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Energy dependance of interferometry scales in ultra-relativistic heavy ion collisions

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A study of the energy behavior of the hadronic spectra and pion interferometry scales is conducted for the top SPS, RHIC and LHC energies within the hydrokinetic approach. The latter allows one to describe evolution of quark-gluon and hadron matter as well as continuous particle emission from the fluid in agreement with the underlying kinetic equations. The main mechanisms that lead to the paradoxical, at first sight, behavior of the interferometry scales, are exposed. In particular, a decrease of R_{out}/R_{side} ratio with growing energy happens due to pre-thermal collective transverse flows and a strengthening of positive correlations between space and time positions of emitted pions. Also the results obtained within hydrokinetic model as for kaon intensity interferometry at RHIC are presented.

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