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Overview of hard and soft probe measurements with STAR at RHIC

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Studies of hot and dense QCD matter created in high energy heavy-ion collisions at the Relativistic Heavy Ion Collider (RHIC) revealed that the matter resembles properties of strongly coupled liquid with very low viscosity. High statistics data and major upgrades of the STAR experiment opened recently a new era of tomography of the QCD matter at RHIC using hard probes. In particular, the Heavy Flavor Tracker enables precision measurements of open heavy flavor hadrons and the Muon Telescope Detector greatly improves quarkonium measurements. Studies in the heavy flavor sector are accompanied by measurements of jet
properties that provide further insights into the partonic energy loss in the QCD matter. RHIC is also uniquely positioned to map the QCD phase diagram by varying the energy as well as species of collided nuclei and dedicated studies to look for the critical point of the QCD phase diagram are pursued. In this talk, an overview of recent results on hard and soft probes in heavy-ion collisions measured by the STAR experiment will be presented.

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