Charged Particle Angular and Momentum Distributions around jets in 5.02 TeV PbPb Collisions measured by ATLAS

Akshat Puri for the ATLAS Collaboration

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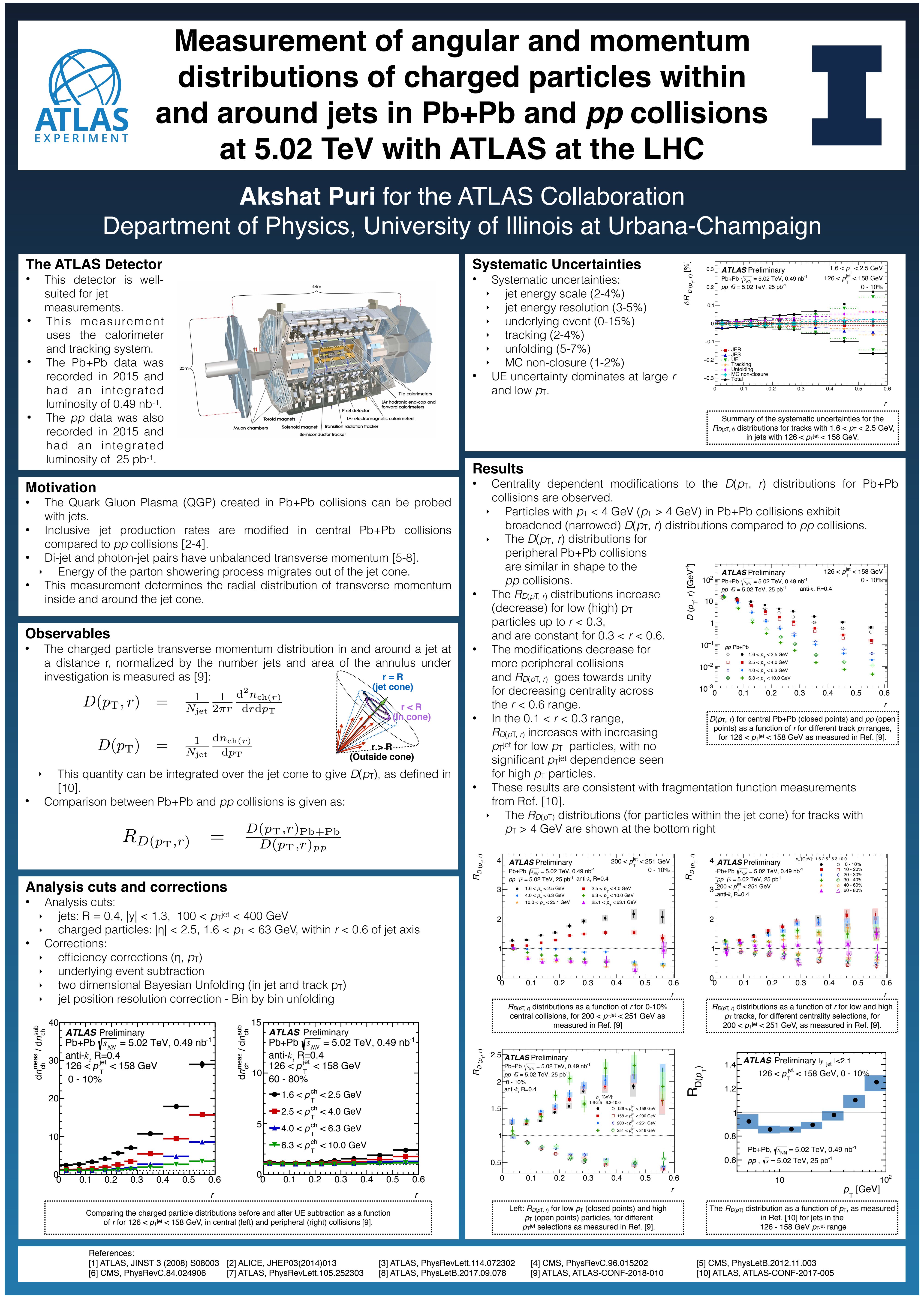


