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Measurement of anisotropic flow of electrons from the decay of heavy-flavour hadrons in Pb-Pb collisions at $\sqrt{s_{\rm NN}}$ = 2.76 TeV with ALICE at the LHC

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In high-energy heavy-ion collisions, heavy quarks, i.e. charm and beauty, are mainly produced in hard scattering processes in the early stages of the collisions. Therefore they allow one to probe the properties of the deconfined state of strongly-interacting matter formed in such collisions, the Quark-Gluon Plasma (QGP).
A parton going through the hot and dense medium can lose energy via both elastic and inelastic collisions with the medium constituents.
Heavy-quarks, because of their large masses, are expected to lose less energy than light quarks and gluons, providing a unique test of parton energy loss models.

In this contribution, results of the elliptic flow v_2 of electrons from the semi-leptonic decays of heavy-flavour hadrons measured with ALICE in Pb-Pb collisions at $\sqrt{s_{\rm NN}}$ = 2.76 TeV are presented for different centralities.
The elliptic flow is the second Fourier coefficient of the azimuthal distribution of particle momenta in the transverse plane with respect to the azimuthal angle of the reaction plane.
At low $p_{\rm T}$, the v_2 of the electrons from heavy-flavour hadron decays is sensitive to the degree of thermalization of charm and
beauty quarks in the deconfined medium. At higher $p_{\rm T}$, the measurement of v_2 carries information on the path length dependence of in-medium parton energy loss.
Electrons are reconstructed in the central rapidity region using different identification strategies in different $p_{\rm T}$ regions.
The v_2 of the heavy-flavour decay electrons is extracted subtracting from the measured inclusive electrons v_2 the contribution of the main background sources.
Different approaches are used to subtract the background contributions.
The analysis was carried out with various methods that have different sensitivity to non-flow contributions, namely the event plane, scalar product and second order Q-Cumulant methods.
Comparisons with measurements at lower collision energy at RHIC and with theoretical models will be presented as well.

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