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Heavy flavour production in Pb-Pb collisions at LHC with ALICE

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A Large Ion Collider Experiment (ALICE) is the dedicated detector setup to study the high density de-confined state of strongly interacting matter, known as Quark-Gluon Plasma (QGP), which is created in heavy ion collisions at the LHC at CERN. Charm or beauty quarks are among the most interesting and powerful probes to investigate the properties of the QGP, because they are produced on a very short time scale in initial hard scattering processes and thus they experience the whole history of the collision. The investigation of medium modifications of heavy flavour observables will shed light on the properties of the medium and the nature of the parton-medium interactions. ALICE recorded Pb-Pb data at $\sqrt{s_{NN}} = 2.76$ TeV in 2010 and 2011. This talk will focus on the latest results of open heavy flavour production using hadronic D meson decays at central rapidity, as well as semi-electronic and semi-muonic decays of D and B mesons, at central and forward rapidities, respectively. The corresponding nuclear modification factors, comparisons of the yields in proton-proton and heavy ion collisions, will be presented as a function of transverse momentum and collision centrality. First elliptic flow measurements will be shown as well. Elliptic flow describes the azimuthal momentum space anisotropy of particle emission from non-central heavy ion collisions in the transverse plane. It is sensitive to the early stages of system evolution and thus provides information on thermalization.

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