

Jets and medium evolution in Pb-Pb collisions at the LHC energies from the EPOS initial state

Tuesday, July 28, 2020 5:06 PM (24 minutes)

We present the results for PbPb collisions at 2.76 TeV LHC energy from a parton shower integrated with a hydrodynamic evolution. The initial hard (jet) partons are produced along with soft partons in the initial state EPOS approach. The EPOS initial state typically contains multiple hard scatterings in each event. The soft partons melt into a thermalized medium, which is described with a 3 dimensional event-by-event viscous hydrodynamic approach. The jet partons then propagate in the hydrodynamically expanding medium. The total jet energy gets progressively “degraded” according to a state-of-the-art microscopic radiative energy loss Monte Carlo for the low-virtuality jet partons. The full evolution proceeds in a concurrent mode, without separating hydrodynamic and jet parts. We discuss two features of PbPb collision:

- 1) A jet overlap effect [1] which emerges due to multiple hard parton production in each heavy-ion collision event
- 2) Jet energy loss in the medium and its modification due to the LPM effect.

[1] Iu. Karpenko, J. Aichelin, P. Gossiaux, M. Rohrmoser, and K. Werner,
Phys. Rev. C 101, 014905 (2020)

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Secondary track (number)

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Session Classification: Heavy Ions

Track Classification: 07. Heavy Ions