Random Matrices and the Phase Diagram of QCD

M. Stephanov

Stony Brook, US

Abstract

We show how a certain class of random matrix models can be used to describe the dynamics of the chiral symmetry breaking and restoration in QCD at finite temperature and baryon density. An explicit solution of a corresponding non-hermitian random matrix model provides a lucid explanation for a long-standing puzzle in lattice QCD simulations at finite baryon density.