

Abstract Submitted
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$b\bar{b}$ production at forward rapidity in $p+p$ collisions at $\sqrt{s} = 510$ GeV¹ JORDAN ROBERTS, Georgia State University, PHENIX COLLABORATION — Heavy flavor quarks are an important probe of the initial state of the Quark Gluon Plasma formed in heavy-ion collisions. Bottom and charm quarks are produced early in the collision, primarily through hard interactions, and experience the full time evolution of the medium. Understanding bottom quark production in $p+p$ collisions gives a baseline reference for studying larger collision systems. The measurement of the $b\bar{b}$ cross section gives insight into b quark production mechanisms which can directly test pQCD predictions. Utilizing the unique properties of neutral B meson oscillation, the $b\bar{b}$ signal is extracted from like-sign dimuons with invariant mass of 5-10 GeV/ c^2 at forward rapidity. Measuring like-sign dimuons within this mass range provides an enriched bottom signal with minimal amount of open charm background and without any contributions from quarkonia or Drell-Yan pairs. In this talk, we report the $b\bar{b}$ differential cross section and extrapolated total cross section. The azimuthal opening angle between muon pairs from $b\bar{b}$ decays and their p_T distributions will also be presented. The total cross section at $\sqrt{s} = 510$ GeV is compared to world data at different energies and to a perturbative quantum chromodynamics calculation.

¹DOE

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