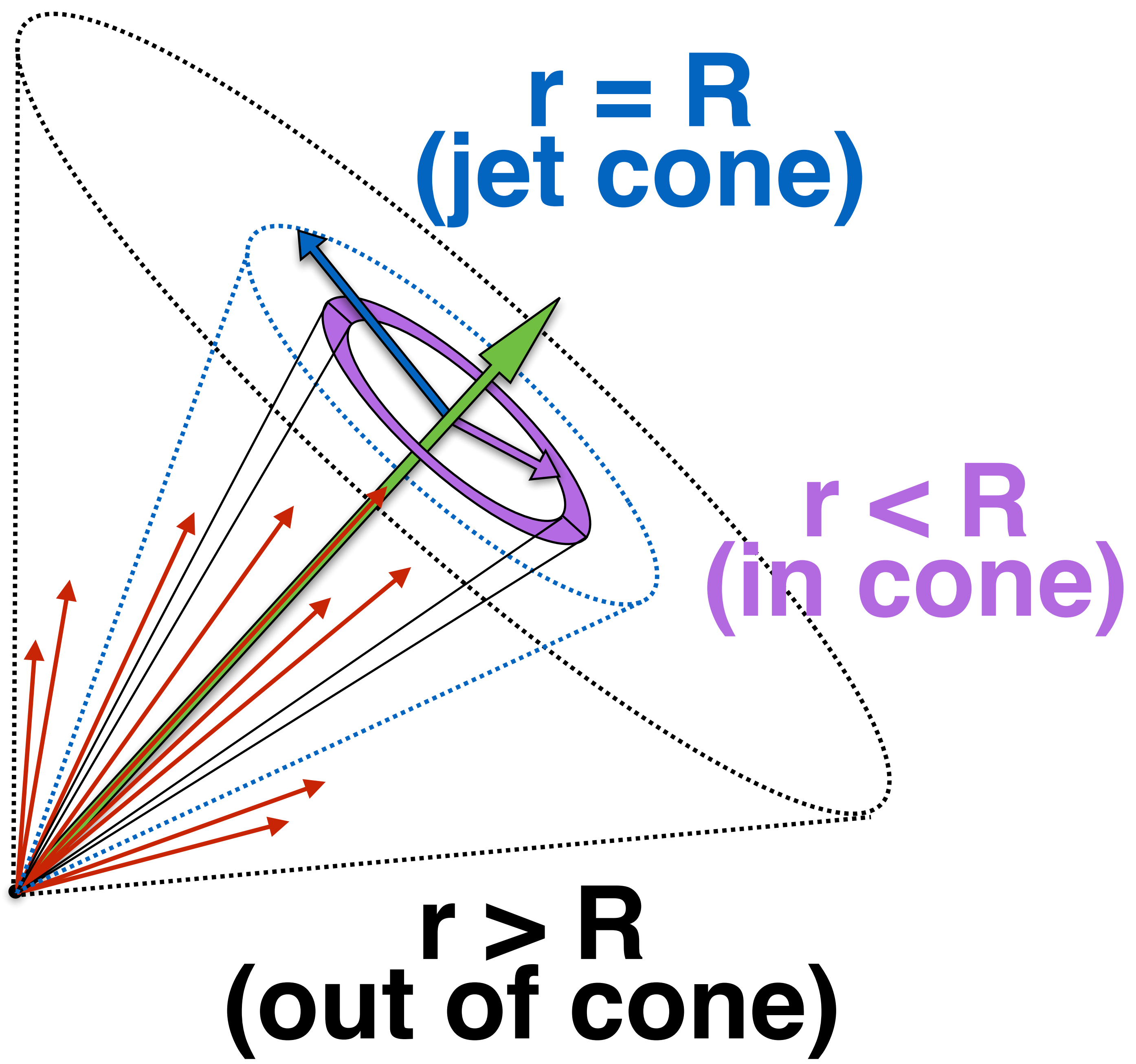
Observables

- Density of charged particles in an annulus at a distance *r* from the jet axis, per unit area per jet

- Reported as a function of track p_T, centrality, and *r*

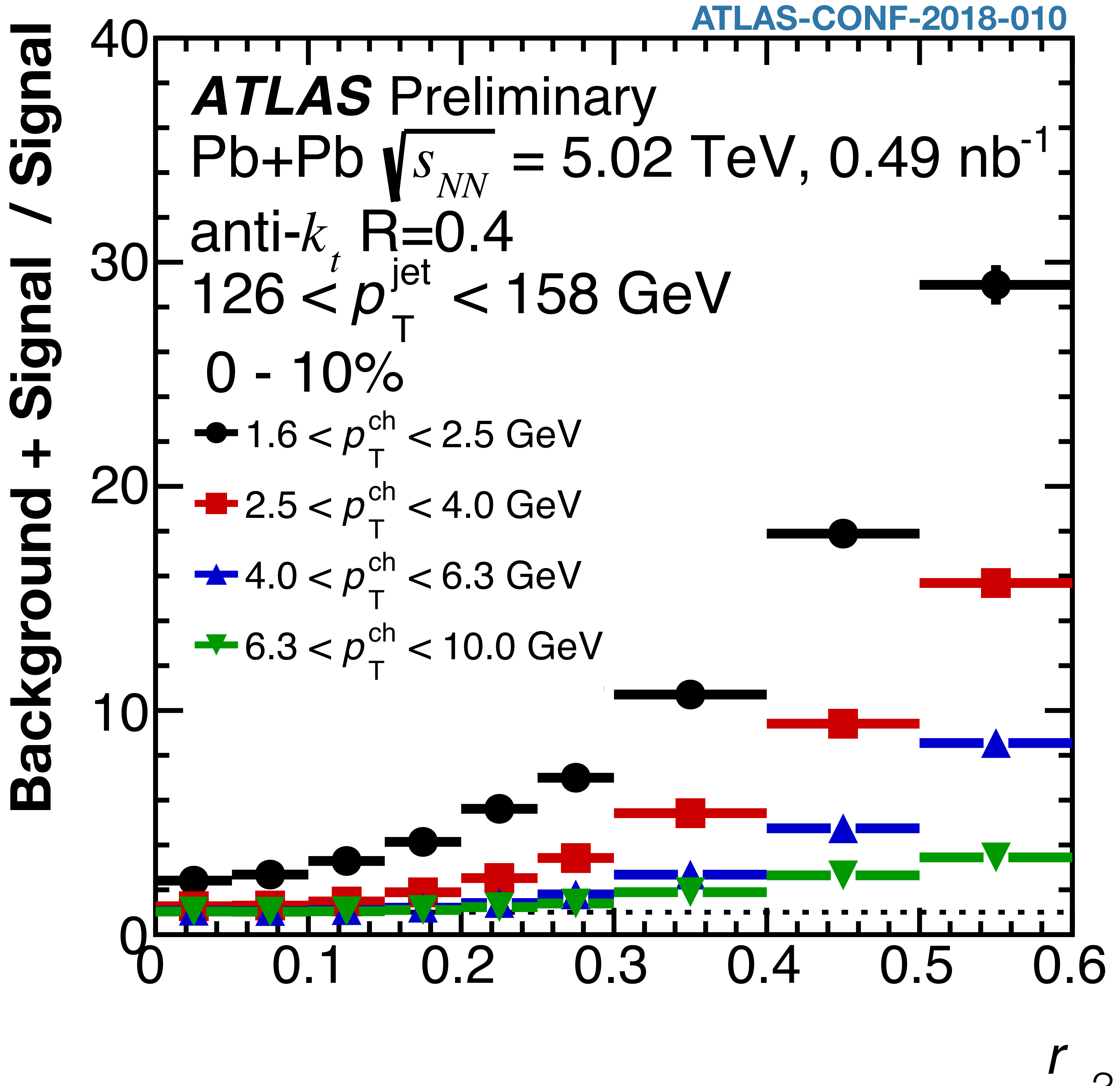
$$D(p_{\mathrm{T}}, r) = \frac{1}{N_{\mathrm{jet}}} \frac{1}{2\pi r} \frac{\mathrm{d}^2 n_{\mathrm{ch}}(r)}{\mathrm{d}r\,\mathrm{d}p_{\mathrm{T}}}$$

