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Longitudinal decorrelation measurements from pp to A+A with the ATLAS detector

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This talk presents new measurements of longitudinal flow decorrelations in 5.02 TeV and 13 TeV pp collisions and 5.44 TeV Xe+Xe collisions with the ATLAS detector. The measurements are performed using the two-particle correlation method with charged-particle tracks within |eta| < 2.5 and clusters within 4.0 < |eta| < 4.9. Due to the larger influence of non-flow effects in small collision systems, template-based subtraction procedures are developed and applied to the measurement. These effects are observed to play a role even in large systems such as 5.44 TeV Xe+Xe collisions. Flow decorrelations are characterized in terms of the ratio of the correlations with a large pseudorapidity gap to those with small pseudorapidity gap, r_n, where n is the flow harmonic moment. Results are reported for the slope of r_2 as a function of pseudorapidity gap as a function of charged-particle multiplicity for the pp and Xe+Xe collision systems. This gives some of the first detailed information on the correlation between longitudinal and transverse energy deposition in pp collisions.

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