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## Study of $b\bar{b}$ production using correlated like-sign dimuons at PHENIX

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Production of open bottom (B) mesons is an important tool to probe the hot and dense matter created from nucleus-nucleus collisions at the Relativistic Heavy Ion Collider (RHIC). In the mass region between 4.5 and 12 GeV, the only source of correlated like-sign dimuons will come from the semileptonic decay of B meson pairs. The number of correlated like-sign dimuons due to neutral B meson oscillation is directly related to the total number of open bottom meson pairs and thus can provide a way of constraining the open bottom contribution to the dimuon continuum in the high mass region.

To establish this new analysis method, correlated like-sign dimuons from pairs of B mesons of  $\sim 6.3 \text{ pb}^{-1}$  data from p+p collisions at  $\sqrt{s} = 500 \text{ GeV}$  within the PHENIX muon arms acceptance ( $1.2 < |y| < 2.2$ ) were studied. Results from this study will be presented. In the future, this analysis method can be applied to the  $\sqrt{s} = 200 \text{ GeV}$  p+p collisions in order to determine a baseline for d+Au and Au+Au collision systems to study the modification of heavy flavor production in a deconfined medium.

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