Abstract Submitted
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Bottomonium suppression and elliptic flow using Heavy Quarkonium Quantum Dynamics[1] AJAHARUL ISLAM, MICHAEL STRICKLAND, Kent State University — We introduce a framework called Heavy Quarkonium Quantum Dynamics (HQQD) which can be used to compute the dynamical suppression of heavy quarkonia propagating in the quark-gluon plasma using real-time in-medium quantum evolution. Using HQQD we compute large sets of real-time solutions to the Schrödinger equation using a realistic in-medium complex-valued potential. After taking into account final state feed down we compare our results to existing experimental data for the suppression and elliptic flow of bottomonium states and find that HQQD predictions are good agreement with available data for R_{AA} as a function of $N_{\rm part}$ and p_T collected at $\sqrt{s_{\rm NN}} = 5.02$ TeV. Our prediction for the integrated elliptic flow for $\Upsilon(1s)$ in the $10-90\%$ centrality class, which includes an estimate on the systematic error, is $v_2[\Upsilon(1s)] = 0.0026 \pm 0.0007 \pm {}^{0.0005}_{0.001}$. We also find that, due to their increased suppression, excited bottomonium states have a larger elliptic flow. Based on this observation we make predictions for $v_2[\Upsilon(2s)]$ and $v_2[\Upsilon(3s)]$ as a function of centrality and transverse momentum.

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