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Shannon entropy for pp collisions at RHIC and LHC energies

Friday 19 July 2024 20:40 (20 minutes)

We present a detailed analysis of the transverse momentum distribution of charged particles from three different schemes. The first two arise from considering the color string picture described by the Schwinger mechanism convoluted with Gaussian and q-Gaussian string tension fluctuations, obtaining the p_T-exponential and the Tricomi'function, respectively. Both are compared with the QCD-based Hagedorn fitting function, usually used to describe the hard p_T spectra. We determine the statistics of the charged particles' invariant yield by analyzing the experimental data of minimum bias pp collisions reported by RHIC and LHC experiments. Finally, we compute the Shannon entropy, finding that the heavy tail of the p_T spectrum leads to a rise in the monotonically increasing behavior of the entropy as a function of the center of mass energy and the temperature.

Alternate track

I read the instructions above

Yes

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