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PHENIX heavy flavor highlights

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Heavy flavor production is a sensitive probe of the initial gluon density in the nucleon and is affected by the entire evolution of the collision. Besides, it is a process which can be calculated by perturbative QCD because of their large mass.

The PHENIX experiment at RHIC studied the heavy flavor production for a broad momentum and rapidity ranges using its semileptonic and J/ψ decays in $p + p$, $p + A$ and $Au + Au$ collisions at $\sqrt{s_{NN}}=200\text{GeV}$.

In this talk, the recent experimental results will be presented and compared with theoretical models which describe heavy quark production, gluon distribution modifications in nucleus and its energy loss in the medium created in Au+Au collisions.

Primary author: HACHIYA, Takashi (Nara Women's University, RIKEN)

Presenter: HACHIYA, Takashi (Nara Women's University, RIKEN)

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