$$R_{D(p_{\mathrm{T}}, r)} = \frac{D(p_{\mathrm{T}}, r)_{\mathrm{Pb+Pb}}}{D(p_{\mathrm{T}}, r)_{pp}}$$

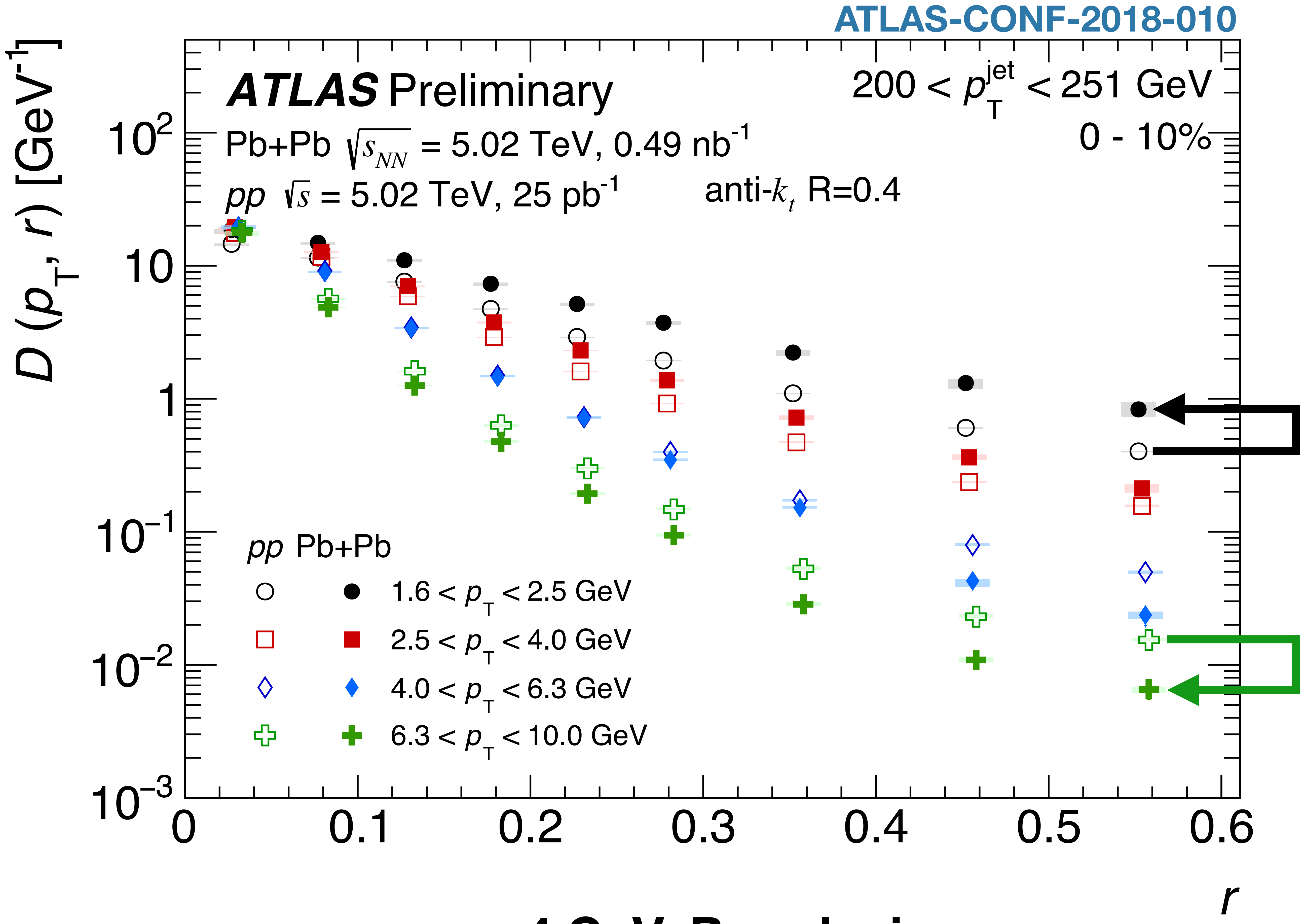


Underlying Event

- Biggest experimental challenge
- Estimated using data driven techniques
- Strongly dependent on p_T and centrality



