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Type: **Theory talk**

Charm and Bottom quarks dynamics in heavy-ion collisions: R_{AA} , anisotropic flows v_n and their correlations to the bulk.

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We describe the propagation of heavy quarks (HQs), charm and bottom, in the quark-gluon plasma by means of a full Boltzmann transport approach within a coalescence plus fragmentation hadronization and including event-by-event fluctuations. The non-perturbative dynamics and the interaction between HQs and light quarks have been taken into account through a Quasi-Particle Model (QPM). We show the D-mesons R_{AA} and v_2 at RHIC and LHC energies, furthermore we discuss the role of the initial state fluctuations on the development of high-order heavy-flavour flow harmonics ($v_n(p_T)$, $n = 3, 4$). The results presented include event-shape selected D-mesons spectra and v_n , correlations between different D-mesons flow harmonics at LHC energies in different range of centrality selections. The events in centrality class are divided according to magnitude of the second-order harmonic reduced flow vector q_2 . Within this approach the extracted T-dependence of the space-diffusion coefficient D_s is in a agreement with lattice QCD results within the systematic uncertainties.

In the same scheme we show for the first time predictions for R_{AA} , v_2 and v_3 of B-mesons and electrons from semi-leptonic B-mesons decays at top LHC energies. Our results show a quite significant suppression at low p_T and allow a determination of D_s which is consistent with the lattice QCD calculations. These will provide novel and powerful constraints for heavy-flavour transport coefficients.

[1] S.Plumari, G.Coci, V.Minissale, S.K.Das, Y.Sun and V.Greco, Phys. Lett. B 805 (2020), 135460.

[2] F. Scardina, S. K. Das, V. Minissale, S. Plumari, V. Greco, Phys.Rev. C96 (2017) no.4, 044905.

[3] M.L.Sambataro, S.Plumari and V.Greco, Eur. Phys. J. C 80, no.12, 1140 (2020).

Collaboration

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