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Local multiplicity fluctuations in Pb−Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 2.76 TeV with ALICE at LHC

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In this contribution, we present a first factorial moment analysis performed on the multiplicity distributions of charged particles produced in the Pb−Pb collisions at $\sqrt{s_{\mathrm{NN}}}$=2.76 TeV, recorded with the ALICE detector at the LHC. The normalized factorial moments (NFM) of spatial configurations of charged particles in two-dimensional angular (η, φ) phase space, F_q for $q \geq 2$, are calculated. For a system with dynamical fluctuations due to characteristic critical behaviour near the phase transition, F_q exhibits power-law growth with increasing bin number or decreasing bin size which indicates self-similar fluctuations. Relating the qth order NFM (F_q) to the second order NFM (F_2), the value of the scaling exponent (ν) is extracted, which indicates the order of the phase transition within the framework of Ginzburg-Landau theory.

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