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Fluctuations of net-particle distributions in Pb-Pb collisions measured with the ALICE detector at the LHC SURYA PRAKASH PATHAK, Univ of Houston, ALICE COLLABORATION — Heavy Ion Collisions at the LHC provide a tool to study the phase transition from hadronic matter to a deconfined phase of quarks and gluons. Lattice QCD calculations suggest that the chiral crossover transition and the hadronic freeze-out conditions can be tested by measuring cumulants of conserved charge distributions, which are directly related to the quark number susceptibilities in lattice QCD. We will present experimental results of the mean (c_1) and the variance (c_2) of net-proton, net-kaon and net-pion distributions, which serve as proxies for net-baryon, net-strangeness and net-charge distributions, respectively. The data were measured as a function of centrality and pseudo-rapidity in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV using the ALICE experiment at the LHC. The results will be compared with Skellam expectations and discussed in the context of quantum number conservation and chemical freeze-out.

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