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## Particle production and fragmentation at HERA

The electron proton collisions at HERA provide an unique test-bed for models of particle production, fragmentation and also for spectroscopy. Data collected during HERA II period reached full precision due to refined calibrations and conceptual improvements in the reconstruction. The results obtained recently include measurements on scaled momentum distributions of charged particles, which can be compared with similar studies at  $e^+e^-$  colliders. For the first time a significant charge particle asymmetry has been measured in events at high  $Q^2$ , in agreement with the expectations from valence quarks contributions at large fractional momentum. The production of strange particles allows to test models of flavor-dependent fragmentation. The production of exotic particles (including pentaquarks) has been investigated including the full statistics.

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