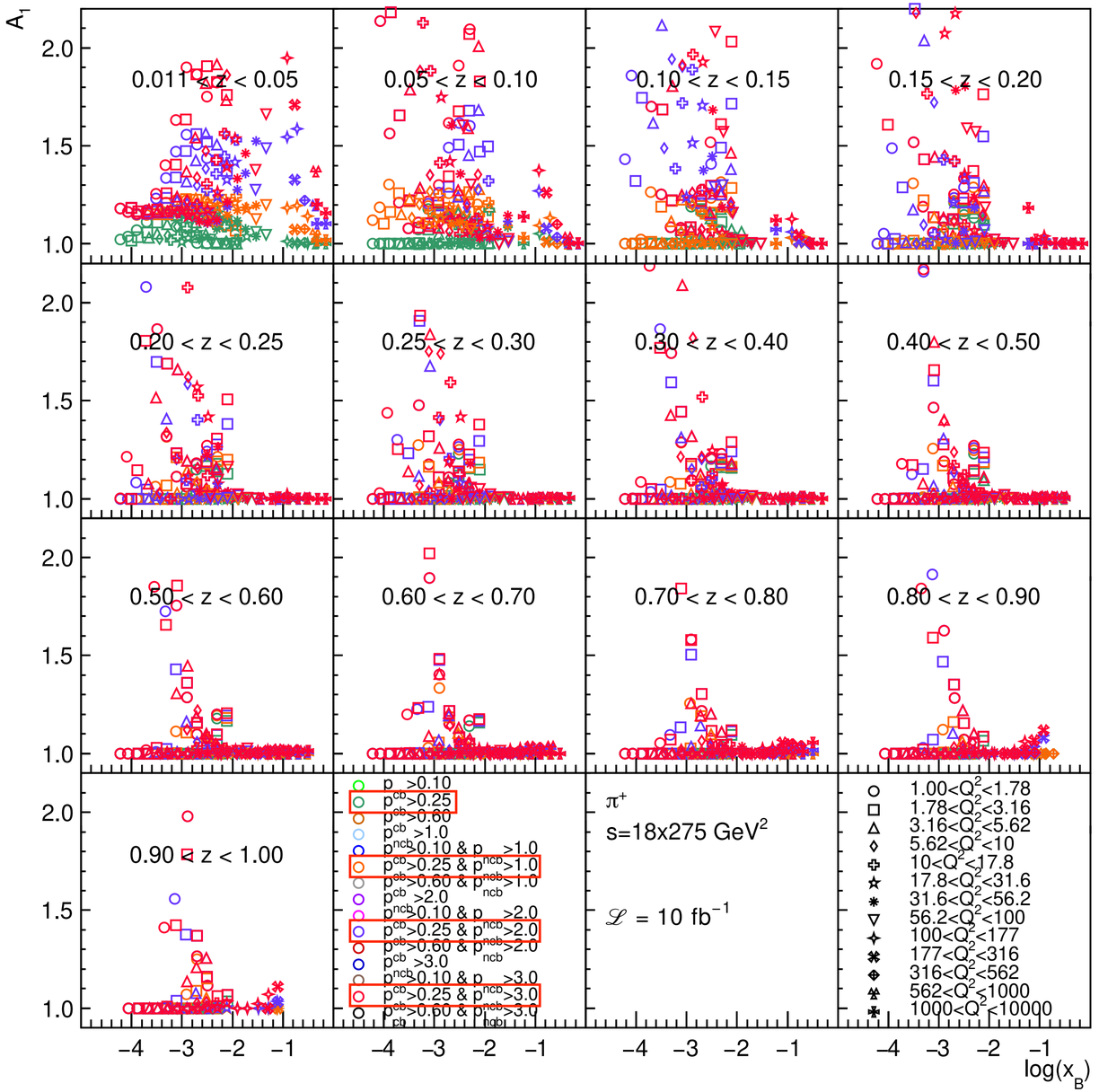

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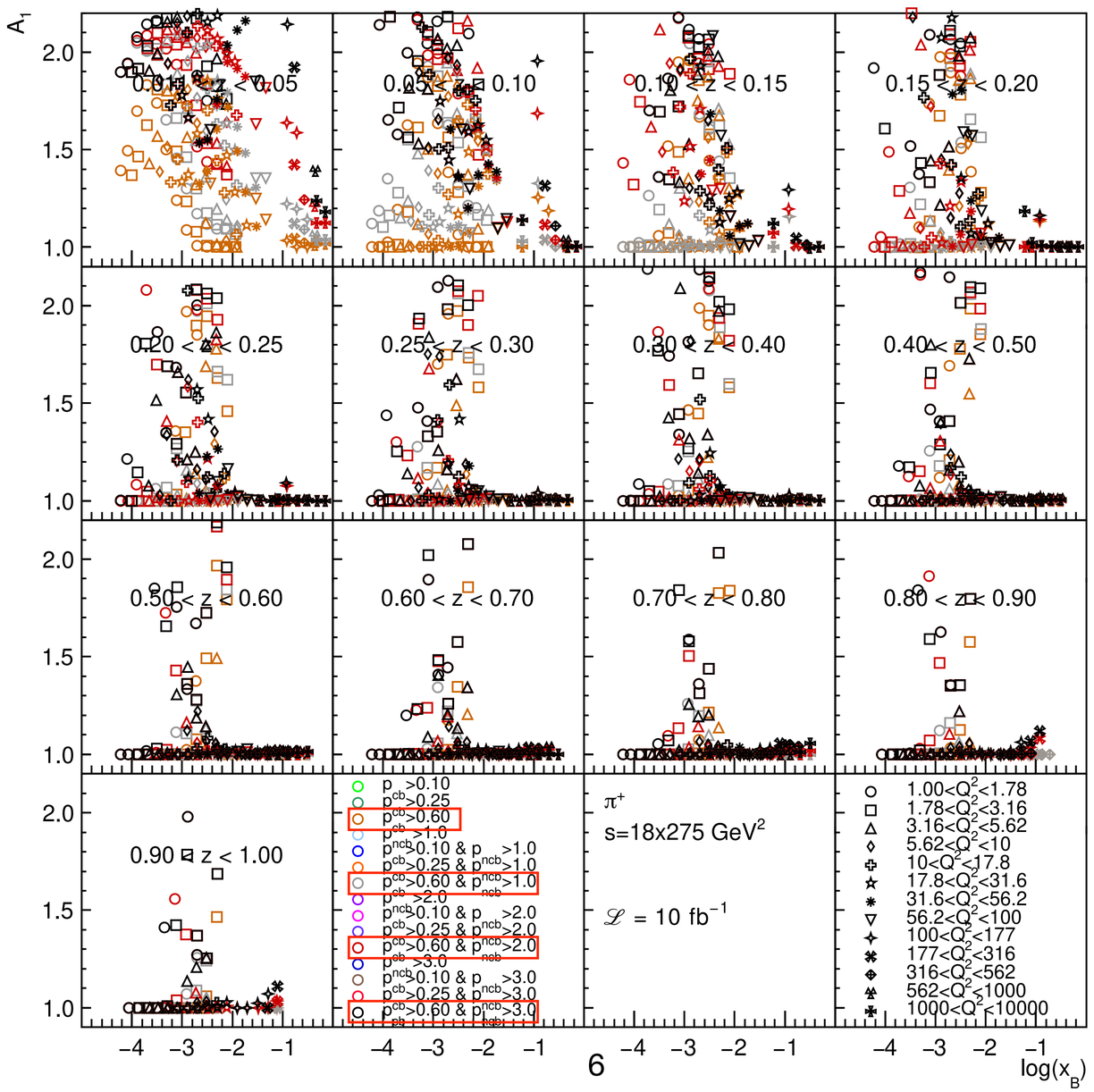

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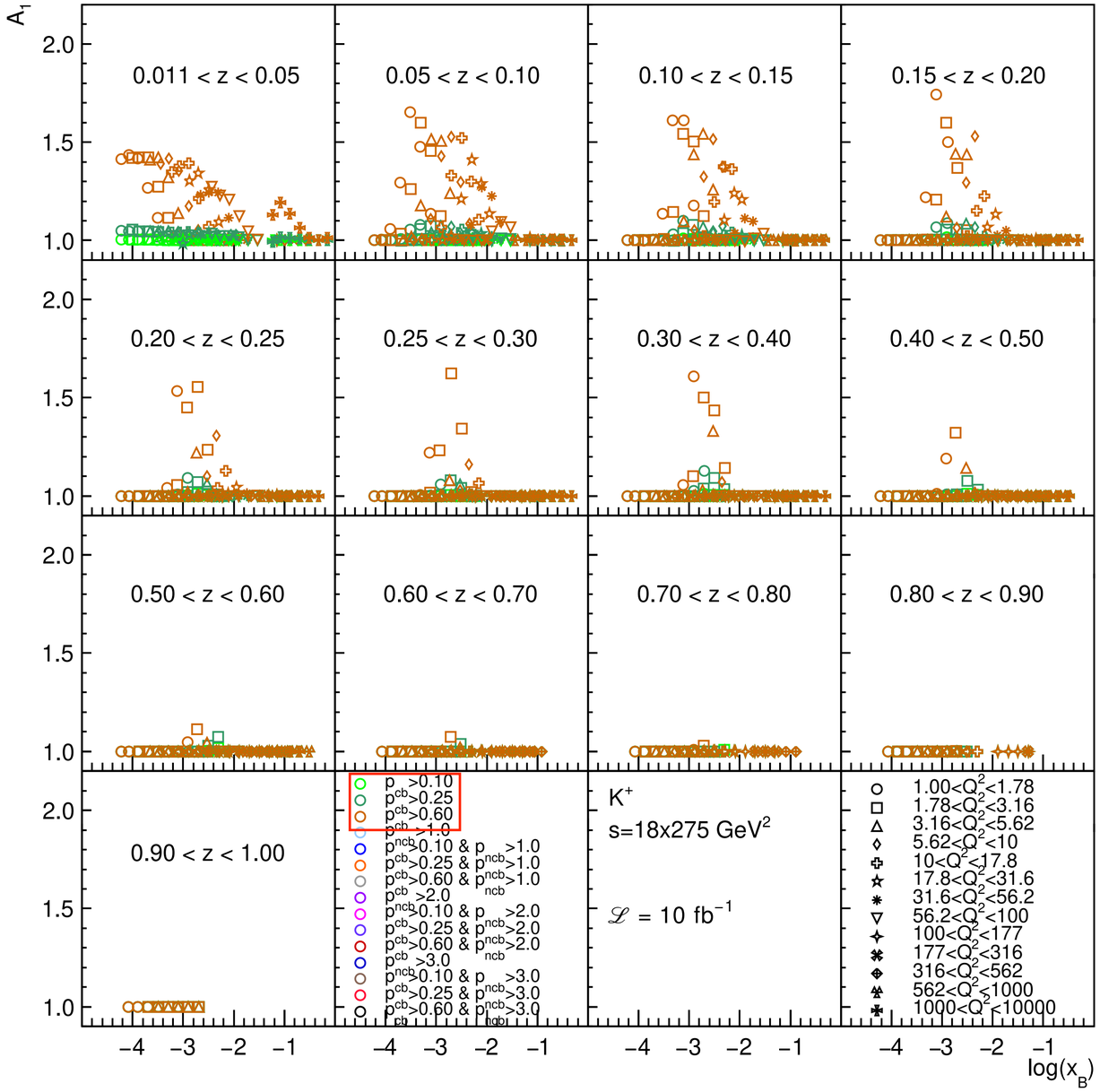

