

Measurement of charm suppression and charm flow in Pb-Pb collisions at $\sqrt{s_{NN}}=2.76$ TeV via $D^0 \rightarrow K^+ \pi^-$ reconstruction in ALICE

In ultra-relativistic heavy-ion collisions, heavy quarks are sensitive probes to test the medium properties, since they are formed at shorter time scale with respect to the deconfined state. These quarks can interact with the medium and lose energy via collisions and gluon radiation. The nuclear modification factor (RAA), obtained by comparing heavy quark production yields in pp and heavy-ion collisions, allows to measure the effect of parton in-medium energy loss. The elliptic flow v_2 of D mesons compared to that of light hadrons is expected to bring insights into the degree of thermalization of charm quarks within the quark-gluon plasma. The ALICE experiment has collected Pb-Pb data at $\sqrt{s_{NN}} = 2.76$ TeV and pp data at $\sqrt{s} = 7$ and 2.76 TeV. D^0 mesons have been reconstructed in their hadronic decay $D^0 \rightarrow K^+ \pi^-$ in the central rapidity region. The measurements of D^0 suppression at high momentum and the D^0 v_2 , in Pb-Pb collisions will be presented.

Primary author: Dr DAVIDE, Cafarri (Universita' degli studi di Padova)