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QCD Equation of State From Holographic Black Holes. JOAQUIN GREFA, University of Houston, JORGE NORONHA, JACQUELYN NORONHA-HOSTLER, University of Illinois at Urbana-Champaign, ISRAEL PORTILLO, CLAUDIA RATTI, University of Houston, ROMULO ROUGEMONT, Federal University of Rio Grande do Norte — By using the holographic gauge/gravity correspondence, we construct a family of five-dimensional black holes to map the thermodynamics of Quark-gluon matter. The black holes are constrained to mimic the equation of state from lattice QCD at vanishing chemical potential. This model, which reproduces the crossover region in the QCD phase diagram and predicts a line of first order phase transition with a critical end point, provides a QCD equation of state from which baryon susceptibilities can be computed.

Joaquin Grefa
University of Houston

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