Contribution ID: **1122** Type: **Parallel session talk**

An Augmented QCD Phase Portrait: Mapping Quark-Hadron Deconfinement for Hot, Dense, Rotating Matter under Magnetic Field

Saturday, 20 July 2024 18:10 (17 minutes)

We augment the conventional T-μ_B planar phase
diagram for QCD matter by extending it to a multi-dimensional domain spanned by temperature T, baryon chemical potential μ_B, external magnetic field B and angular velocity ω. This is relevant for peripheral heavy-ion collisions or astrophysical systems where B, ω are non-zero. Using two independent approaches, one from a rapid rise in entropy density and another dealing with a dip in the speed of sound, we identify deconfinement in the framework of a modified statistical hadronization model. We find that the deconfinement temperature $T_C(\mu_B,\ \omega,\ eB)$ decreases nearly monotonically with increasing $\mu_B,\ \omega$ and eB with the most prominent drop (by nearly 40 to 50 MeV) in T_C occurring when all the three quasi-control (collision energy and impact parameter dependent) parameters are tuned simultaneously to finite values that are achievable in present and upcoming heavy-ion colliders.

Alternate track

1. Strong Interactions and Hadron Physics

I read the instructions above

Yes

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