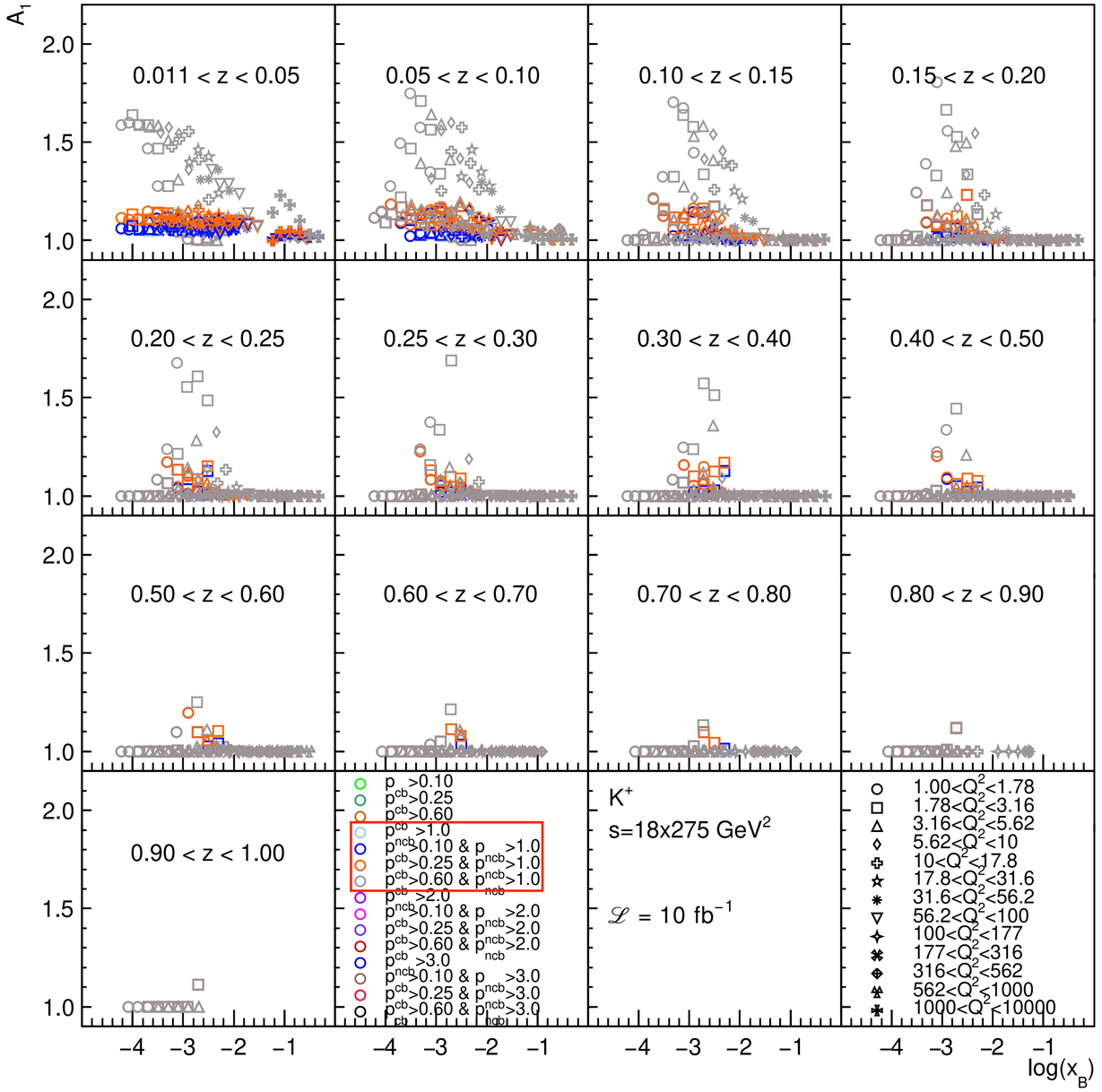

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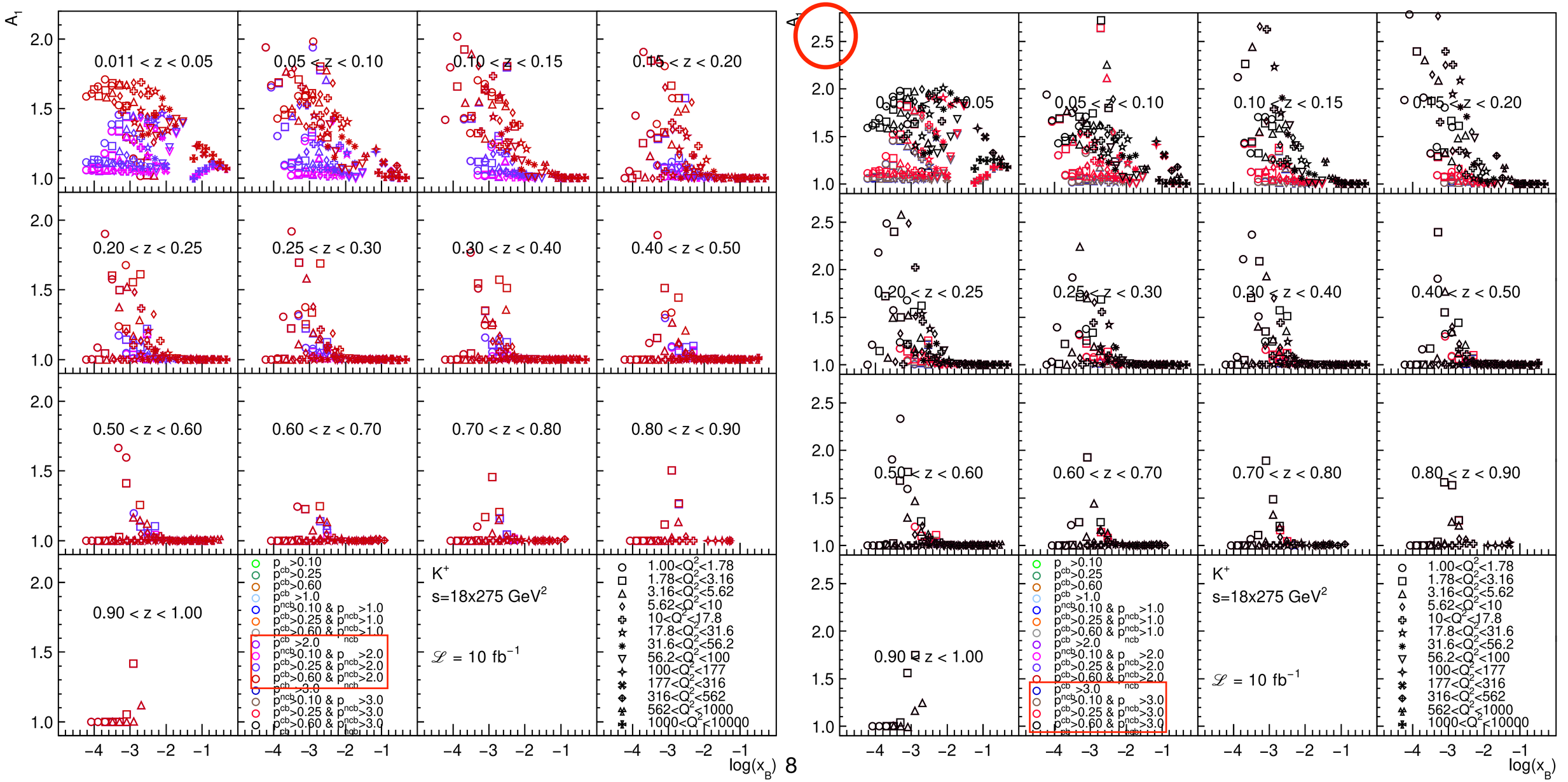
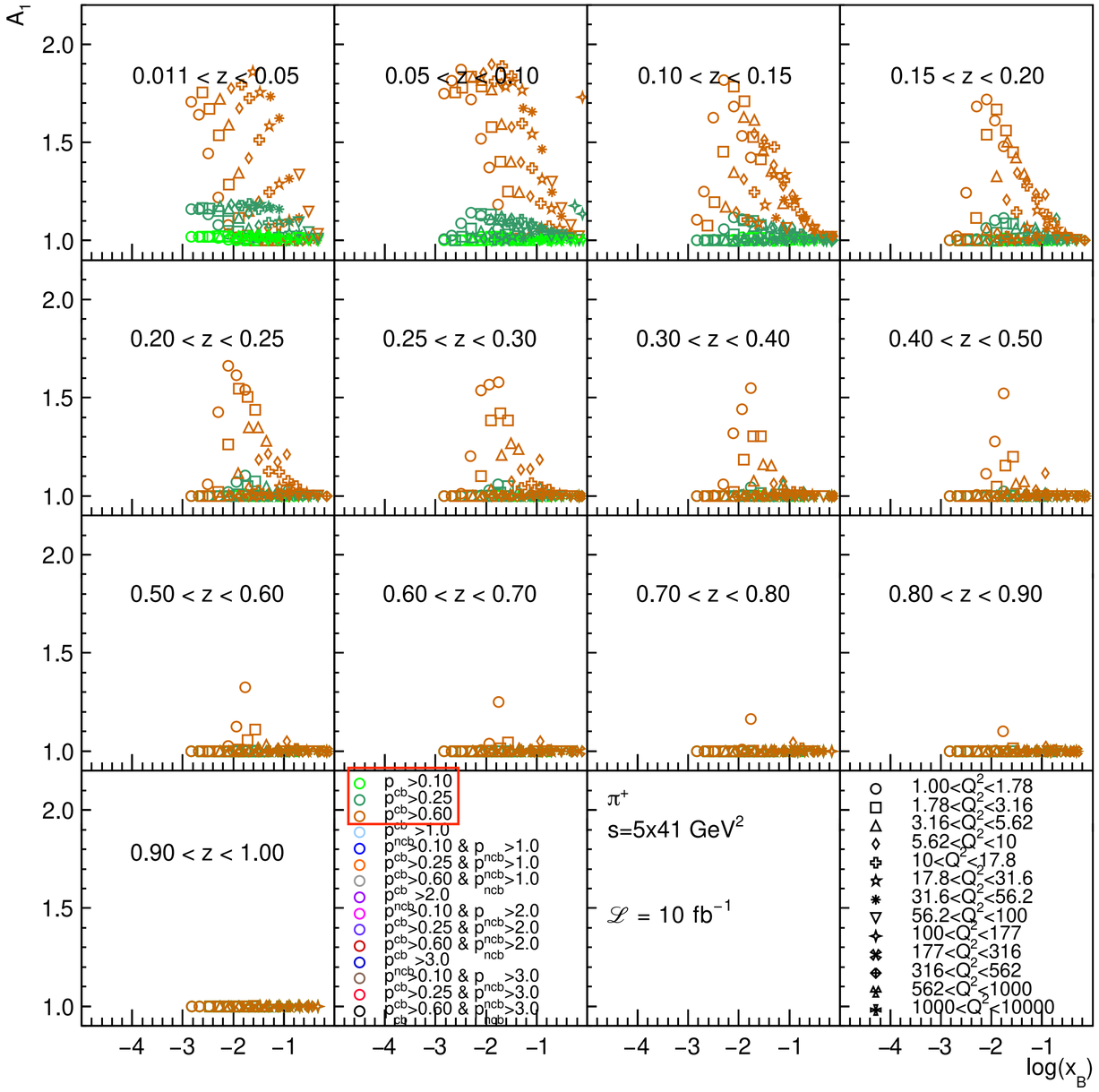
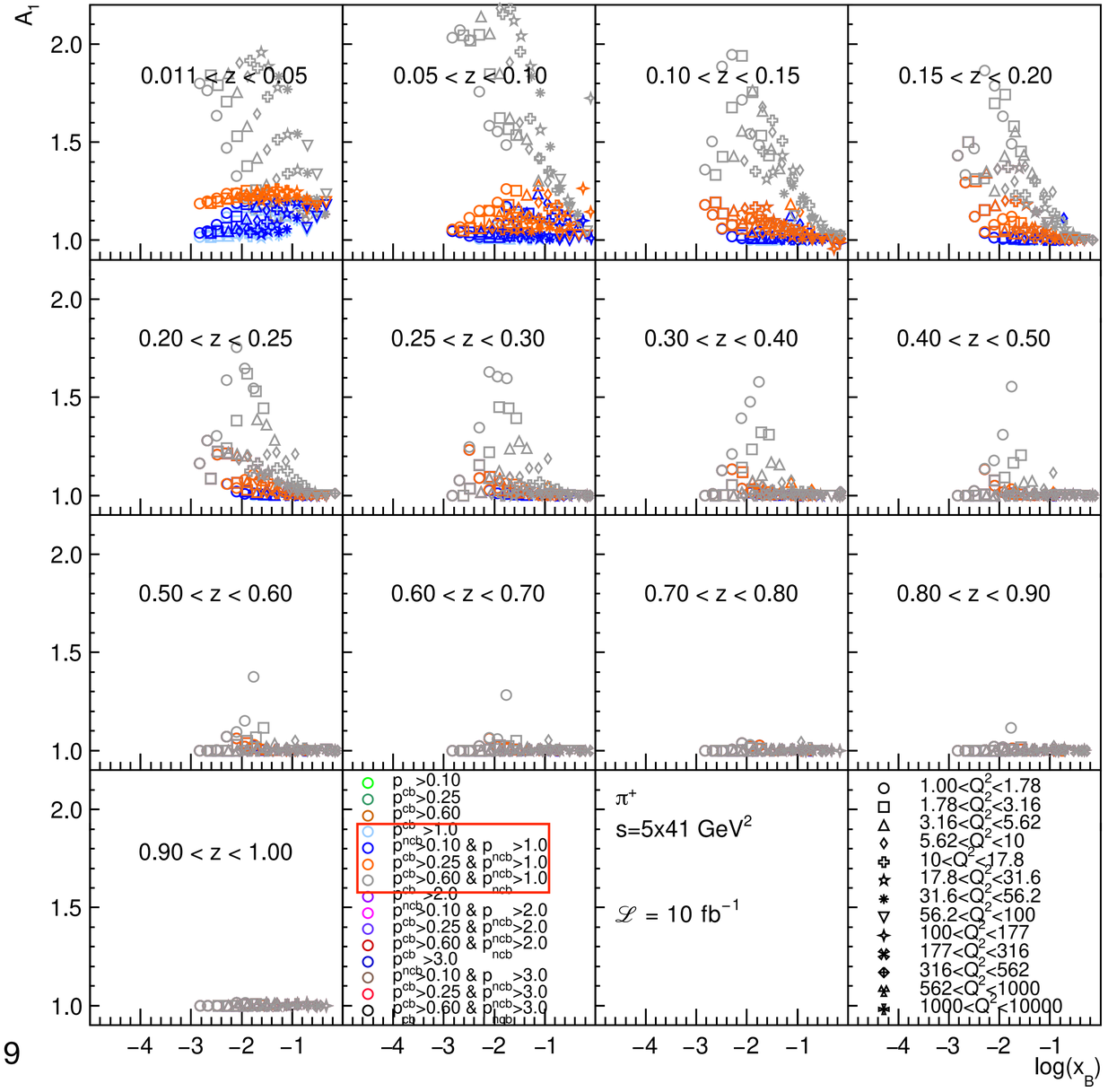


