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Thermalization and hydrodynamization in the color-flux-tube model

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Detailed study of thermalization of the momentum spectra of partons produced via decays of the color flux tubes due to the Schwinger tunneling mechanism is presented. The collisions between particles are included in the relaxation time approximation specified by different values of the shear viscosity to entropy density ratio. At first we show that, to a good approximation, the transverse-momentum spectra of the produced patrons are exponential, irrespectively from the assumed value of the viscosity of the system and the freeze-out time. This thermal-like behaviour may be attributed to specific properties of the Schwinger tunneling process. In the next step, in order to check the approach of the system towards genuine local equilibrium, we compare the local slope of the model transverse-momentum spectra with the local slope of the fully equilibrated reference spectra characterised by the effective temperature that reproduces the energy density of the system. We find that the viscosity corresponding to the AdS/CFT lower bound is necessary for thermalization of the system within about two fermis.

Literature:

1) R.Ryblewski, arXiv:1512.04117 [nucl-th]

2) R.Ryblewski, W.Florkowski, Phys.Rev. D88 (2013) 034028

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