

# $R_{AA}$ and $v_2$ of heavy flavour decay muons at forward rapidity at relativistic heavy ion collisions

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Heavy flavours are produced in the initial stage of relativistic heavy ion collisions. While traversing the quark gluon plasma, they will lose energy by colliding with quarks and gluons and also by radiating gluons. After their production, they may get fragmented into heavy mesons by picking up light quarks/antiquarks and in turn may decay through leptonic channels. These leptons would carry information of the initial stage of heavy ion collisions and also the evolution of the plasma.

In this work, we have made a detailed study for the nuclear modification factor,  $R_{AA}$  and azimuthal anisotropy,  $v_2$  of muons from heavy flavours decay at forward rapidities in Pb+Pb collision at 2.76 ATeV at LHC. The  $p_T$  distribution of heavy quarks produced from the initial fusion of partons, is obtained from FONLL (Fixed Order Next-to-Leading Logarithms) approach. We consider both the radiative and collision energy loss along with a boost-invariant expansion of the plasma for the prediction of  $R_{AA}$  as well as  $v_2$ . We compare our result of muon  $R_{AA}$  from heavy flavour in Pb+Pb collisions at 2.76 ATeV with the ALICE data and found that our result can satisfactorily explain the experimental data. The muon  $R_{AA}$  at 0–10% centrality, calculated by the present formalism has shown very good agreement with the ALICE data. We also compare our result of muon  $v_2$  from heavy flavours for Pb+Pb collisions at 2.76 ATeV with the ALICE data.

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