J/Psi-meson wavefunction and survival probability in Quark-Gluon Plasma CATHERINE HUBER, NOOR SABRINA MAH HUSSIN, ATHANASIOS PETRIDIS, Drake University — The time-dependent Schrdinger equation is used to study the formation of the J/Psi in heavy ion collisions and its propagation in Quark-Gluon Plasma (QGP) and in free space. The initial bound state is computed using imaginary-time propagation in a confining potential. An algorithm accommodating both positive and negative energy states has been developed. It can produce all bound states. The QGP is simulated with a confining potential of an expanding, extended asymptotic-freedom region. The time-scales of the J/Psi and QGP formation as well as of the QGP hardonization affect the time-dependence of the J/Psi survival probability in the QGP. This probability is calculated for various J/Psi momenta by projecting the interacting wavefunction onto its freely-propagating counterpart. The staggered-leap frog method is used with special attention paid to the issues of stability and accuracy. The decay of the J/Psi is found to be non-exponential. Connection with experimental results is done by means of cross-section ratios. It is shown that suppression and enhancement are both possible depending on the time-scales.

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