

ATLAS measurement of the two-particle correlation sensitivity to jets in pp collisions

Pengqi Yin on behalf of the ATLAS collaboration

Introduction

- In two particle correlation (2PC) measurements in nucleus-nucleus collisions, long-range correlations along $\Delta\eta$ are understood to arise from the collective expansion of the Quark-Gluon Plasma (QGP).
- The long-range correlations are also found in a small systems such as proton-nucleus ($p+A$) or pp collisions.
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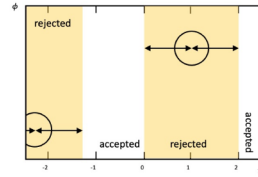
Jet reconstruction and corrections

- Reconstructed using the FastJet package.
- Anti- k_T algorithm with $R = 0.4$.
- The p_T^{jet} is corrected to account for the average combinatorial contribution of underlying event (UE) tracks.
$$p_T^{\text{jet,corr}} = p_T^{\text{jet}} - \pi R^2 \rho(\eta, \phi, p_T)$$

Event Sets

- NoJet:** Events that do not have a jet with p_T^{jet} greater than 10 GeV
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Rejection of jet-particles from 2PC

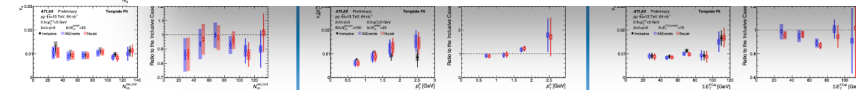
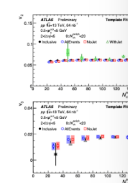


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Multiplicity



- The v_n are weakly varying with multiplicity.
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- The v_3 are larger in *AllEvents* and *NoJet*.
- Indicate possible non-flow bias in *Inclusive*.
- The v_n values are observed to be similar over the $p_T^{\text{jet}} = 0.5 - 3$ GeV range.
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Conclusion: These measurements indicate that long-range correlations in pp collisions are only slightly affected when particles associated with hard or semi-hard processes in the event are removed.

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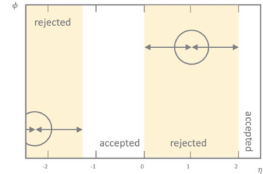
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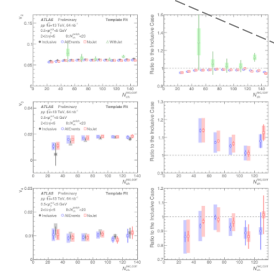
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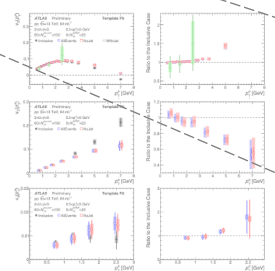
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Multiplicity dependence



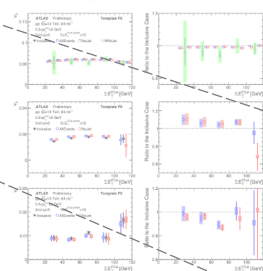
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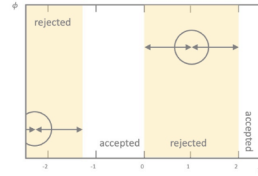
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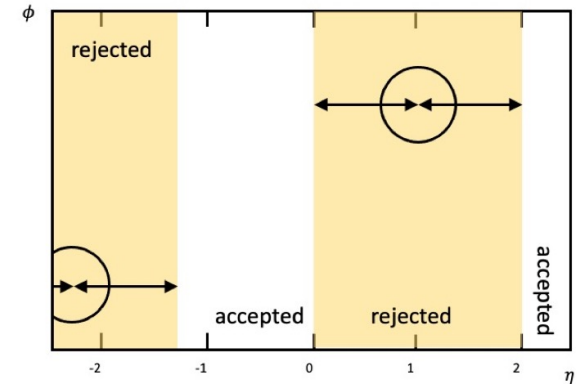
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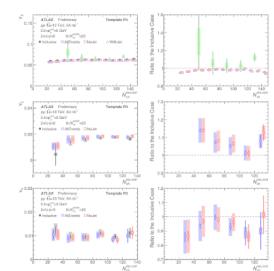
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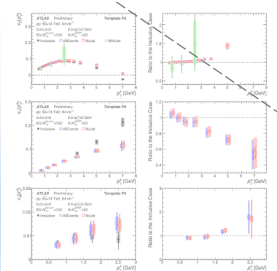
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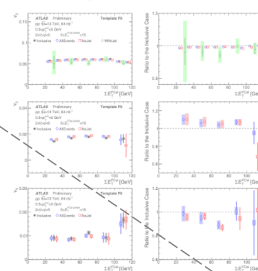
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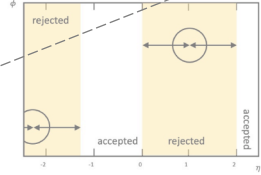
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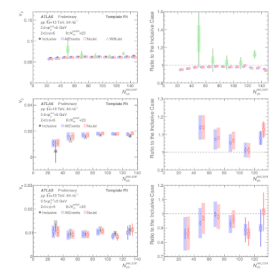


