ID contributo: **45** Tipo: **Contributed**

Measurement of azimuthal anisotropy of the $f_0(980)$ and D^0 mesons in heavy ion collisions at CMS

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We present novel insights into the elusive $f_0(980)$ hadron's quark composition and the interaction of heavy charm quarks with the quark-gluon plasma (QGP) through the anisotropic flow measurement of D^0 in Heavy-Ion collisions. The $f_0(980)$, whose precise configuration has remained controversial, is reconstructed for the first time via its dominant decay channel, $f_0(980) \rightarrow \pi^+\pi^-$, using data from proton-lead collisions at 8.16 TeV, as collected by the CMS experiment. The azimuthal angle anisotropy v_2 of $f_0(980)$ relative to the event plane is also investigated, allowing us to extract the v_2 parameter for the $f_0(980)$ and compare it with other hadrons. In addition, we also investigate how heavy quarks interact with QGP by measuring the coefficients of azimuthal anisotropy (v_n) of D^0 mesons in lead-lead collisions at 5.02 TeV with CMS experiment. The measurements cover a wide range of transverse momentum and thus reveal the flow formation mechanisms of heavy charm quarks, illuminating the diffusion and path-dependent parton energy loss.

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Classifica Sessioni: Day 3 - Afternoon