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# Measurement of D Meson Azimuthal Anisotropy in Au+Au Collisions at $\sqrt{s_{NN}}$ = 200 GeV from STAR

*Tuesday, 29 September 2015 09:00 (20 minutes)*

Heavy quarks are produced through initial hard scatterings and they are affected by the hot and dense medium created in heavy-ion collisions throughout its whole evolution. Due to their heavy mass, charm quarks are expected to thermalize much more slowly than light flavor quarks. As a result, the charm quark flow is a unique tool to study the extent of thermalization of the bulk medium dominated by light quarks and gluons. At high $p_T$, D meson azimuthal anisotropy is sensitive to the path length dependence of charm quark energy loss in the medium, which offers new insights into heavy quark energy loss mechanisms - gluon radiation vs. collisional processes.

In this talk, we present the STAR measurement of elliptic flow ($v_2$) of $D^0$, $D^{\pm}$, $D^{*\pm}$ mesons in Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV, for a wide transverse momentum range and different centrality bins. These results are obtained from the data taken in the first year of physics running of the new STAR Heavy Flavor Tracker detector, which greatly improves open heavy flavor hadron measurements by the topological reconstruction of secondary decay vertices. The D meson $v_2$ is compared with those of other particle species at the same energy, measurements at the LHC collision energy and the latest model calculations. Physics implications on charm quark flow as well as the medium transport properties are discussed.

## On behalf of collaboration:

STAR

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