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PHENIX measurements of muon pairs from $c\bar{c}$, $b\bar{b}$, and Drell-Yan in p+p and p+Au at 200 GeV

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In this talk we present the measurement of the muon pair continuum in p+p and p+Au collisions at a center of mass energy of 200 GeV. Our novel analysis technique enables the isolation of correlated pairs from semi-leptonic decays of charm and bottom hadrons and from the Drell-Yan process. The measured azimuthal correlations of muon pairs from heavy flavor decays are used to constrain the relative contributions of different production mechanisms of $c\bar{c}$ and $b\bar{b}$ pairs in p+p collisions. For bottom production, data from p+Au places limits on possible cold nuclear modifications. Measuring the in Drell-Yan cross-section in p+p and p+A collisions constrains nuclear parton distribution functions and furthers our understanding of initial state effects.

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