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## Measurements of multiparton interactions at ATLAS

*Thursday 11 July 2019 17:30 (15 minutes)*

Measurements of multiple parton scattering in proton-proton collisions provide insight into the structure and long-range low-momentum scale interactions of the proton. In this talk we present two recent measurements using proton-proton collision data collected by the ATLAS experiment. The first measurement determines the double-parton scattering contribution to four-lepton events at  $\sqrt{s}=8$  TeV. An artificial neural net is used to optimise the analysis and an upper limit on the double-parton scattering fraction is set at 0.042, which corresponds to an effective cross section of 1mb. In the second measurement, the underlying event activity is studied in events containing a Z-boson in  $\sqrt{s}=13$  TeV data. Unfolded differential cross sections are presented for charged particle multiplicity and charged particle transverse momentum in regions of azimuth measured with respect to the Z-boson direction. The data are compared to a wide variety of predictions from Monte Carlo event generators.

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