Ratio of statistical uncertainty of A_{LL} for various p cuts

pions E=5x41 GeV^2





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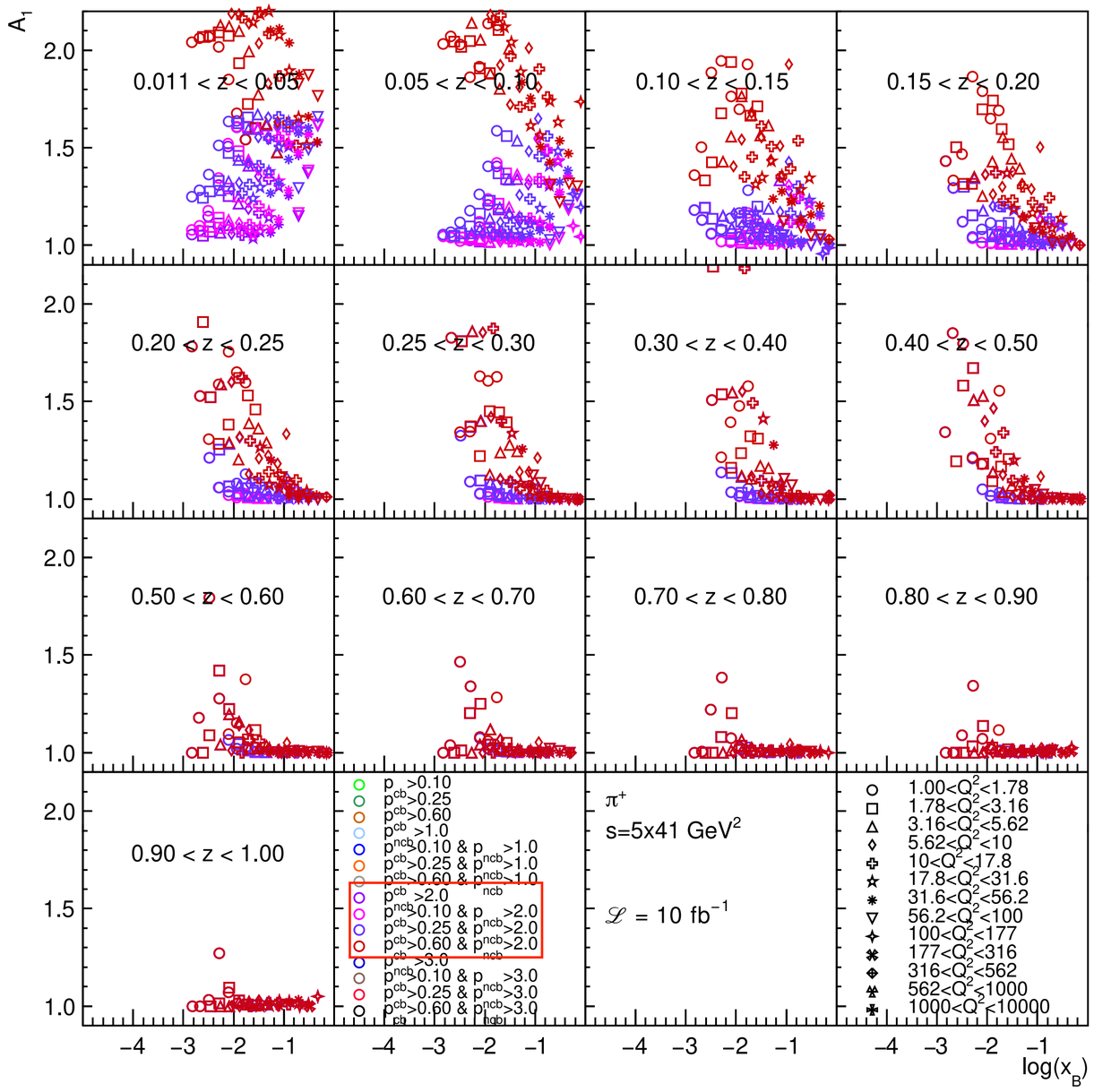

