

Two Component model for hadroproduction: from pp to heavy-ion collisions

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The transverse momentum spectra of hadrons produced in high energy collisions can be decomposed into the two components: the exponential ("thermal") and the power ("hard") ones. Thus, charged hadron spectra produced in proton-proton and heavy-ion collisions from ISR to LHC are considered simultaneously within this model. The parameters of the model are found to vary with the type of the collision, the charged multiplicity and the measured pseudorapidity region. We discuss the possible origin of this effect, and speculate that it is linked to confinement. Moreover, the proposed model allows to extract the thermal hadron production from the whole statistical ensemble and for the case of heavy-ion collisions the change in the particle production dynamics is observed when reaching the critical temperature.

Finally, the observed dependences are used to make predictions on the charged hadron production at LHC-energies, which are tested on already available experimental data.

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