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Quark recombination and heavy quark diffusion in hot nuclear matter

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We review resonance recombination for quarks and show that it is compatible with quark and hadron distributions in local thermal equilbrium. We then calculate realistic heavy quark phase space distributions in heavy ion collisions using Langevin simulations with non-perturbative interactions in hydrodynamic backgrounds. We hadronize the heavy quarks on the critical hypersurface given by hydrodynamics after constructing a criterion for the relative recombination and fragmentation contributions. We discuss the influence of recombination and flow on the resulting heavy meson and single electron R_AA and elliptic flow. We will also comment on the effect of diffusion of open heavy flavor mesons in the hadronic phase.

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