

Abstract Submitted
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Studying the Phase Diagram on QCD Matter at RHIC DANIEL CEBRA, University of California, Davis, STAR COLLABORATION — In first phase of the Beam Energy Scan program at RHIC (BES-I), collisions energies of 200, 62.4, 39.0, 27.0, 19.6, 14.5, 11.5, and 7.7 GeV were studied. This program has allowed access to a region of the QCD phase diagram which statistical hadronization models suggest covers a range of baryon chemical potential (μ_B) from 20 to 420 MeV. Some, but not all, lattice QCD models suggest that interesting features of the phase diagram (i.e. the possible first-order phase transition and a possible critical point) may be accessible in this search region. Several analyses of BES-I data have further explored lines of analysis that have been used to support the claim of quark-gluon plasma (QGP) discovery at the top RHIC energy $\sqrt{s_{NN}} = 200$ GeV. Results and conclusions from the BES-I program will be reviewed. Upgrades to the collider and to the STAR detector in the next few years will enable a second phase of the Beam Energy Scan (BES Phase-II) at RHIC in 2018 and 2019. These upgrades and the physics analyses which they make possible will be presented.

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