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Initial source size and transverse momentum fluctuations in the event-by-event relativistic heavy-ion collisions

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We investigate the initial transverse size of the source, which comes directly from the Glauber treatment of the earliest stage of relativistic heavy-ion collisions. After the hydrodynamic evolution stage the fluctuations in the transverse velocity flow at the hadronic freeze-out are transformed into the even-by-event fluctuations of the average transverse momentum.
The Glauber phase is simulated by GLISSANDO and followed by a realistic hydrodynamic evolution stage. The statistical hadronization is performed by the THERMINATOR. We describe the pT fluctuations at RHIC, in particular the magnitude of the effect, its centrality dependence, and the weak dependence on the incident energy. The results show that the observed event-by-event p_T fluctuations are mainly caused by the initial source size fluctuations

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