STAR experiment results from Beam Energy Scan program

Alexey Aparin for the STAR collaboration
[1]Joint Institute for Nuclear Research

Abstract

The STAR experiment at RHIC has been put into operation more than two decades ago and since then has provided unique data on relativistic heavy-ion collisions. One of the main topics of interest for STAR's experimental program is related to the transition from regular hadronic matter to the quark-gluon plasma state. To shed light on the mechanism of such transition and its exact location on the QCD phase diagram, RHIC has performed two phases of the Beam Energy Scan program lowering collision energy from 200 GeV to 3 GeV. Large-statistics samples obtained during BES-II program at both collider and fixed-target modes allow us to possibly locate the phase boundary and the Critical Point.

This report will summarize results obtained from BES-I and new results from some of the BES-II energies. These can help bridge STAR to new experiments in the field (MPD @ NICA, CBM @ FAIR, JPARC) to better shape the physics programs of those experiments.