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Measurements of prompt and non-prompt D meson production and anisotropy in Pb-Pb at $\sqrt{s_{NN}} = 5.02$ TeV with ALICE

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The production of heavy quarks (charm and beauty) in heavy-ion collisions occurs via hard partonic scattering processes at early times. Thus they represent a unique probe of the properties of the quark-gluon plasma (QGP), as they interact with the system throughout its entire lifetime. The heavy-flavour nuclear modification factor (R_{AA}) and elliptic flow (v_2) are two of the main experimental observables that allow us to investigate the interaction strength of heavy quarks with the expanding medium. The R_{AA} measurements provide information about the modification of heavy-flavour hadron yields in heavy-ion collisions with respect to pp collisions, after the proper binary NN collision scaling is applied on the latter system. The comparison of the R_{AA} of charm, beauty and light-flavour hadrons can provide information about the colour-charge and parton-mass dependence of the parton energy loss.

High precision v_2 measurements of heavy-flavour particles provide stringent information about the thermal degrees of freedom of heavy quarks in the QGP, path-length dependence of heavyquark in-medium energy loss and recombination effects. In this contribution, prompt and non prompt D-meson R_{AA} and v_2 measurements in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, performed with the ALICE detector will be presented.

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