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Dynamical vs. geometric anisotropy in relativistic heavy-ion collisions

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We study the influence of geometric and dynamical anisotropies on the development of flow harmonics and, simultaneously, on the second- and third-order oscillations of femtoscopy radii. The analysis is done within the Monte Carlo event generator HYDJET++, which was extended to dynamical triangular deformations. It is shown that the merely geometric anisotropy provides the results which anticorrelate with the experimental observations of either (or) or second-order (or third-order) oscillations of the femtoscopy radii. Decays of resonances significantly increase the emitting areas but do not change the phases of the radii oscillations. In contrast to the spatial deformations, the dynamical anisotropy alone provides the correct qualitative description of the flow and the femtoscopy observables simultaneously. However, one needs both types of the anisotropy to match quantitatively the experimental data.

Summary

Author: BRAVINA, Larisa (University of Oslo (NO))

Presenters: BRAVINA, Larisa (University of Oslo (NO)); ZABRODIN, Evgeny (Universiyu of Oslo)

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