Results: $D(p_T, r)$ and $R_{D(p_T, r)}$



p_T < 4 GeV: Broadening

p_T > 4 GeV: Narrowing

Results: D(p_T, r) and $R_{D(p_T, r)}$

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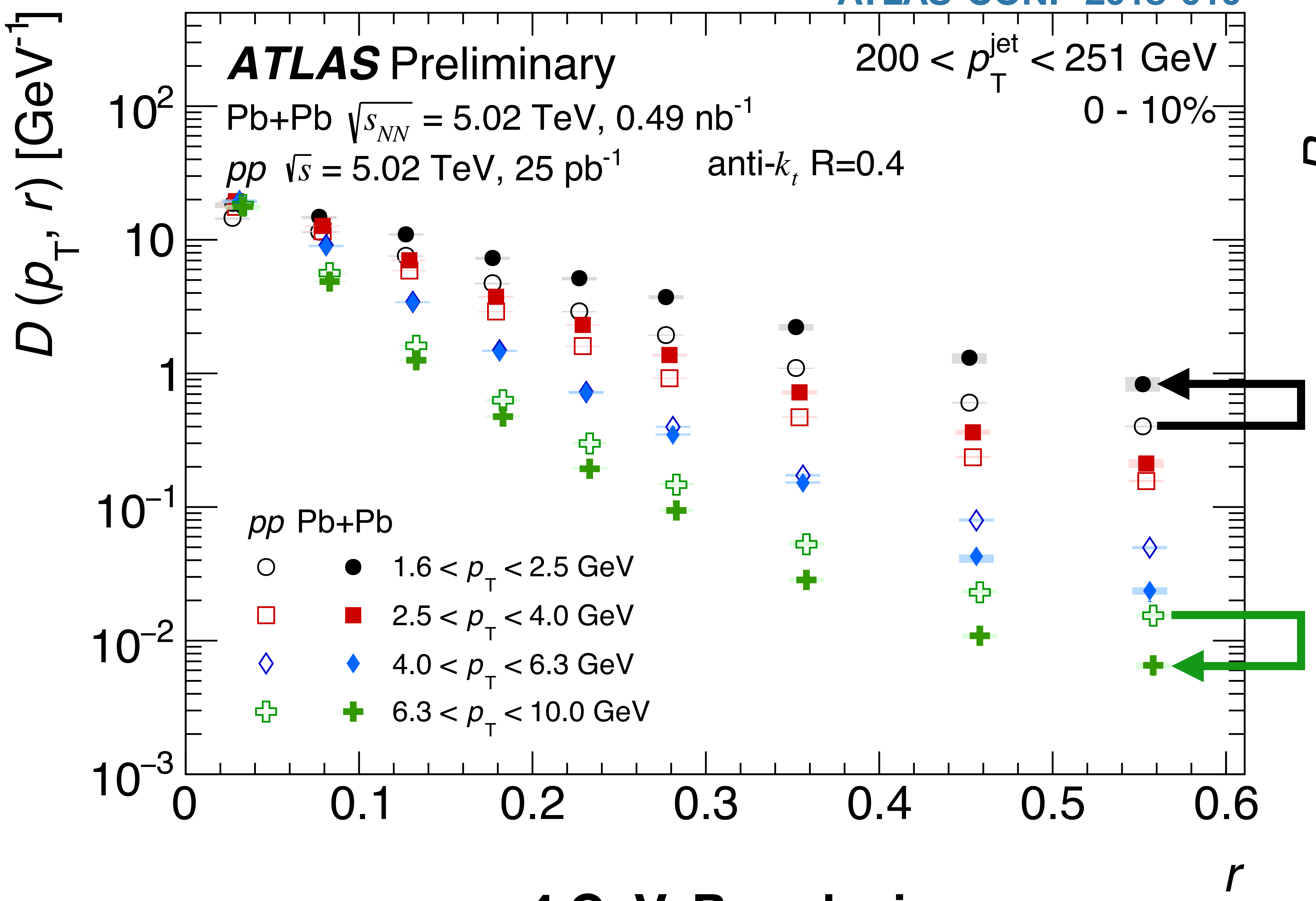