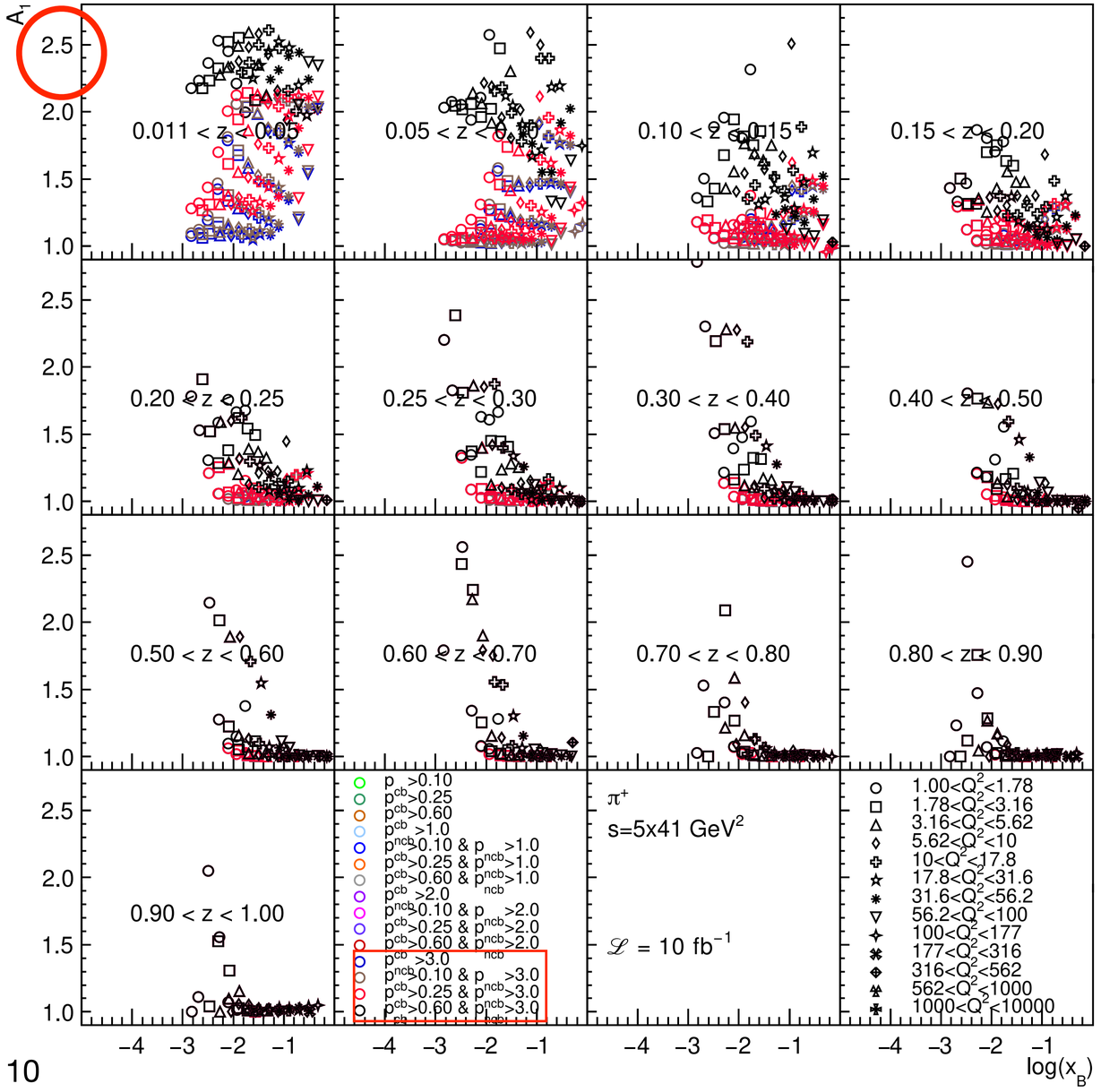

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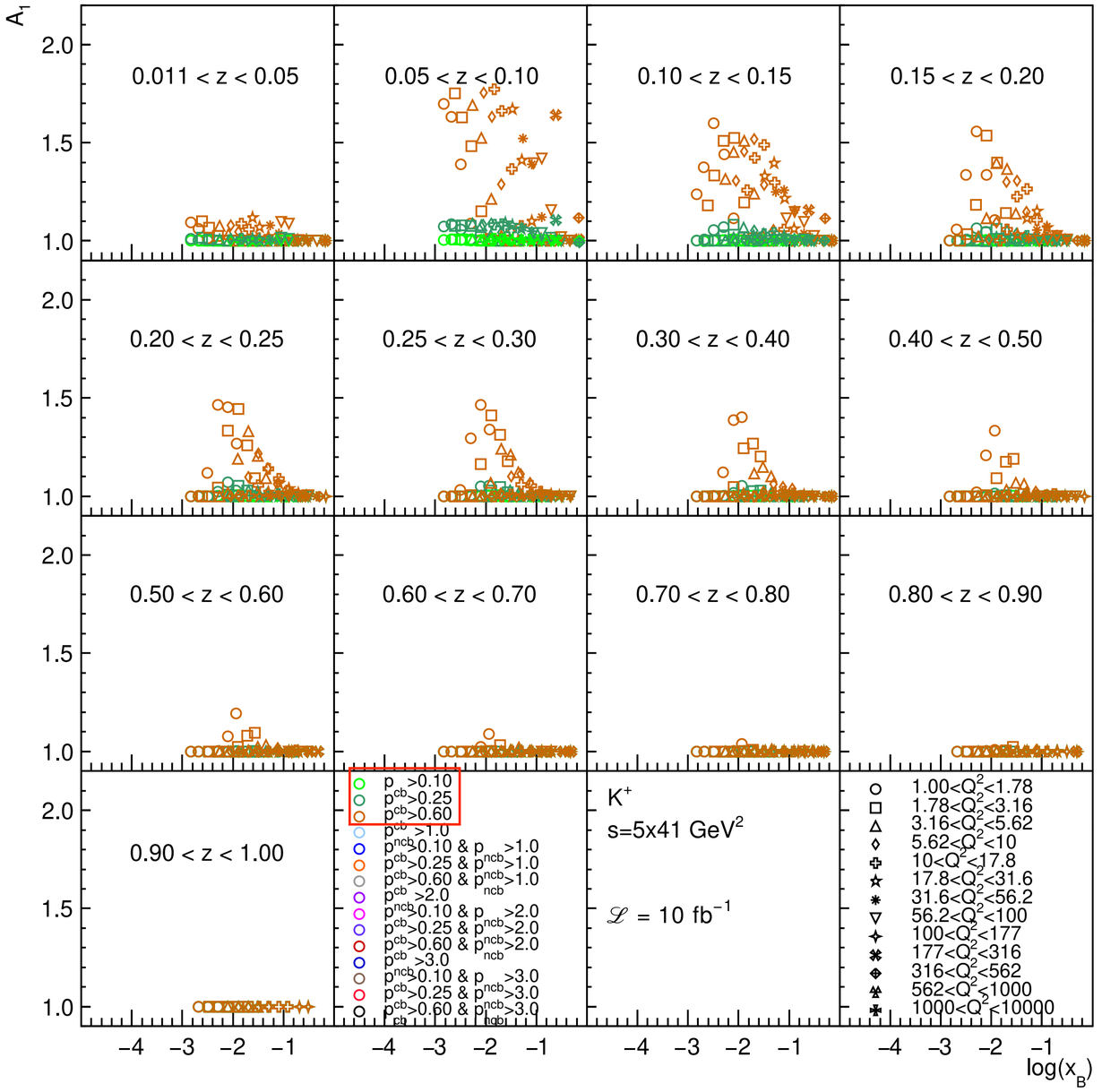

