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PHENIX Probing QCD Matter Through Heavy Flavor and Quarkonium at RHIC

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Heavy flavour and quarkonium production at hadron colliders provides an important test of the theory of Quantum Chromodynamics (QCD). The PHENIX experiment has a comprehensive physics program that studies open heavy flavor and quarkonium production in p/d+A and A+A collisions at the Relativistic Heavy Ion Collider (RHIC). It is critical to measure both open heavy flavor and quarkonium in different collision systems as a function of energy, centrality, and rapidity in order to disentangle cold (initial state) and hot nuclear medium (final) effects. The heavy quarks (charm and beauty) are predominantly produced in the early stage of the collisions via hard partonic scattering processes. Therefore, they experience the full evolution of the nuclear medium.

This talk will report the latest heavy flavor and quarkonium analysis results measured by PHENIX in p+p, p+Al, p+Au, He+Au, and Au+Au collisions as a function of centrality, rapidity, and transverse momentum, and interpretation of the results with respect to the current theoretical understanding.

Present via

Online

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