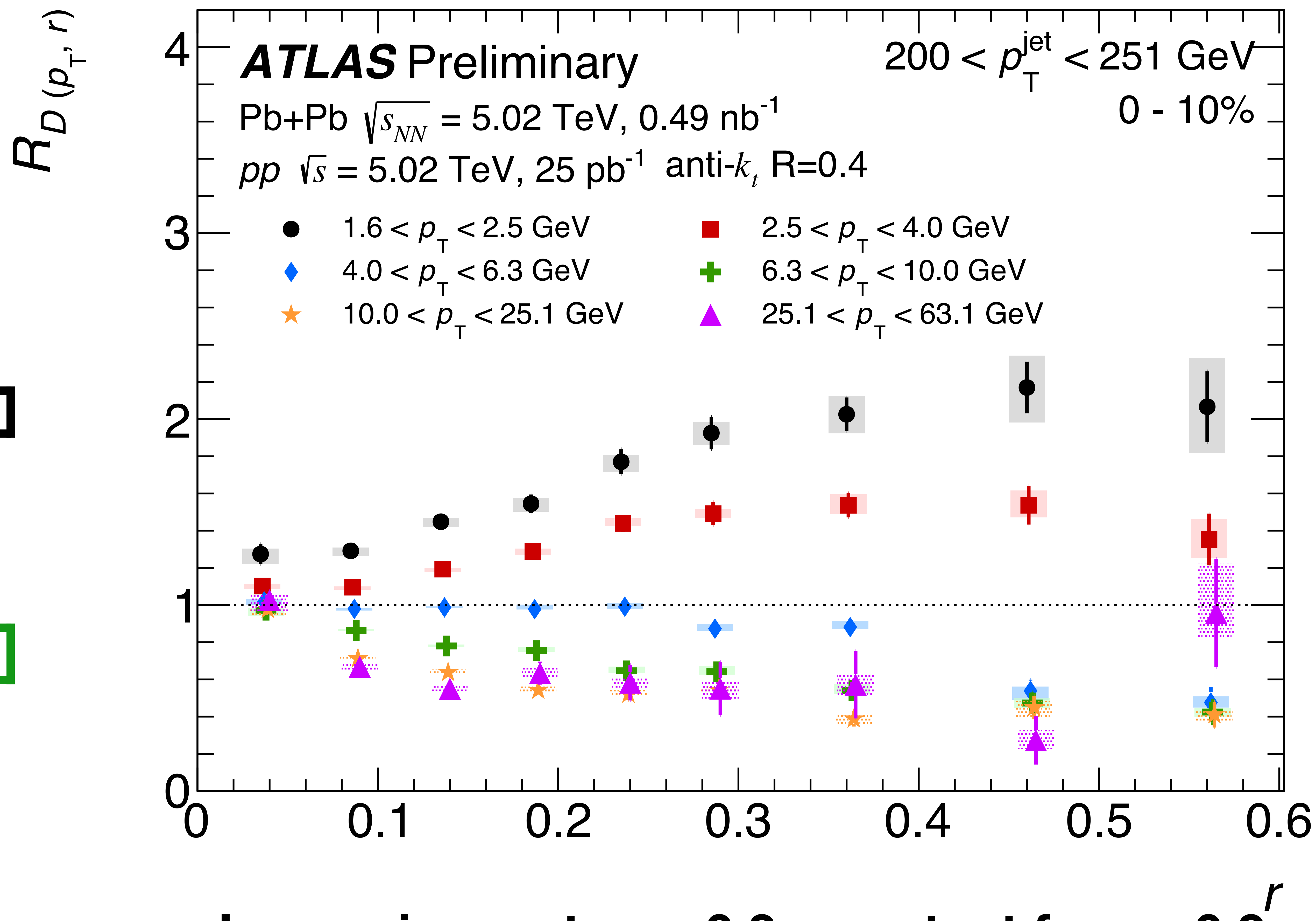
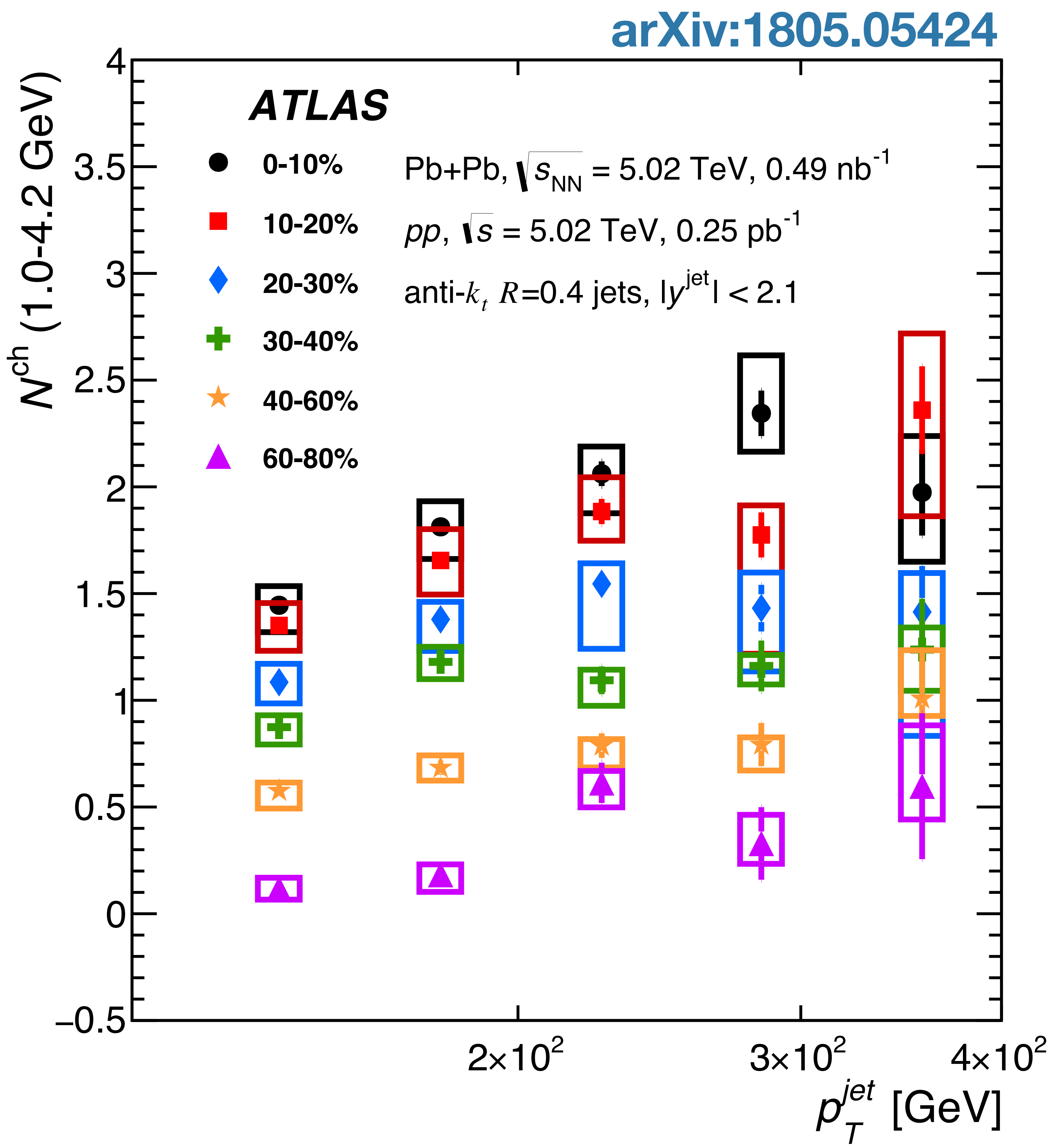




p_T < 4 GeV: Broadening
p_T > 4 GeV: Narrowing

Increasing up to r = 0.3, constant for r > 0.3
Decreasing up to r = 0.3, constant for r > 0.3

