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Bottomonium in the QGP: Production at RHIC and LHC ANDREW EMERICK, Cyclotron Institute, Texas A&M University (REU student from University of Minnesota), RALF RAPP, Cyclotron Institute, Texas A&M University — Quantum chromodynamics (QCD) governs the strong interaction, describing the confinement and asymptotic freedom of quarks and gluons. Utilizing ultrareletavistic heavy ion collisions, matter past the critical temperature ($T_C \cong 180$ MeV), the region of the quark-gluon plasma (QGP), can be produced. Lattice QCD computations indicate that resonances of heavy quarkonia survive well past the critical temperature: up to 3-4$T_C$for bottomonia (Υ). These bound states, such as J/ψ and Υ, are used as essential probes into the phenomenology of the QGP. Euclidean correlator ratios are calculated utilizing in-medium spectral functions for two heavy quarkonia dissociation mechanisms: gluo dissociation (g+$\Upsilon \rightarrow$ b+b^-) and quasi-free dissociation (g,q,q^- + $\Upsilon \rightarrow$ g,q,q^- + b + b^-), corresponding to the strong and weak binding scenarios respectively. These calculations motivate the necessity to reconsider gluo dissociation as the dominant process for Υ in the QGP. Utilizing a kinetic-theory rate-equation approach, the production, suppression, and regeneration of Υ's in AuAu (PbPb) collisions at RHIC and LHC with $\sqrt{s_{NN}} = 200$ GeV (2.76 TeV) is calculated and compared to recent STAR (CMS) preliminary data. Treatment is also given to cold nuclear matter effects, simulated by nuclear absorption.

Andrew Emerick
Cyclotron Institute, Texas A&M University
(REU student from University of Minnesota)

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