Jaroslav Bielcik:

Recent hard probes measurements from STAR.

The STAR experiment at RHIC has excellent detector coverage, tracking, and particle identification capabilities to study emergent phenomena of QCD, for instance the Quark-Gluon Plasma (QGP) created in central heavy-ion collisions. Among the probes used experimentally to study the QGP’s properties, hard probes (jets and heavy flavor quarks) are unique since they are dominantly produced at the early stage of the collisions and subsequently experience the entire evolution of the system. These probes help to unravel the fundamental properties of the medium, such as temperature, viscosity, energy density and transport coefficients. The measurements in pp and p+Au systems serve as vacuum and cold nuclear matter baselines for modification of the probes in heavy-ion collisions.

In this talk, we will discuss recent high-precision measurements of charm and bottom mesons, quarkonia, jet production and substructure in p+p, p+Au, and heavy-ion collisions in the STAR experiment. In addition, an outlook for upcoming measurements will be presented.