

Collective effects in small collision systems from PYTHIA8 and EPOS4 simulations

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Studies have yielded strong evidence that a deconfined state of quarks and gluons, the quark-gluon plasma, is created in heavy-ion collisions. This hot and dense matter exhibits almost zero friction and a strong collective behavior. An unexpected collective behavior has also been observed in small collision systems. In this talk, the origin of collectivity in small collision systems, which is still not understood, is addressed by confronting different tunes of PYTHIA8 and EPOS4 event generators using measurements of azimuthal correlations for inclusive and identified particles. In particular, anisotropic flow coefficients measured using two- and four-particle correlations with various pseudorapidity gaps and balance functions are reported in different multiplicity classes of pp collisions at $\sqrt{s} = 13.6$ TeV and p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. Comparisons with available experimental data are also presented.

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