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Triangular flow in relativistic heavy-ion collisions within HYDJET++

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The hadronic collective flow was found to be one of the most pronounced signatures of the Quark-Gluon Plasma (QGP), the hot and dense matter created in the collisions of relativistic heavy ions.
The azimuthal distribution of detected hadrons can be expanded into a Fourier series over the azimuthal angle, the flow harmonics are then represented by the Fourier coefficients.
In semi-peripheral and peripheral collisions, the anisotropic flow is dominated by elliptic flow, defined by the second Fourier coefficient v_2.
On the other hand, the contribution of the third component v_3 becomes more pronounced in central collisions due to the spatial initial state fluctuations.

Study of the triangular flow, v_3 in Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV and in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV was performed using HYDJET++ Monte Carlo model. HYDJET++ combines a parametrised hydrodynamics for soft physics with a microscopic jet quenching generator for hard and semi-hard scattering, giving a realistic prediction of the shape of distribution for different hadron species. The model also enables study of influence of final-state interactions on flow of created hadrons. The interplay between soft and hard processes, as well as the influence of the resonance decays on the triangular flow in AA collisions at RHIC and LHC were studied. Reasons for violation of number-of-constituent-quark scaling at LHC for triangular and elliptic flow will be also discussed.

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