

Phenomenology of Identified Particle Spectra in Heavy-Ion Collisions at LHC Energies

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The Zubarev approach of the non-equilibrium statistical operator [1] is used to account for the enhancement of the low- p_T part of pion spectra by introducing an effective pion chemical potential [2]. This is an alternative to the explanation of the low- p_T enhancement by resonance decays. We report on the first results obtained with a newly developed thermal particle generator that implements both mechanisms of low- p_T enhancement and applies Bayesian inference methods for these scenarios to find the most probable sets of thermodynamic parameters at the freeze-out hypersurface for the case of the transverse momentum spectra of identified particles measured by the ALICE Collaboration. The Bayes factor is determined for these scenarios. The advantages and limitations of the Zubarev approach are discussed.

References:

[1] D.N. Zubarev et al., Statistical Mechanics of Nonequilibrium Processes, Akademie Verlag Berlin (1996), vol. I

[2] D. Blaschke et al., Particles 3, 380–393 (2020)

Alternate track

1. Strong Interactions and Hadron Physics

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