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Heavy flavours in nucleus-nucleus collisions: quenching, flow and correlations

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We present results for the quenching, elliptic flow and azimuthal correlations of heavy flavours in high-energy nucleus-nucleus collisions obtained through the POWLANG transport setup, developed in the past to study the propagation of heavy quarks in the Quark-Gluon Plasma and here extended to include a modeling of their hadronization in the presence of a medium. Hadronization is described as occurring via the fragmentation of strings with endpoints given by the heavy (anti-)quark Q/\bar{Q} and a thermal parton q/\bar{q} from the medium. The flow of the light quarks is shown to affect significantly the R_{AA} and v_2 of the final D mesons, leading to a better agreement with the experimental data. The approach allows also predictions for the angular correlation between heavy-flavour hadrons (or their decay electrons) and the charged particles produced in the fragmentation of the heavy quark strings.

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