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Latest Results of Open Heavy Flavor and Quarkonia from the PHENIX Experiment at RHIC

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Hadrons carrying heavy quarks, i.e. charm or bottom, are important probes of the hot and dense medium created in relativistic heavy-ion collisions. Heavy quark-antiquark pairs are mainly produced in initial hard scattering processes of partons. While some of the produced pairs form bound quarkonia, the vast majority hadronize into particles carrying open heavy flavor. The PHENIX Collaboration carries out a comprehensive physics program which studies open heavy flavor and quarkonium production in relativistic heavy-ion collisions at RHIC. The discovery at RHIC of large high- p_T suppression and flow of electrons from heavy quarks flavors have altered our view of the hot and dense matter formed in central Au+Au collisions at 200 GeV. These results suggest a large energy loss and flow of heavy quarks in the hot, dense matter. In recent years, the PHENIX has installed a silicon vertex tracker both in central rapidity (VTX) and in forward rapidity (FVTX) regions, and has collected large data samples. These two silicon trackers enhance the capability of heavy flavor measurements via precision tracking.

This talk summarizes the latest PHENIX results concerning open and closed charm and beauty heavy quark production as a function of rapidity, energy and system size, and their interpretation with respect to the current theoretical understanding on this topic.

On behalf of collaboration:

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