



HEP 2013
Stockholm
18-24 July 2013



Contribution ID: 592

Type: **Talk presentation**

Baryon production mechanisms and jet energy loss in heavy ion collisions at RHIC and LHC energies

Friday, 19 July 2013 11:52 (20 minutes)

Hadron production in relativistic heavy ion collisions usually consists of two main channels in the intermediate- p_T region at RHIC and LHC energies: parton coalescence/recombination and jet fragmentation. We have explored a new channel, namely hadron production from strong time dependent coherent field produced in heavy ion collisions. One can investigate direct hadron production from strong field or quark-antiquark production and later hadron formation from these elementary ingredients. We focus on pair-production and investigate the influence of this new channel on baryon production. In the momentum window of $5 \text{ GeV}/c < p_T < 25 \text{ GeV}/c$ this channel could yield an extra baryon production not considered earlier. However, in this momentum window jet energy loss is strongly modifying hadron spectra in heavy ion collisions. The overlap of hadron production yields and energy loss effects creates a very complex environment, which is worthwhile to investigate for obtaining information on the hot and dense partonic matter produced in heavy ion collisions. We study the details of this overlap and investigate it at RHIC and LHC energies. We present our recent results obtained on the basis of our previously published papers [1][2].

[1] P. Levai, D. Berenyi, A. Pasztor, V.V. Skokov, J. Phys. Rev. G 38, 124155 (2011);

[2] D. Berenyi, A. Pasztor, V.V. Skokov, P. Levai, arXiv: 1208.0448 [hep-ph].

Primary author: LEVAI, Peter (Hungarian Academy of Sciences (HU))

Co-authors: PASZTOR, Attila (ELTE); BERENYI, Daniel (Hungarian Academy of Sciences (HU))

Presenter: LEVAI, Peter (Hungarian Academy of Sciences (HU))

Session Classification: Ultrarelativistic Heavy Ions

Track Classification: Ultrarelativistic Heavy Ions