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**Study of Charmonia States in Vacuum and High Density Medium**

JUAN GARCIA, The University of Texas at El Paso — Quantum Chromodynamics (QCD) predicts a hot state of quark matter with a critical temperature of about Tc=2*1012 K (170 MeV), the Quark Gluon Plasma (QGP). Heavy quarks (charm and bottom) provide a probe for the QGP because of their large masses which are much greater than Tc. We study bound states these quarks form, in particular Charmonium, a charm-anticharm bound state. For our study we take a non-relativistic approach using different potential models to study the system in both vacuum and medium by solving Schrödinger's Equation for different eigen states and associated eigen energies.

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