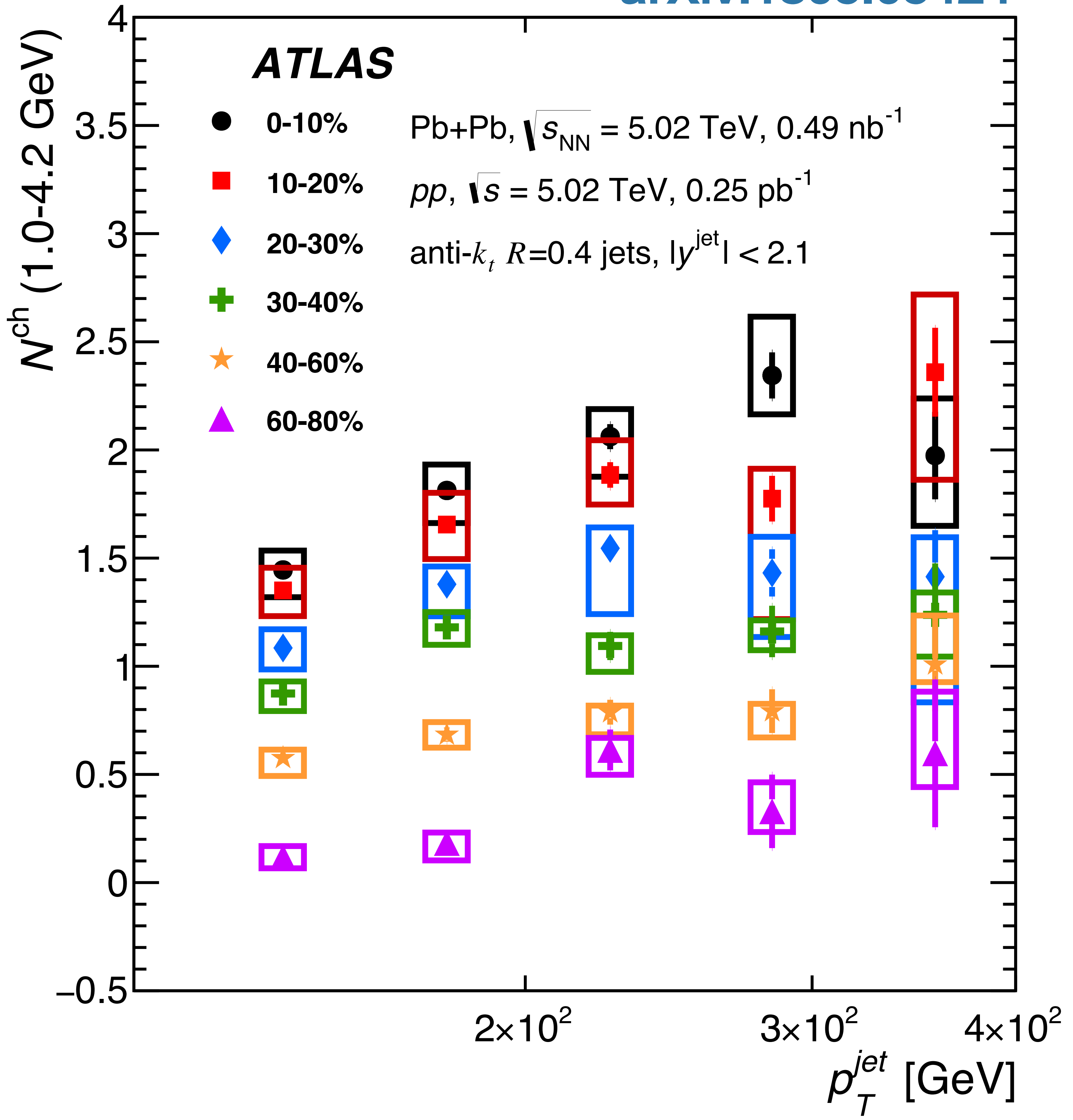
Results: p_T^{jet} dependence



Increase in number of particles as a function of p_T^{jet} for charged particles with $1 < p_T < 4$ GeV

Results: p_T^{jet} dependence

arXiv:1805.05424



Increase in number of particles as a function of p_T^{jet} for charged particles with $1 < p_T < 4$ GeV

