



Contribution ID: 718

Type: **Poster**

Elliptic flow of heavy flavour decay muons at relativistic heavy ion collisions

Tuesday, 29 September 2015 16:30 (2 hours)

Heavy quarks are produced at the initial fusion of ultrarelativistic heavy-ion collisions. After their production, they propagate through the quark gluon plasma and lose energy by colliding with quarks and gluons and by radiating gluons. After their production, they may also 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 calculate the elliptic flow of muons from heavy flavours decay at forward rapidities in Pb+Pb collision.

The transverse momentum distribution of heavy quarks produced from the initial fusion of partons, is calculated by FONLL (Fixed Order Next-to-Leading Logarithms) approach. We consider both radiative and collisional energy loss along with a boost-invariant expansion of the plasma for the calculation of elliptic flow. The fragmentation of heavy quarks into mesons is governed by Peterson fragmentation function. We compare our result at 2.76 ATeV with the ALICE Preliminary data.

References:

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Session Classification: Poster Session

Track Classification: Open Heavy Flavors and Strangeness