

## Jet-induced medium response and $\gamma$ -jet fragmentation function

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We use the state of art CoLBT-hydro to investigate the importance of jet-induced medium excitation in calculating  $\gamma$ -jet fragmentation function. CoLBT-hydro model is Linear Boltzmann Transport model cocurrently coupled with 3+1D hydrodynamic model in real time. It is designed for simultaneous event-by-event simulations of jet propagation and hydrodynamics evolution of the bulk medium including jet-induced medium excitation. In this model, the lost energy-momentum of energetic partons propagating through the medium is considered as a source term in the hydrodynamic, which will induce medium excitation. We carry out the first study with CoLBT-hydro of medium modification of  $\gamma$ -jet fragmentation function in heavy-ion collisions at both RHIC and LHC. CoLBT-hydro describes well the suppression of leading hadrons due to parton energy loss and predicts an enhancement of soft hadrons due to jet-induced medium excitation. Similarly, the calculation of medium modification of  $\gamma$ -jet fragmentation function indicates the enhancement of soft hadrons and the suppression of the leading hadrons inside the jet cone. There are two unique features of jet-induced medium excitation: the onset of soft hadron enhancement at a constant  $p_{h_T}$  and depletion of soft hadrons in the  $\gamma$  direction. We will also discuss the hadron flavor dependence of the soft hadron enhancement due to jet-induced medium excitation.strong text

### Summary

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