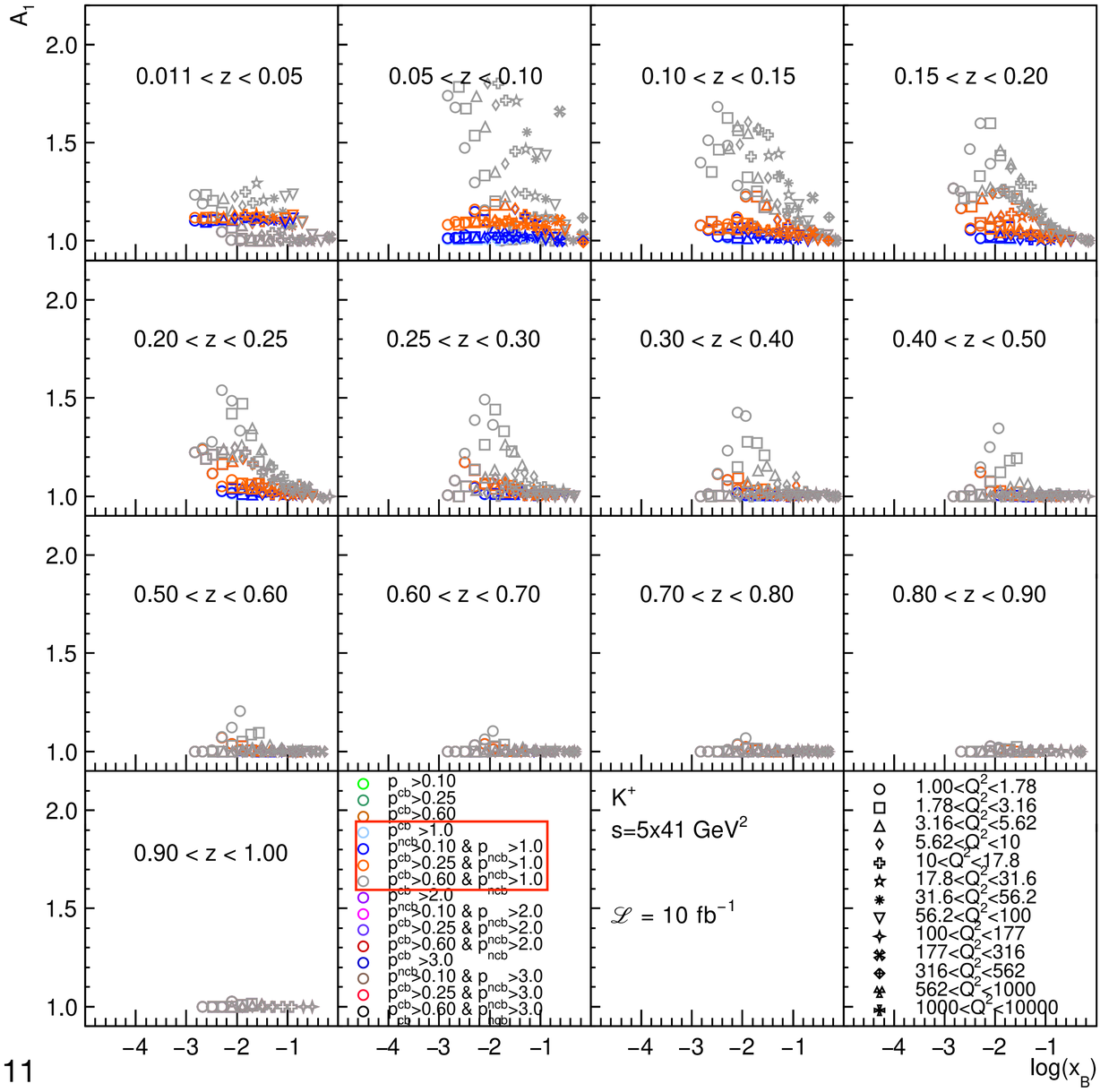

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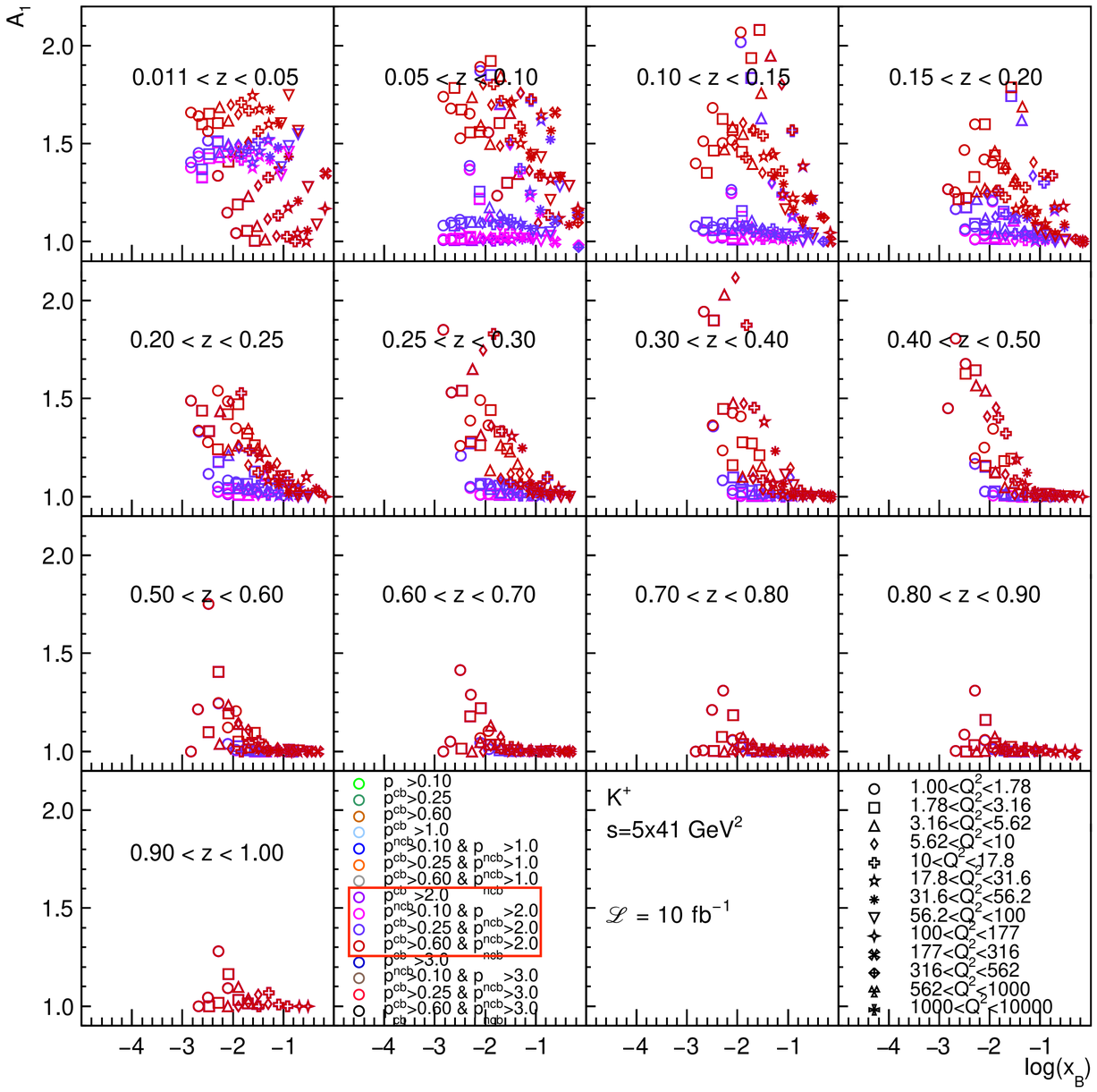

