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Beam Energy Scan at RHIC

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The purpose of Beam Energy Scan (BES) program at Relativistic Heavy Ion Collider (RHIC) is to study the structure of QCD phase diagram. There are 3 main goals of BES to search for (1) signal of disappearance of Quark Gluon Plasma, (2) boundary for the first order phase transition and (3) signal of QCD critical point. First phase of BES (BES-I) at RHIC was carried out in year 2010 and 2011, and covered center of mass beam energies from 7.7 to 62.4 GeV. We observed changes in behavior for many different observables below 20 GeV, such as azimuthal anisotropy, conserved charge fluctuations and so on. Based on the results at BES-I, the RHIC community has decided to carry out the next Beam Energy Scan (BES-II) to focus on beam energy below 20 GeV. The purpose of BES-II is the precision measurements which allow us for comprehensive understanding of the QCD phase at high baryon density. In this talk, I'm going to review selected results from BES-I and discuss what we have learned along with the goals mentioned earlier. I'm also going to discuss the BES-II, which will start in 2018, what we could achieve for several different observables with the accelerator upgrade at RHIC as well as the detector upgrades at PHENIX and STAR.