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## **Meson production analysis in nuclear collisions at relativistic energies using Tsallis distribution**

Transverse momentum spectra of charged pions and kaons produced in relativistic nuclear collisions at various collision energies including RHIC-BES data are studied using Tsallis distribution as a parametrization. In the present work, the energy dependence and collision centrality of the Tsallis fit parameters, Tsallis temperature, volume and non-extensivity parameter, a parameter characterizing the degree of non-equilibrium for the systems produced in these collisions will be presented. Simple parametrizations for these dependences of the Tsallis parameters are provided in order to make predictions for the behaviour of the Tsallis parameters at FAIR collision energies. Rapidity dependence of the Tsallis parameters is investigated using BRAHMS data and it is found that deviations from Boltzmann statistics are decreasing with rapidity, temperature values are increasing with rapidity, but the  $T/\cosh(y)$  ratio is constant as a function of rapidity. The physics implications of these results on the collision dynamics and kinetic freeze-out will be discussed.

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