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# Rapidity correlations in the RHIC Beam Energy Scan.

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Rapidity correlations in the RHIC Beam Energy Scan.
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A pair-normalized two-particle covariance versus the rapidity of the two particles, called $R_2$, was originally studied [1] in ISR and FNAL data in the 1970's and has recently seen renewed interest [2] to study the dynamics of heavy-ion collisions in the longitudinal direction. These rapidity correlations can be decomposed onto a basis set of Legendre polynomials with prefactors $\langle a_{mn} \rangle$, which can be considered the rapidity analog of the decomposition of azimuthal anisotropies into a basis set of cosine functions with prefactors $v_n$. The $\langle a_{mn} \rangle$ values have been suggested [2] to be sensitive to the number of sources, baryon stopping, viscosities, and criticality. The rapidity correlations have been measured by the STAR collaboration as a function of the centrality and beam energy in the range of 7.7 to 200 GeV. The experimental results and comparisons to those from the UrQMD model will be presented.

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## Preferred Track

Baryon-Rich QCD Matter and Astrophysics

## Collaboration

STAR

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