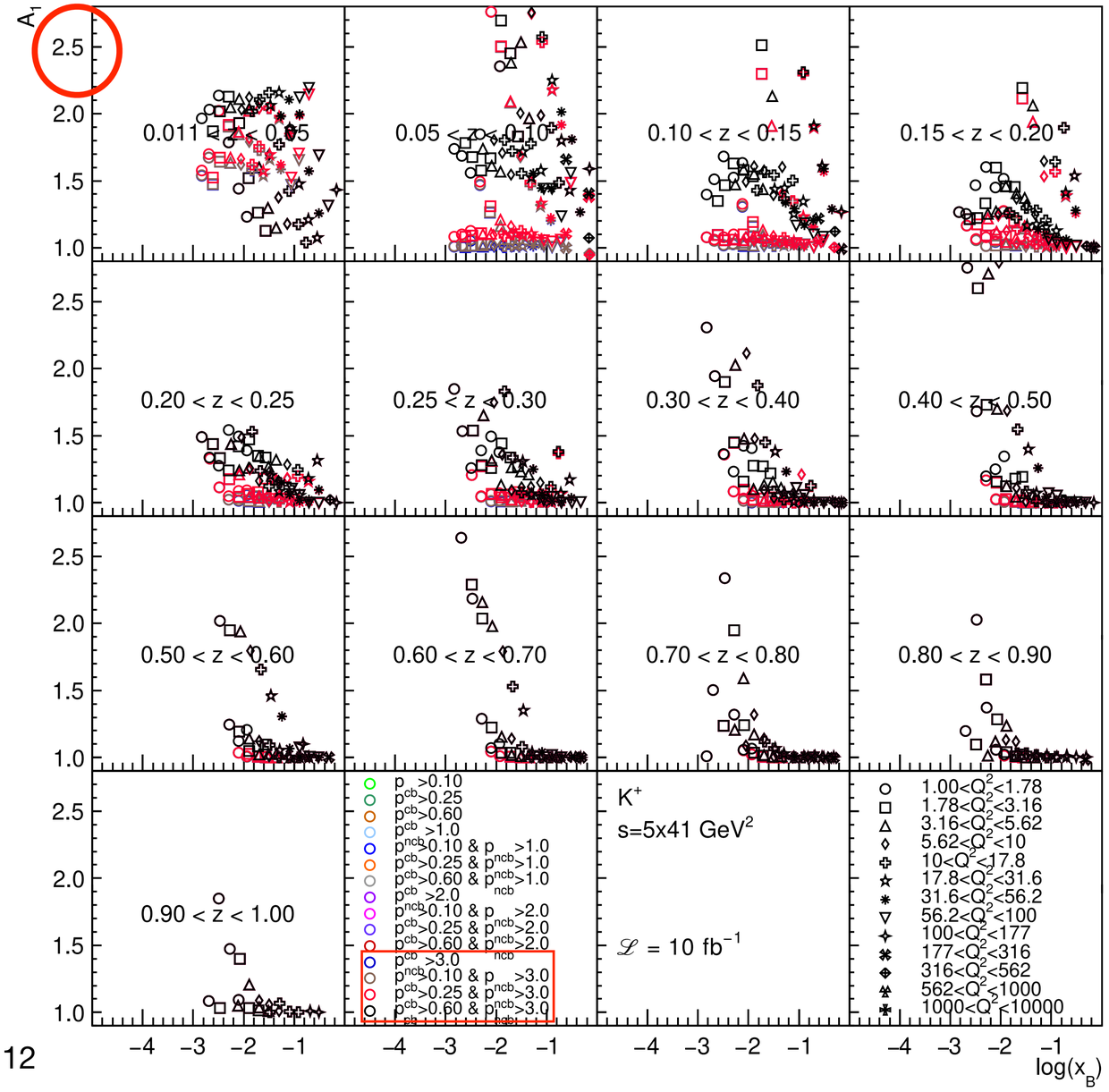

Summary

- Central region:
  - p>0.1 GeV/c: ideal
  - p>0.25 GeV/c: ~40% increase in statistical uncertainty at low z (z<0.1)
  - p>0.6 GeV/c: ~ up to double the statistical uncertainty for z<0.5.
    - for kaons smaller increase in statistical uncertainty (rather 1.5 times).

- Forward region:
  - p>1.0 GeV/c: ~10-20% increase in statistical uncertainty at low z (z<0.1).
  - p>2.0 GeV/c: ~1.5 times statistical uncertainty (more pronounced at low z).
  - p>3.0 GeV/c: ~ up to double the statistical uncertainty (more pronounced at low z).

Back up

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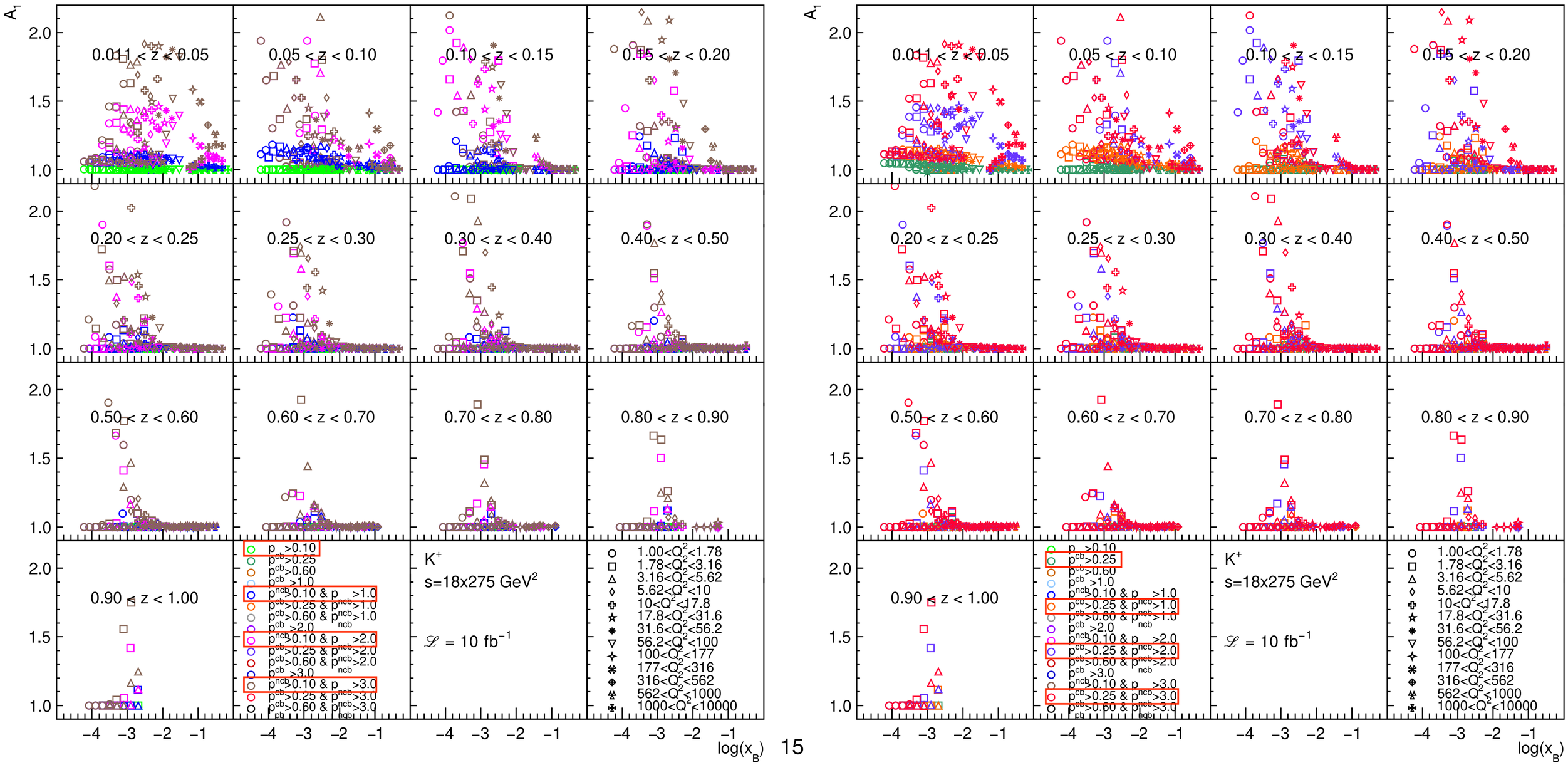

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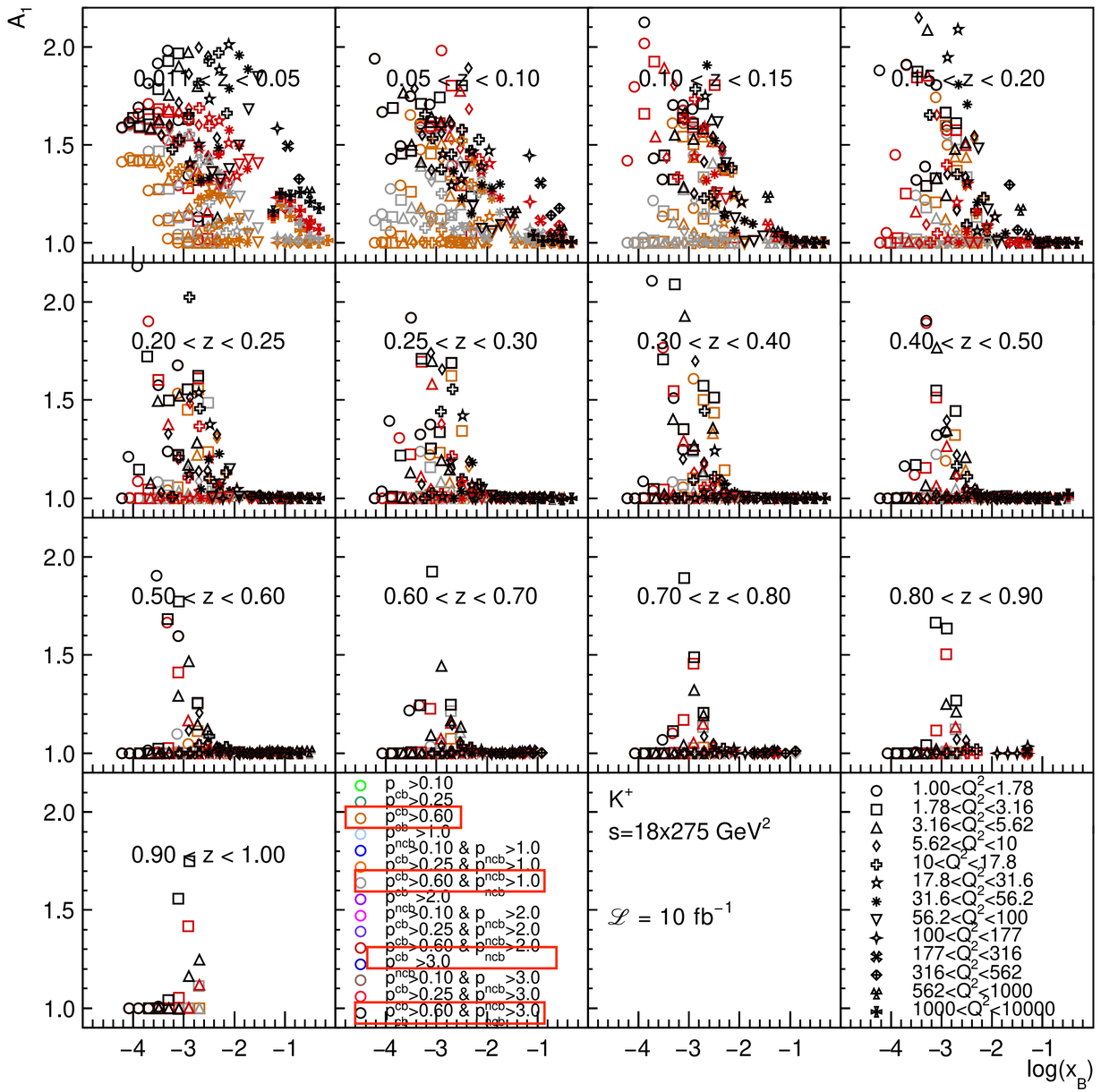

