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An Application of the Non-extensive Phenomena: Soft+Hard Model at Various Energies

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Hadron spectra measured in high-energy collisions present distributions which can be derived from the non-extensive statistical and thermodynamical phenomena. Based on earlier theoretical developments, it seems, the methods are very applicable for jets hadronization processes in electron-positron, proton-proton, and even in heavy-ion collisions.

Here, we present what can be learnt from the recent theoretical and phenomenological developments: transverse momentum spectra and azimuthal anisotropy (v_2) of charge averaged pions, kaons and protons stemming from high-energy collisions from RHIC to LHC energies, which are described analytically in a 'soft + hard' model.

In this model, we propose that hadron yields produced in heavy-ion collisions are simply the sum of yields stemming from jets (hard yields) in addition to the yields originating from the Quark-Gluon Plasma (soft yields). The hadron spectra in both types of yields are approximated by the Tsallis -Pareto like distribution

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