

## Heavy-flavor dynamics in nucleus-nucleus collisions: from RHIC to LHC

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The understanding of the heavy-quark dynamics in nucleus-nucleus collisions, so far possible at RHIC only through the inclusive measurement of electron spectra from  $c$  and  $b$  decays, is becoming now accessible at LHC also through the exclusive reconstruction of open-charm hadrons, thus providing a richer physical information useful to discriminate among different theoretical models.

A complete setup to study heavy-flavor observables in  $pp$  and  $AA$  collisions was recently developed by us: in the latter case the presence of a hot fireball leads to a modification of the final  $p_T$ -spectra. More specifically, the propagation of  $c$  and  $b$  quarks in the plasma (whose evolution is supposed to be described by relativistic hydrodynamics) is followed by solving the relativistic Langevin equation within a picture of multiple uncorrelated random collisions. The relevant heavy-quark transport coefficients are given a microscopic evaluation within the Hard Thermal Loop approximation, supplemented by a kinetic pQCD calculation for hard collisions.

The results obtained with this approach turned out to be in reasonable agreement with the experimental data obtained at RHIC, in particular for the  $R_{AA}$  of non-photon electrons.

Here we extend the above study to the LHC case, at the current center-of-mass energy of 2.76 TeV. The first data on primary charged particle density obtained by the ALICE collaboration ( $dN_{ch}/d\eta \sim 1600$  in central PbPb collisions) allow to provide an estimate of the initial conditions of the hydrodynamical evolution of the background medium. First results for the spectra, the  $R_{AA}$  and  $v_2$  of open-charm hadrons and non-photon single-electrons will be presented.

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