

The 9th International Symposium on Heavy Flavor Production in Hadron and Nuclear Collisions



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Production and spin polarization of heavy flavor in heavy-ion collisions

Heavy flavor has been proposed as clean probes for the coupling strength and the initial energy density of a hot QCD medium. 1) We develop the time-dependent Schrodinger equation plus hydro to study the quarkonium suppression in pp, pA, and AA collisions. The evident sequential suppression pattern of quarkonium indicates a relatively weak color screening effect and a sizeable imaginary potential induced by the inelastic scatterings. 2) We also employ the deep learning method (CNN model) to extract the diffusion coefficient of heavy quarks based on the D meson observables. The effects of non-thermal charm distribution on the elliptic flow and pT-shape of charmonium RAA is also explored. 3) With the existence of magnetic field and QCD matter, spin of heavy quarks and quarkonium can be polarized. This is studied phenomenologically by taking realistic $B(t)$ and hydro in nuclear collisions.

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