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The Energy Dependence of the Underlying Event in Hadronic Collisions

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At CDF we study charged particles production (pT > 0.5 GeV/c,
|eta| < 0.8) in proton-antiproton collisions at 300 GeV, 900 GeV,
and 1.96 TeV. The 300 GeV and 900 GeV data are a result of the “Tevatron Energy Scan” which was performed just before the Tevatron was shut down.
We use the direction of the leading charged particle in each event, PTmax, to define three regions of eta-phi space; “toward”, “away”,
and “transverse”. The “transverse” region is further divided into the
“transMAX” and “transMIN” contributions. The “transMIN” region is very
sensitive to the “underlying event”. The data are corrected to the
particle level and are compared with LHC data at 900 GeV and 7 TeV. This CDF analysis together with LHC data provides a detailed study the energy dependence of the underlying event in hadronic collisions.

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