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Longitudinal Asymmetry and its Measurable Effects in Pb-Pb Collisions at 2.76 TeV

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In a collision of identical nuclei, the extended size and the finite number of nucleons lead to fluctuations in the number of participating nucleons from each nucleus at any impact parameter. This is akin to collisions of unequal-mass nuclei and corresponds to a non-zero momentum of the participant zone in the laboratory frame. Event-by-event fluctuations are estimated by measuring the asymmetry in the energy deposited by spectator neutrons in the zero-degree calorimeters on either side of the interaction vertex. The effect of these fluctuations on the pseudorapidity distributions of produced particles in Pb-Pb collisions at 2.76 TeV is investigated for the first time. The results from the ALICE detector will be presented for different centralities and compared with results from models.

On behalf of collaboration:

ALICE

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