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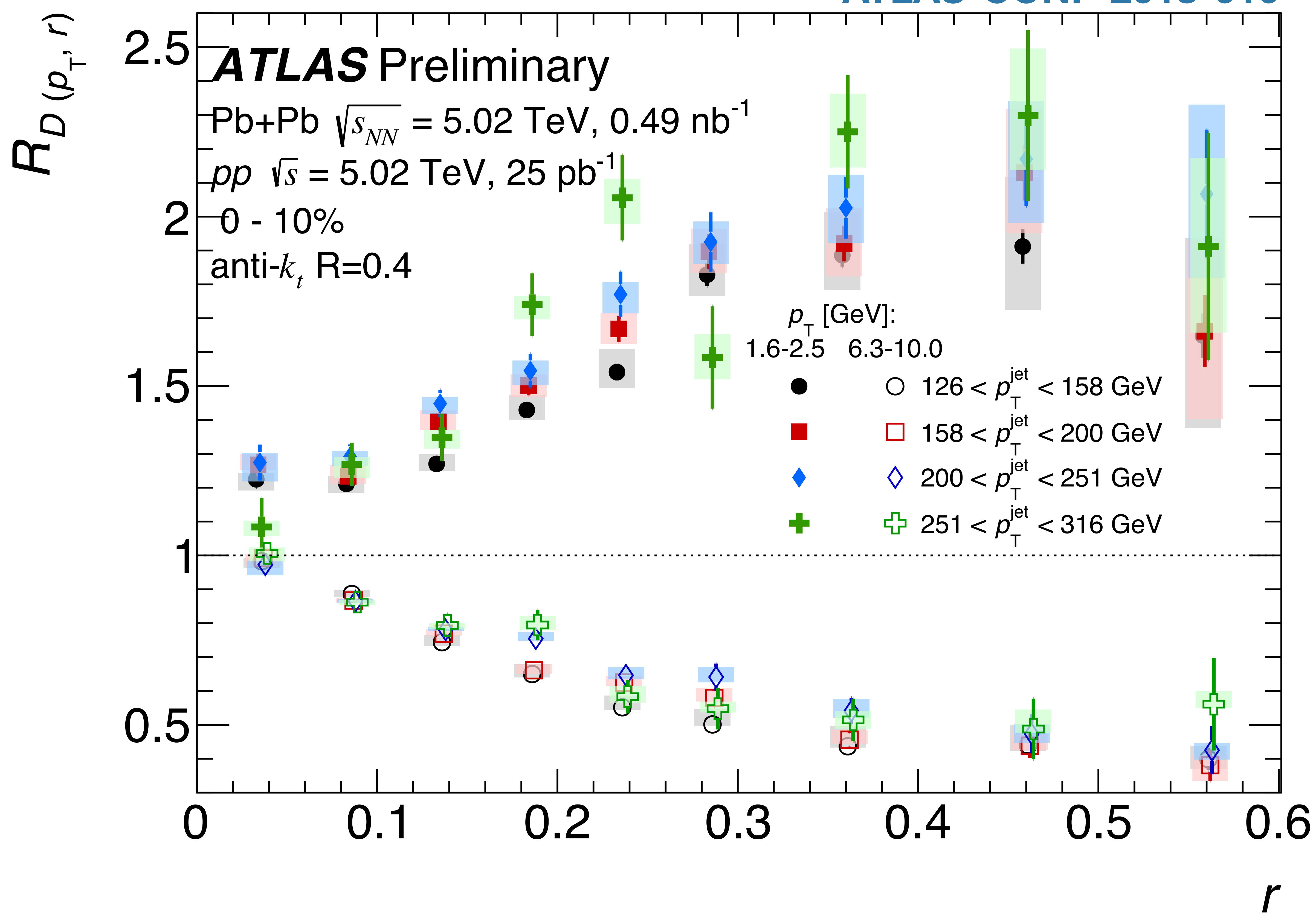
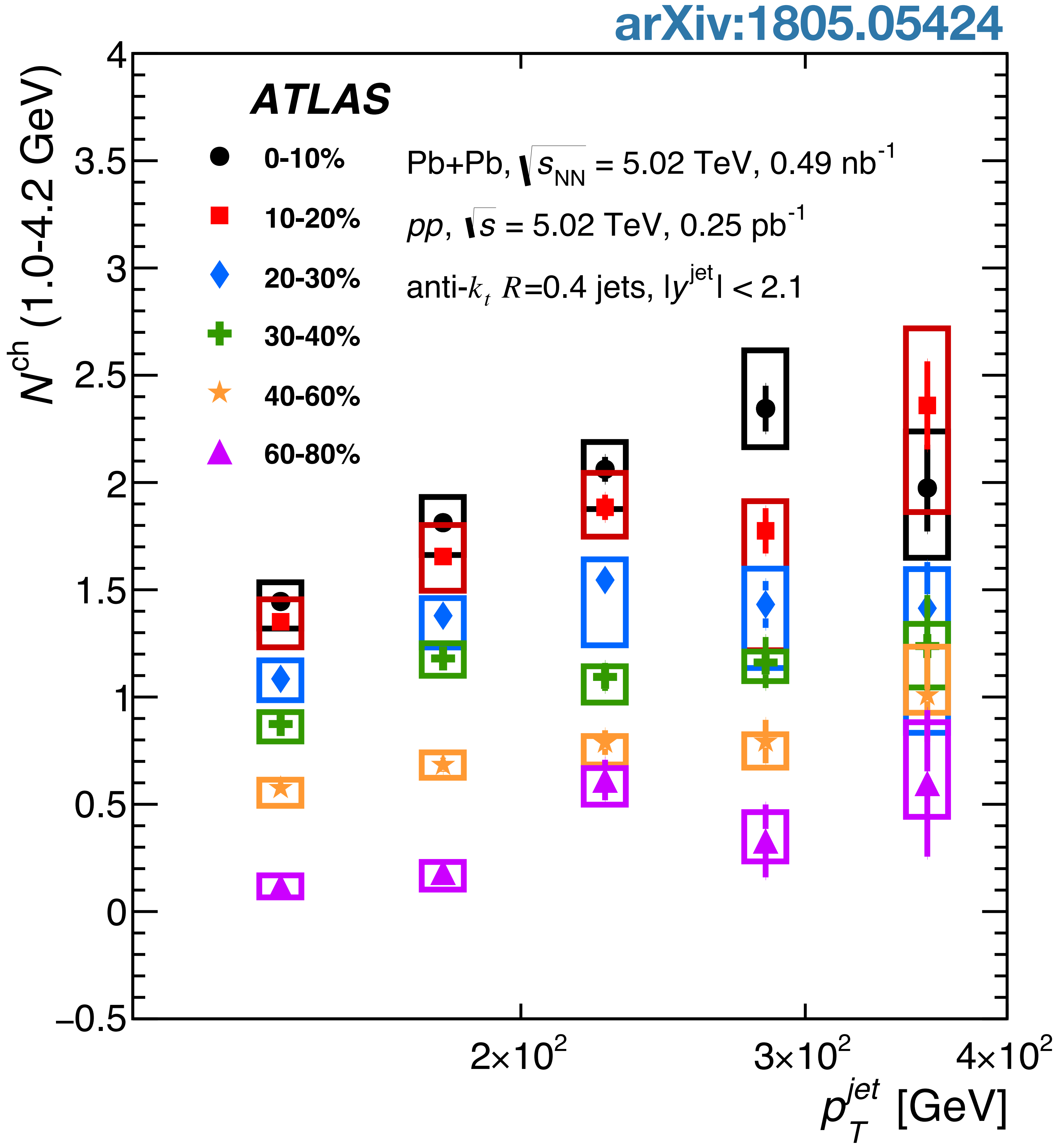