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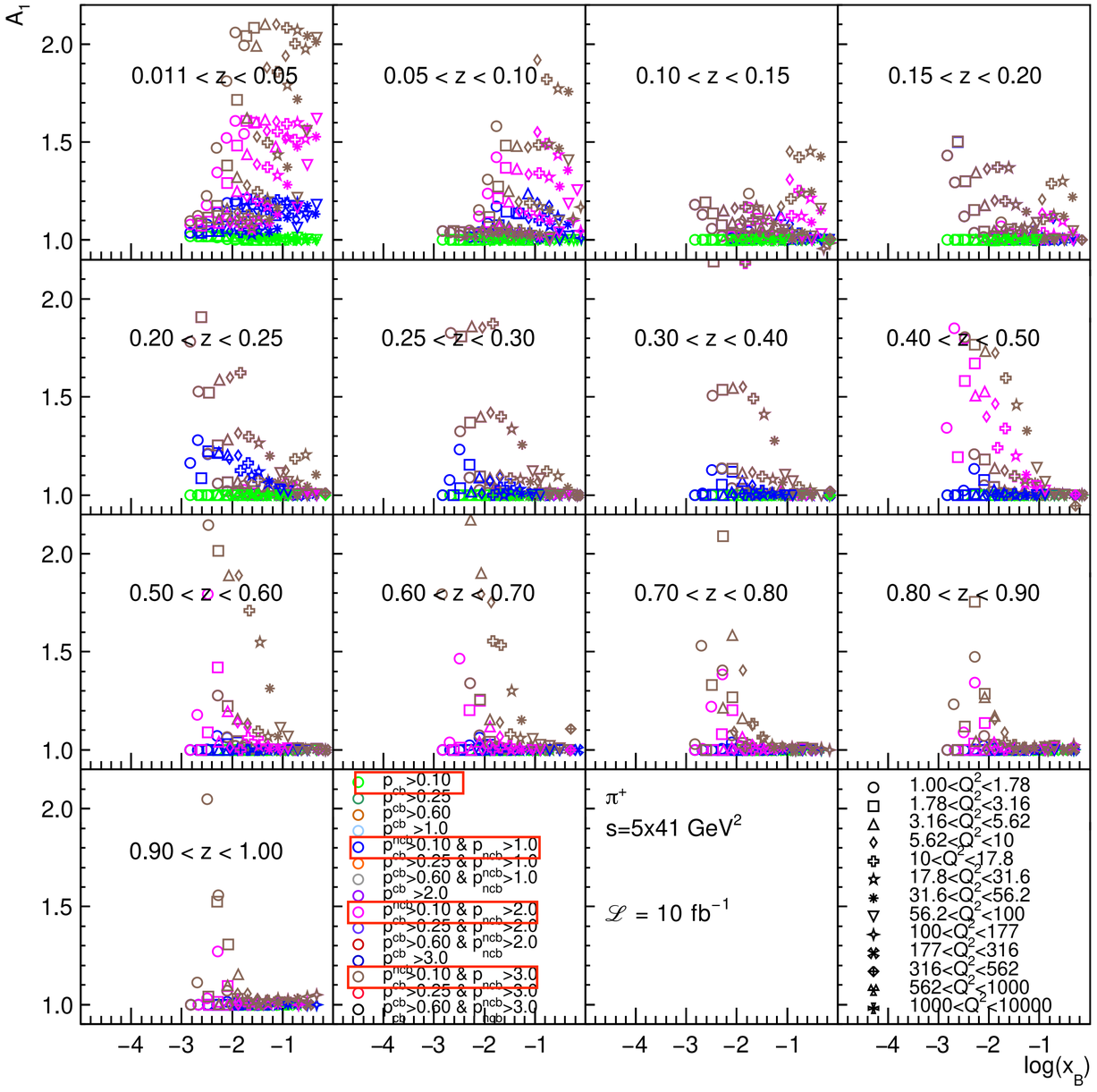

