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Measurement of electrons from Heavy Quarks at PHENIX (for PHENIX collaboration)

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Heavy quarks are one of the most valuable probes for the matter produced in relativistic heavy ion collisions at RHIC. PHENIX experiment being designed specifically to study leptons, so electrons from the decay of heavy quarks acts as one of the most important tools in PHENIX for measurement of heavy quarks. Measurements of electron spectra at mid rapidity region has been done by PHENIX in broad p_T regions. Recent measurement in $p + p$ by PHENIX extends upto $pT = 15$ GeV. After subtraction of photonic background electrons from the measured electron spectra, electrons from semileptonic decay of hadrons containing heavy quarks are left, which provides the measurement of heavy quarks.

Measurement of electrons from heavy quarks by PHENIX has been done for various collision species like $p + p$, $d + Au$, $Cu + Cu$ and $Au + Au$. In $Au + Au$ strong suppression of single electron compared with scaled $p + p$ is observed which challenges radiative energy loss models because heavy quarks are expected to radiate less. It is important to understand what happens when the collision species is asymmetric and has size in between $Au + Au$ and $p + p$. Measurements done in $d + Au$ collisions by PHENIX answer this question along with disentangling cold nuclear matter effect in heavy ion collisions. Also it is needed to know the situation when the collision species is symmetric and has size between $p + p$ and $Au + Au$. Measurements done in $Cu + Cu$ collisions by PHENIX provide the answer. Measurement of azimuthal anisotropy by using electrons from heavy quark decay has been done recently in PHENIX for $Au + Au$ at $sqrts_{NN} = 62.4$ GeV.

The techniques used by PHENIX for measuring electrons from heavy quarks and the latest results in collision species $p + p$, $d + Au$, $Cu + Cu$ and $Au + Au$ will be discussed in this talk.

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