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Factorization breaking - flow angle and magnitude decorrelation

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The factorization breaking of collective flow in transverse momentum or in pseudorapidity is equivalent to a small decorrelation of flow in different phasespace regions. ATLAS has measured, besides the usual factorization breaking (including both flow magnitude and angle decorrelation), the flow angle decorrelation in pseudorapidity. The latter accounts for about half of the total decorrelation. These observations are confirmed in hydrodynamic calculations for the flow decorrelation, both in pseudorapidity [1] and in transverse momentum [2]. The general relation between flow angle and flow magnitude decorrelation can be understood within a simple model with a random component of the flow vector [3].

Our work makes also predictions for additional observables, that could be tested experimentally.

[1] P. Bozek, W. Broniowski, Phys. Rev. C 97 (2018) 034913.

[2] P. Bozek, Phys. Rev. C98 (2018) 064906.

[3] P. Bozek, H. Mehrabpour, in preparation

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