

# Event-by-event fluctuations of mean transverse momentum in Pb-Pb and Xe-Xe collisions with ALICE

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Event-by-event fluctuations of mean transverse momentum,  $\langle p_T \rangle$ , help to characterize the properties of the bulk of the system created in ultrarelativistic heavy-ion collisions, called the quark-gluon plasma (QGP). The fluctuations are closely related to the dynamics of the phase transition from the QGP to a hadron gas.

In this contribution, event-by-event fluctuations of  $\langle p_T \rangle$  of charged particles produced in Pb-Pb and Xe-Xe collisions at  $\sqrt{s_{NN}} = 5.02$  TeV and  $\sqrt{s_{NN}} = 5.44$  TeV, respectively, are studied as a function of the charged-particle multiplicity using the ALICE detector at the LHC. Non-statistical fluctuations are observed in both collision systems, which indicate correlated particle emission. The central collisions show a significant reduction of these fluctuations in comparison to peripheral collisions indicating a dilution scenario that cannot be explained just by superposition of partially independent particle-emitting sources. The results in Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV are in qualitative agreement with previous measurements in Pb-Pb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV. A comparison with the HIJING model is also discussed.

## Theory / experiment

Experiment

## Group or collaboration name

ALICE

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