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## Measurements of the underlying-event properties and hadron production with the ATLAS detector

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A correct modelling of the underlying event in proton-proton collisions is important for the proper simulation of kinematic distributions of high-energy collisions. The ATLAS collaboration extended previous studies at 7 TeV with a leading track or jet or Z boson by a new study at 13 TeV, measuring the number and transverse-momentum sum of charged particles as a function of pseudorapidity and azimuthal angle in dependence of the reconstructed leading track. These measurements are sensitive to the underlying-event as well as the onset of hard emissions. The results are compared to predictions of several MC generators. Further studies shed light on the correlated hadron production, which are an important source of information about the early stages of hadron formation, not yet understood from first principles. In this presentation, we will discuss Bose-Einstein correlations measured with the ATLAS detector along with an analysis of the momentum difference between charged hadrons in high-energy proton-proton collisions. The latter allows the investigation of observables sensitive to the predictions of the quantized string model.

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