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Search for collectivity in high multiplicity DIS and photo-production e+p collisions with H1 at HERA

Observations of two- and multi-particle correlations in high multiplicity p-A, p-p and ultra-peripheral Pb+Pb collisions at RHIC and LHC reveal the collective nature of particle production in small collision systems. These results motivate a study in even smaller systems such as e+p collisions in order to understand the origin of the observed collectivity. With data collected by the H1 experiment at HERA, two- and multi-particle correlations in collisions of electron at 27.6 GeV and proton at 920 GeV are measured as a function of multiplicity for deep inelastic scattering events, as well as for photo-production events for the first time. Those results are compared to available Monte Carlo models and are complementary to the studies of collectivity in other small systems.

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