Low p_T (1.6 - 2.5 GeV): yield increases with p_T^{jet}
High p_T (6.3 - 10.0 GeV): No p_T^{jet} dependence

Results: p_T^{jet} dependence



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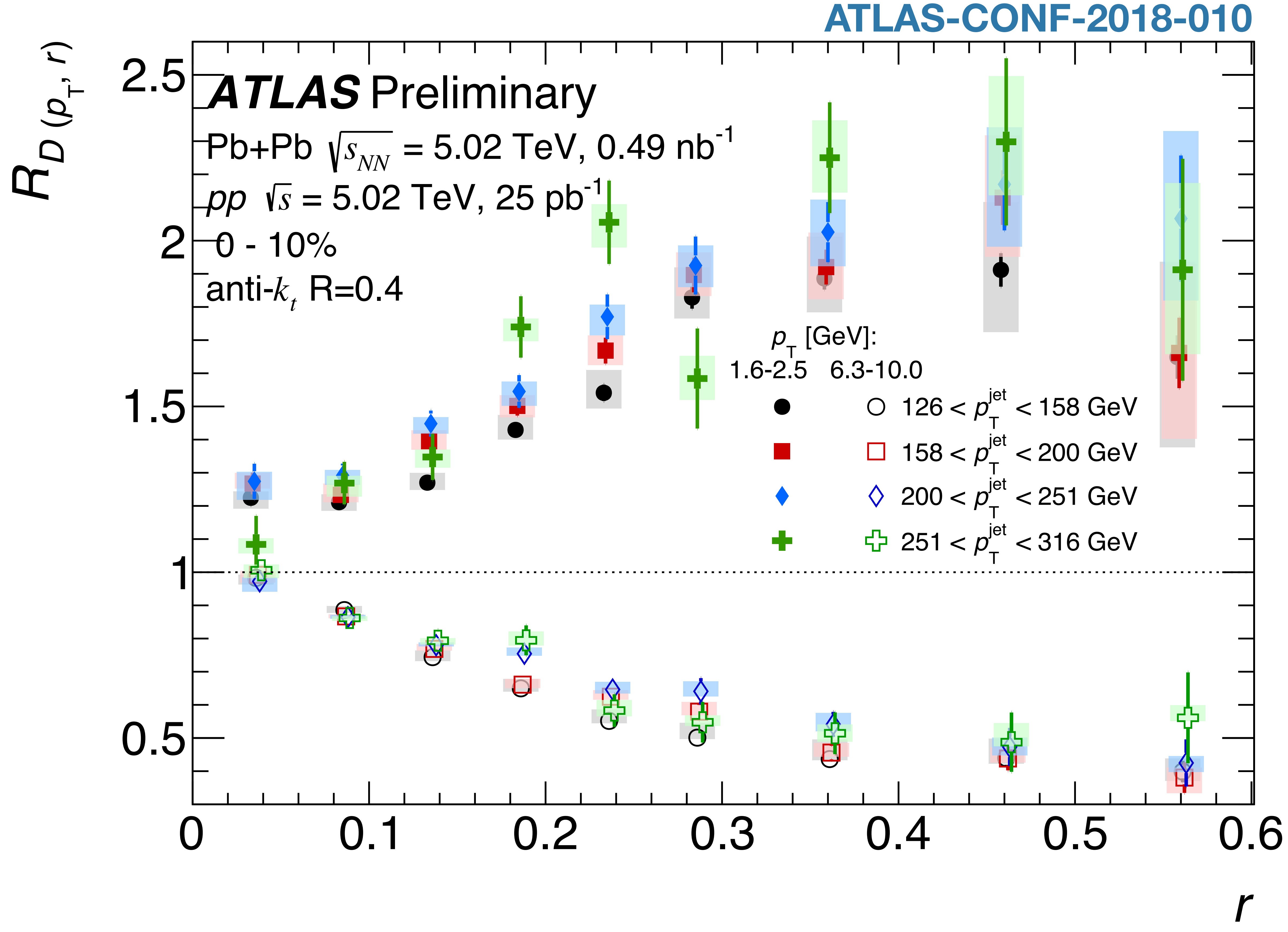

Low p_T (1.6 - 2.5 GeV): yield increases with p_T^{jet}
High p_T (6.3 - 10.0 GeV): No p_T^{jet} dependence

More information on the differential distributions of charged particles in jets