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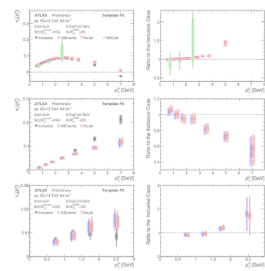
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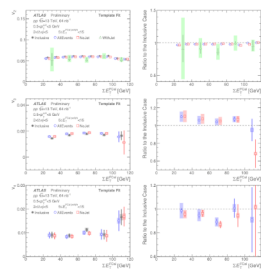
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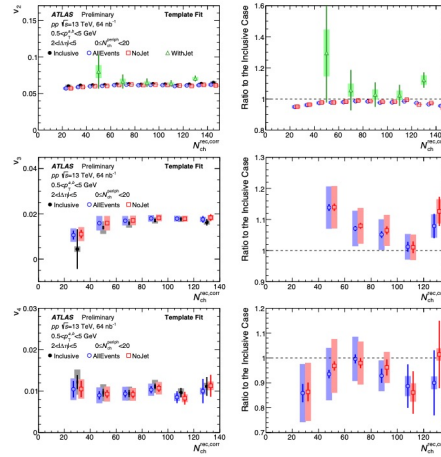
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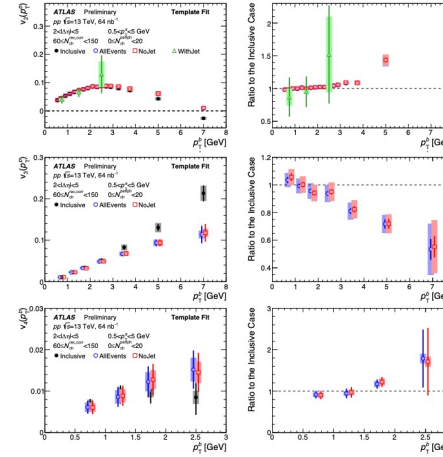
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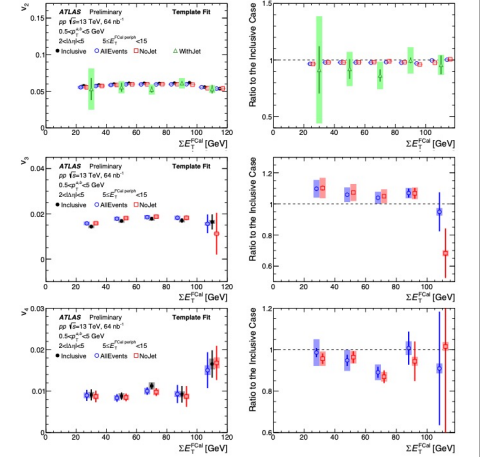
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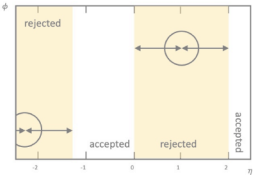
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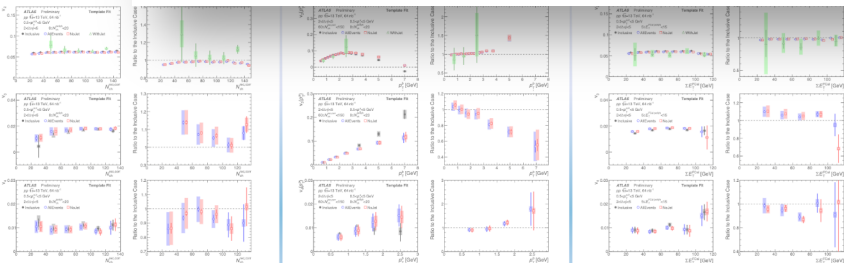
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