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Investigating collective effects in small collision systems using 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 is addressed by confronting PYTHIA8 and EPOS4 models 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, per-trigger yields, and balance functions are reported in pp collisions at $\sqrt{s} = 13.6$ TeV and p–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. The results are compared with the available experimental data.

Category

Theory

Collaboration (if applicable)

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