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Measurement of long-range correlations in pp collisions characterized by presence of a Z-boson

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Recent measurements of correlations between two particles separated in pesudorapidity and azimuthal angles have shown striking similarities between results obtained in pp, and in p+A and A+A collision systems. In pp collision system, unlike in the p+A and A+A systems, the strength of the correlations quantified by the anisotropy parameter v_2 does not show any dependence on the charged-particle multiplicity. Recent theoretical models suggest that this can be due to lack of correlation between the charged-particle multiplicity and the impact parameter of the pp collision. An independent handle on the impact parameter can be obtained by requiring the presence of a hard-scattering process in the collision. This talk presents the first measurement of two-particle correlations in pp collisions with a Z boson identified via its dimuon decay channel. The analysis uses ATLAS data recorded under nominal pp luminosities, and a procedure to correct for contribution of the tracks coming from pileup vertices is used. The anisotropy parameter v_2 measured in Z-tagged events is compared to the v_2 measured in minimum-bias collisions.

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