

# Proton-to-pion ratio for the near-side jet in $pp$ and $AA$ collisions at RHIC energies

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Anomalously large values have been measured for the proton to pion ratios in  $AuAu$  collisions at RHIC energies in the intermediate and high- $p_T$  regions [1,2,3]. The one-particle spectra for both pions and protons display a suppression pattern, although a different one, which can be analyzed by induced energy loss at parton level [4]. On the other hand, quark coalescence models became very successful to reproduce these anomalous ratios [5].

Recent data on proton-proton and proton-antiproton correlations do not confirm the quark coalescence picture, but suggest a jet origin for these correlated pairs [6,7]. This contradiction of the particle origin is one of the greatest puzzles at RHIC energies.

We have analyzed two-particle correlations in  $pp$  collisions [8]. Now we extend our analysis to  $AuAu$  collisions, especially in the near-side jet cone, including the effect of jet energy loss. We calculate proton to pion ratios and correlations in proton-proton and heavy-ion collisions at RHIC energy and display the possible difference obtained in a pQCD model applying the latest fragmentation functions. We discuss the expected results at LHC energies.

## References

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