

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 flavour 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 A TeV 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 A TeV with the ALICE data.

Primary author: JAMIL, Umme (Debraj Roy College, Golaghat, Assam)

Co-authors: SRIVASTAV, D.K (Variable Energy Cyclotron Centre, Kolkata); MUSTAFA, Munshi G (Saha Institute of Nuclear Physics, Kolkata); ABIR, Raktim (Aligarh Muslim University, Aligarh); DE, Somnath De (Institute Of Physics, Bhubaneswar, India)

Presenter: JAMIL, Umme (Debraj Roy College, Golaghat, Assam)

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