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Beam Energy Scan and Future Plans of RHIC

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The flexibility of the Relativistic Heavy Ion Collider (RHIC) facility to collide atomic nuclei of different sizes over a wide range of
energies provides the experimental leverage necessary to clarify the nature of QCD matter. RHIC launched a multi-step experimental program to investigate the phase diagram of strongly interacting nuclear matter. The exploratory phase I of the Beam Energy Scan (BES) program with larger data sets ranging from 7.7 GeV up to 200 GeV, allowed for an initial look into the uncharted territory of QCD phase diagram. New discoveries made over the past decade have sharpened some questions and posed several new ones that address the core of our understanding of the nature, structure and origin of the QGP liquid. These questions frame our research program for the coming decade. To address them requires, in the short term, a suite of facility and detector upgrades at RHIC and a series of new experiments that exploit these upgrades.

This talk summarizes the latest RHIC experiments' results concerning Beam Energy Scan and their interpretation with respect to the current theoretical models. The plans and the preparation for phase II of the BES program, with one order of magnitude larger statistics, are discussed. The future decadal plan for facility and detector upgrades at RHIC are highlighted.

Summary

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