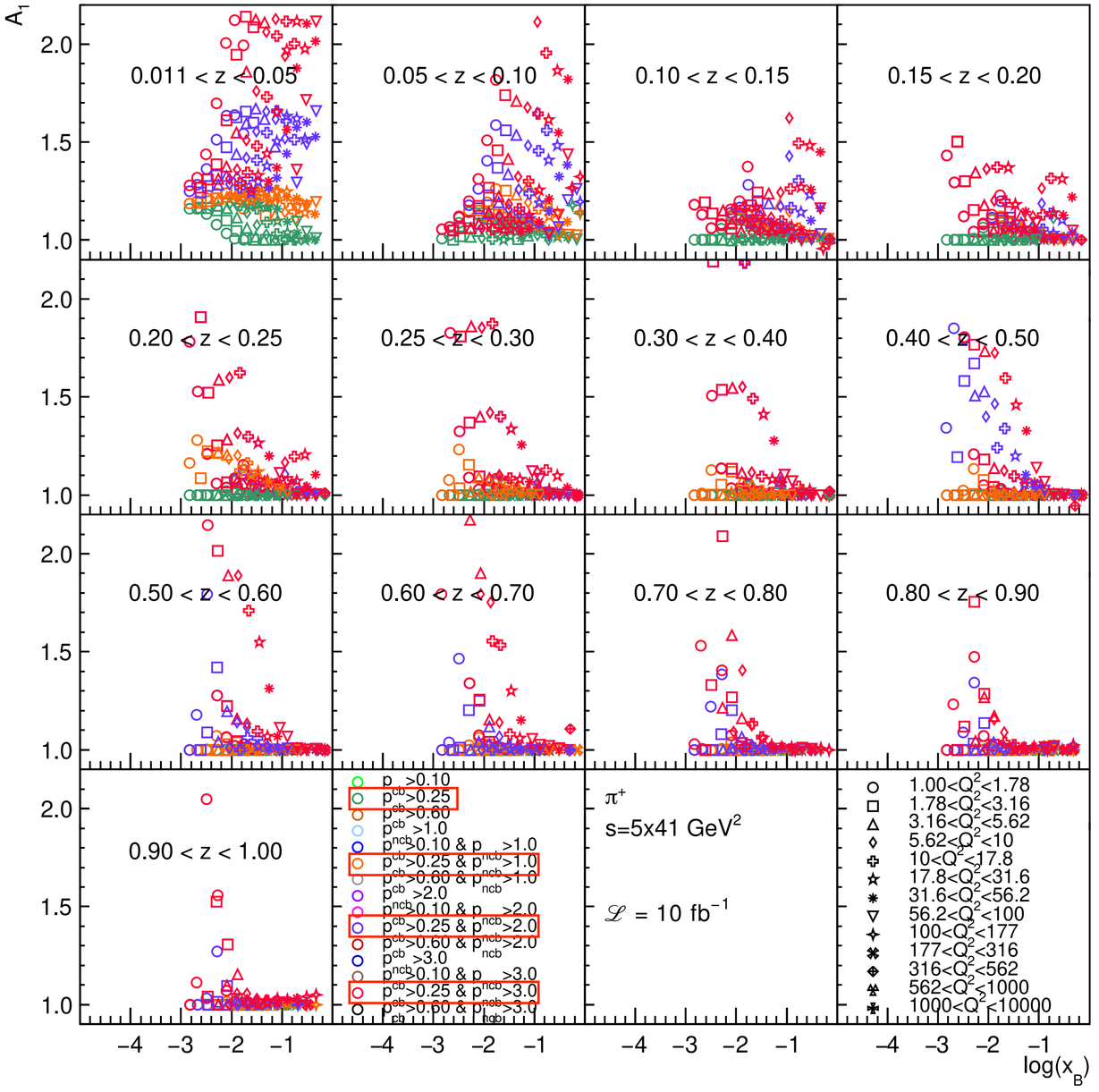

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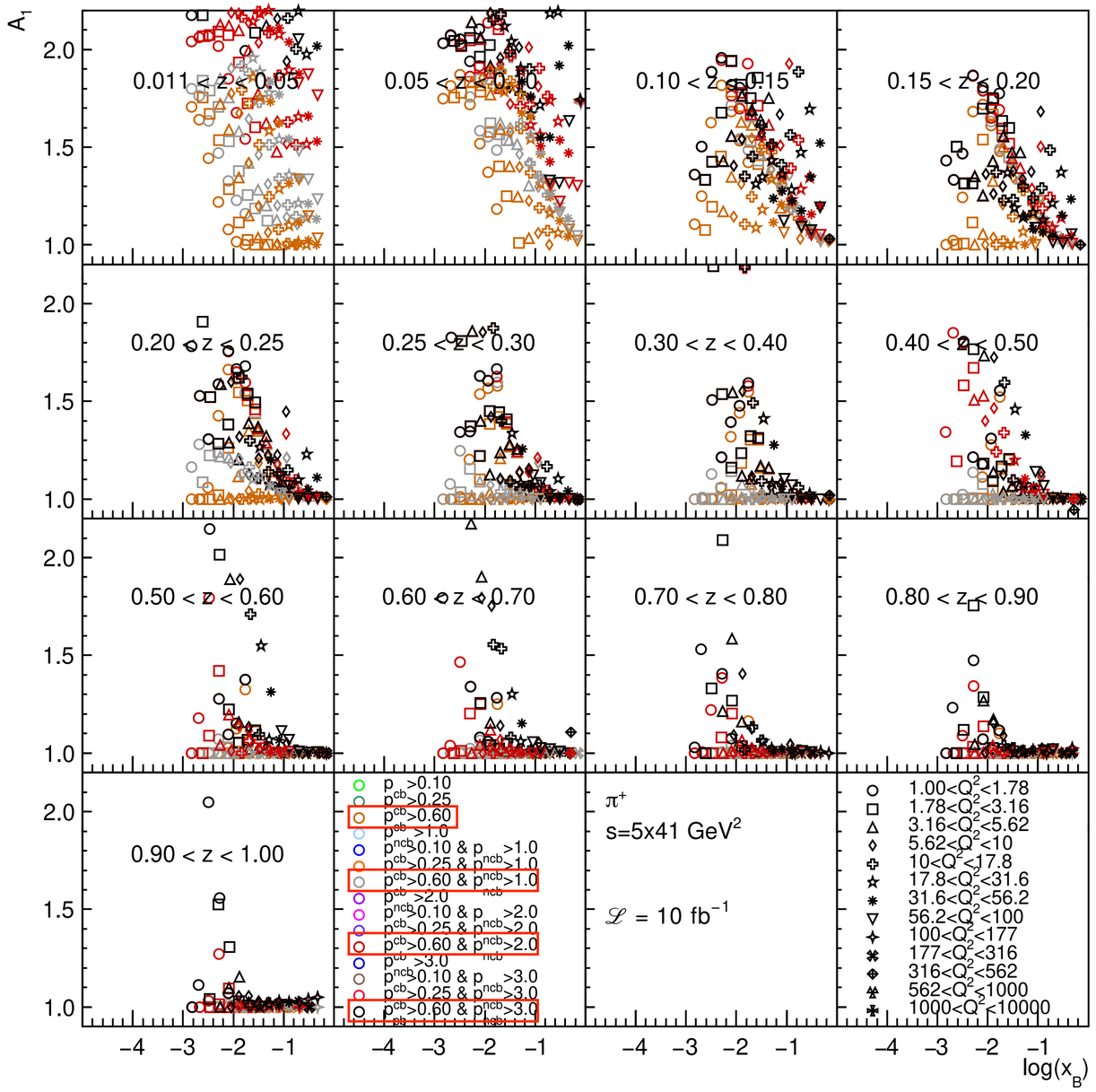

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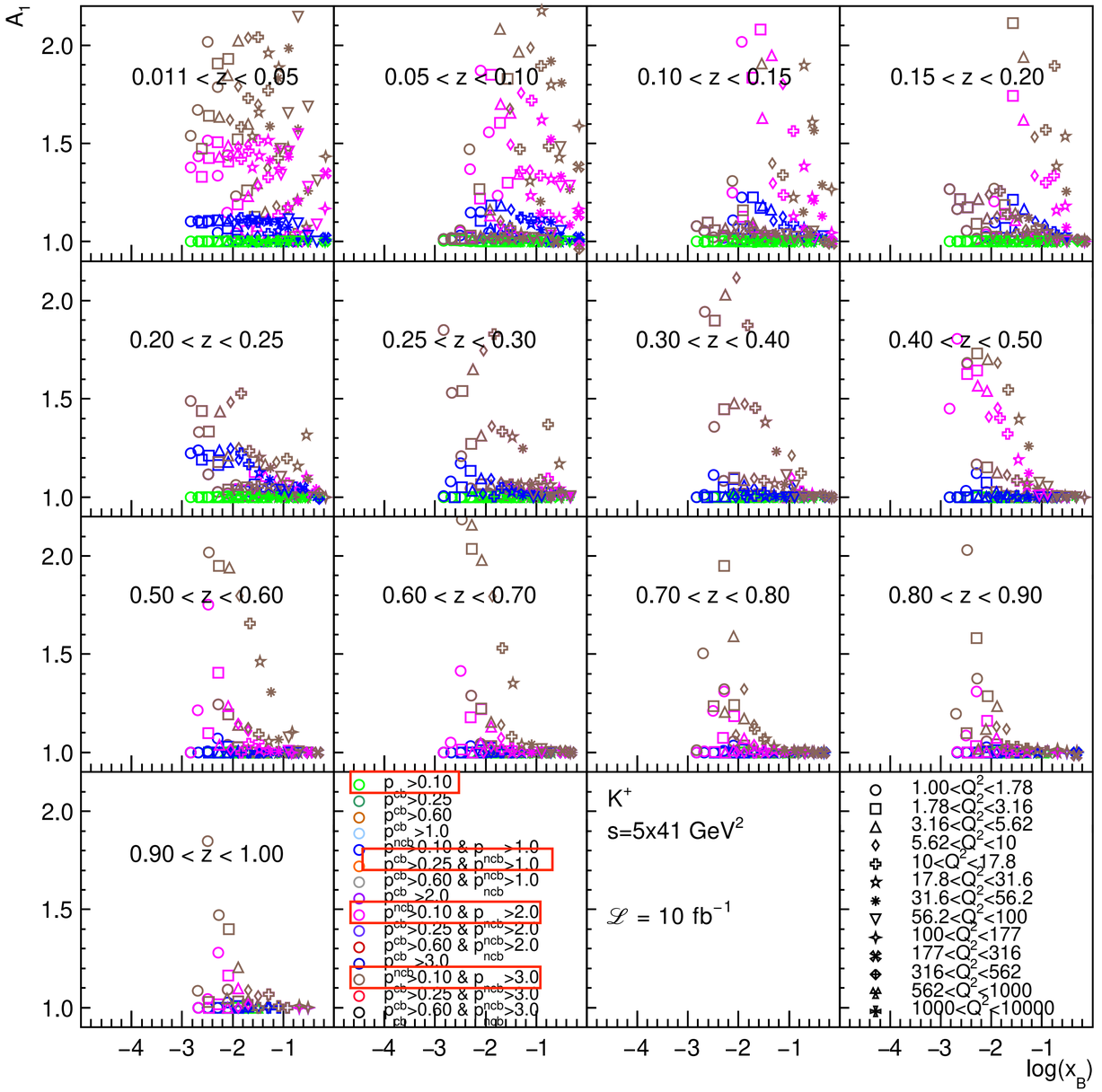

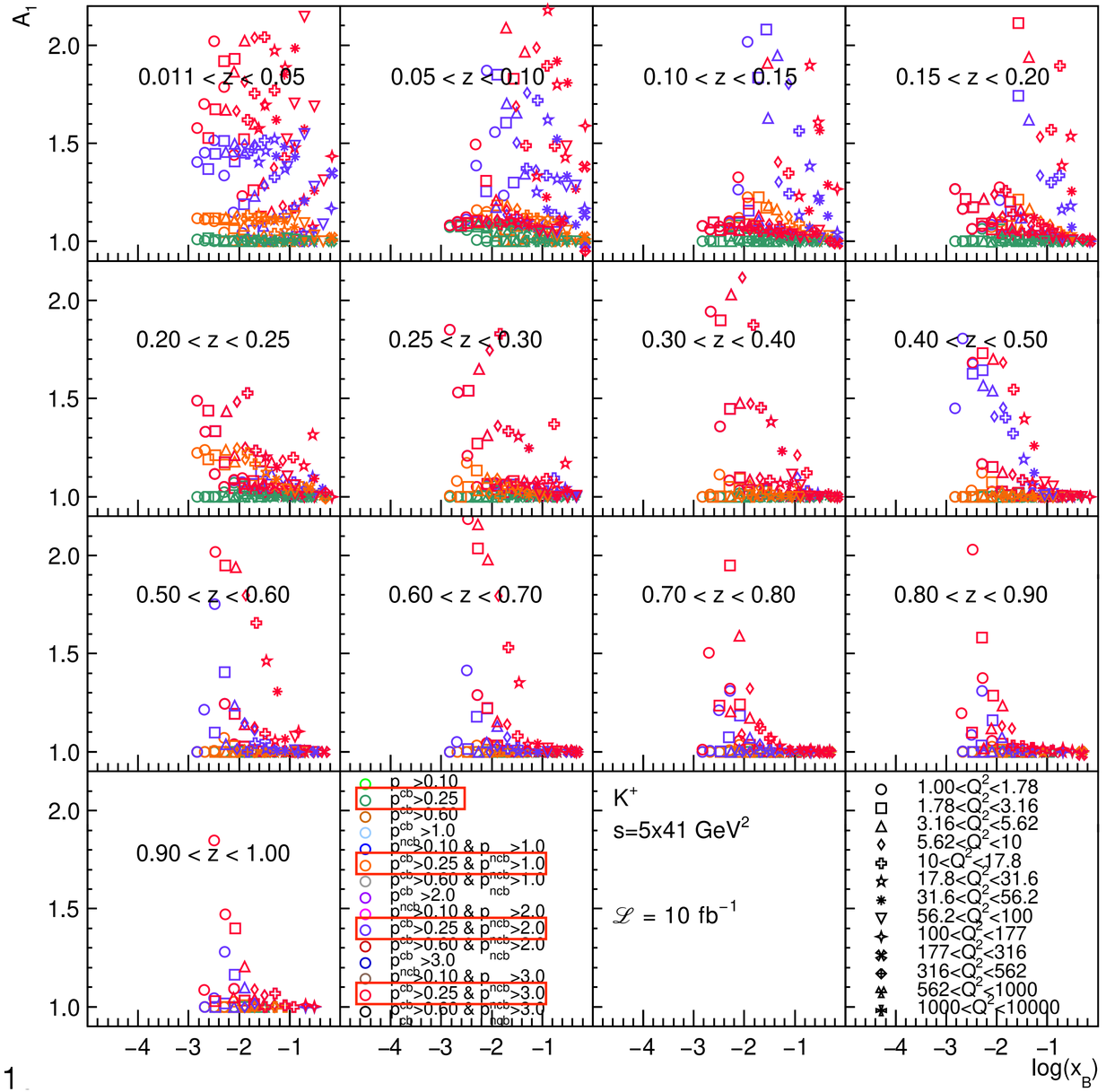

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