Contribution ID: **583** Type: **Poster**

Chiral phase transition in a soft-wall model of AdS/QCD

The AdS/CFT correspondence describes many features of non-perturbative QCD. A phenomenological approach called AdS/QCD uses a dilaton field to break conformal symmetry. This describes the linear confinement of hadronic spectra at zero temperature. Using an AdS-black hole metric allows for the study of the behavior of hadrons interacting with a hot, dense medium like the quark-gluon plasma.

We present an improved AdS/QCD model for meson spectra and chiral dynamics at finite temperature and baryon chemical potential. We find a second-order chiral phase transition in the chiral limit, with a critical temperature of 155 MeV and critical baryon chemical potential of 566 MeV, consistent with lattice calculations. For physical quark mass the transition is a rapid crossover, with a pseudo-transition temperature and density of 151 MeV and 559 MeV, respectively. Using a pure AdS-Schwarzschild metric, the light meson bound states are found to melt before the chiral phase transition occurs. This behavior is modified with appropriate parameterization of the metric.

Preferred Track

New Theoretical Developments

Collaboration

Not applicable

Author: Dr BARTZ, Sean (Macalester College)

Presenter: Dr BARTZ, Sean (Macalester College)

Session Classification: Poster Session