OPEN CHARM AND BEAUTY MEASUREMENTS IN PB–PB COLLISIONS: LOOKING FOR FLAVOUR DEPENDENCE OF IN-MEDIUM ENERGY LOSS.

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The measurement of heavy flavor production is a powerful tool to study the properties of the high-density QCD medium created in heavy-ion collisions. Heavy quarks, which are produced in the early stages of the collision in high transferred momentum scatterings, are expected to lose energy via elastic and radiative interactions with the medium constituents. A different energy loss for charm and beauty quarks is predicted by various model calculations as a consequence of the different parton masses. Measurements of open charm and beauty mesons provide an experimental probe to investigate and characterize in-medium energy loss mechanisms.

ALICE and CMS measured heavy flavour production in Pb–Pb collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV, via the reconstruction of prompt D mesons and non-prompt J/ψ from B-meson decays, suggesting a different suppression for particles originating from charm and beauty quarks in most central collisions.

In this cross talk, the different analysis techniques and the physics interpretation of the recent results will be discussed.