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Time-Dependence of the Survival Probability of Quarkonia in Quark-Gluon Plasma NOOR SABRINA MAH HUSSIN, Drake University, AS-MAA SHALABY, Benha University, ATHANASIOS PETRIDIS, Drake University — The time-dependent Schrödinger equation is used to study the formation of quarkonia and their propagation in Quark-Gluon Plasma (QGP). The initial bound (ground) state is computed using imaginary-time propagation in a confining potential. The QGP is simulated with a confining potential of an extended asymptotic freedom region. The interior of the QGP potential may correspond to a vacuum that differs from that of the exterior region. The initial state propagates through this potential in real time. The survival probability is calculated versus time for various potential parameters and relative momenta of the quarkonium by projecting the interacting wavefunction onto its freely-propagating counterpart. In these calculations the staggered-leap frog method is used with special attention paid to the issue of stability. It is found that quarkonium decay is typically non-exponential. Fast moving states decay faster. Connection with experimental results is done by means of cross-section ratios.

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