



Nuclear Experiment

# STAR experiment results from the beam energy scan program at RHIC

[Bedangadas Mohanty](#)

(Submitted on 29 Jun 2011)

We present the first results using the STAR detector from the Beam Energy Scan (BES) program at the Relativistic Heavy-Ion Collider (RHIC). In this program, Au ion collisions at center of mass energies ( $\sqrt{s_{NN}}$ ) of 7.7, 11.5 and 39 GeV allowed RHIC to extend the study of the QCD phase diagram from baryonic chemical potential values of 20 MeV to about 400 MeV. For the high net-baryon density matter at midrapidity, formed in these collisions, we report several interesting measurements. These include the observation of difference between anti-particle and particle elliptic flow, disappearance of the difference in dynamical azimuthal correlations with respect to event plane between same and opposite signed charged particles, change in slope of eccentricity at freeze-out and directed flow of protons as a function of  $\sqrt{s_{NN}}$  and the deviation of higher order fluctuations from hadron resonance gas and Poissonian expectations. Possible interpretations of these observations are also discussed.

Comments: To appear in the proceedings for the XXII International Conference on Ultrarelativistic Nucleus-Nucleus Collisions - Quark Matter 2011, Annecy, France, May 23-28, 2011

Subjects: **Nuclear Experiment (nucl-ex)**; High Energy Physics - Experiment (hep-ex); High Energy Physics - Phenomenology (hep-ph); Nuclear Theory (nucl-th)

Cite as: [arXiv:1106.5902 \[nucl-ex\]](#)  
(or [arXiv:1106.5902v1 \[nucl-ex\]](#) for this version)

## Submission history

From: Bedangadas Mohanty [[view email](#)]  
[v1] Wed, 29 Jun 2011 10:43:02 GMT (59kb)

[Which authors of this paper are endorsers?](#)

## Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

**nucl-ex**  
< [prev](#) | [next](#) >  
[new](#) | [recent](#) | [1106](#)

Change to browse by:

[hep-ex](#)  
[hep-ph](#)  
[nucl-th](#)

## References & Citations

- [INSPIRE HEP](#)  
([refers to](#) | [cited by](#))
- [NASA ADS](#)

Bookmark([what is this?](#))

