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Anomalous baryon production and its interplay with jet energy loss at RHIC and LHC energies

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The study of the nuclear suppression factor of charged hadrons and neutral pions in AuAu collisions at RHIC energies indicated the possible appearance of an anomaly at higher pT-s: although protons are expected to be produced from gluons, but jet energy loss is less effective for them comparing to pion suppression. Fragmentation function and jet energy loss based explanation can not reproduce this phenomena, which opens a discussion on anomalous baryon production at high-pt. We investigated the appearance of non-perturbative hadron production channels connected to the formation of strong non-abelian fields, and their strength at RHIC and LHC energies. We performed calculations with time dependent strong fields and studied the quark-pair and diquark-pair production at high-pT to produce leading quarks and diquarks to be hadronized. The numerical results are presented and discussed.

Author: LEVAI, Peter (KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary)

Co-authors: PASZTOR, Attila (Eötvös University, Budapest, Hungary); BERENYI, Daniel (Eötvös University, Budapest, Hungary); SKOKOV, Vladimir V. (GSI, Darmstadt, Germany)

Presenter: LEVAI, Peter (KFKI Research Institute for Particle and Nuclear Physics, Budapest, Hungary)

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