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# Sequential Regeneration of Charmonia in Heavy-Ion Collisions, Bottomonia $p_T$-Spectra and Elliptic Flow

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We investigate quarkonia production at RHIC and LHC using transport model including both suppression and regeneration mechanisms. This transport model has been rather successful in describing and predicting existing data at SPS, RHIC and LHC. One of the key transport coefficients is the dissociation rate. We first improve the hadronic dissociation rate by including a larger set of unflavored and strange meson contributions. We find that the revised hadronic rate is able to describe the large suppression of psi' dAu data at RHIC. In turn, hadronic regeneration in AA collisions is enhanced. This leads to the concept of sequential regeneration[1] for quarkonia, i.e., a later freezeout time for psi' than J/psi in the blastwave description. The larger collective flow imparted on the psi'helps to describe the puzzling CMS psi' R_AA over J/psi R_AA double ratio in central 2.76 PbPb collisions which is unexpectedly larger than 1. Within the same framework we investigate the p_T spectra and elliptic flow of bottomonia where the partitions of regeneration and suppression are expected to be different from charmonia. Due to the large mass of bottom quarks, their in non-equilibrium p_T-spectra are critical for a quantitative description of bottomonia regeneration[2].

Reference:

[1] X. Du, R. Rapp, Nucl. Phys. A 943 (2015) 147-158

[2] X. Du, J. Fox, M. He, R. Rapp, in preparation

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