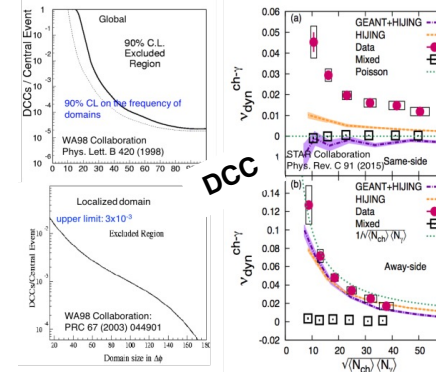


Tapan K. Nayak

- 1990 PhD: NSCL/Michigan State University
 - Emission Temperatures from the Decay of Particle Unstable Complex Nuclei
 - Calorie curve
- 1990 – 1993: Post-Doctoral Fellow at Columbia University
 - E802 Collaboration: HBT analysis
 - PHENIX: Time-of-Flight, Hadron Physics, HBT
- 1994 – 1996: Guest Scientist at GSI/CERN
 - WA98 Collaboration
 - ❖ Fluctuations of charged particles and photons
 - ❖ **DCC (Discoriented Chiral Condensates) search**
- 1997 – 2018: Scientist, VECC, Kolkata
 - STAR Collaboration
 - ❖ QCD Critical Point, RHIC Beam Energy Scan (**First STAR proposal**)
 - ❖ Higher order moments (**initiated, first data analyses in STAR in 2007**)
 - ALICE Collaboration
 - ❖ Photon Multiplicity Detector (for DCC search)
 - ❖ Event-by-event Fluctuations/Correlations
 - ❖ Thermodynamic response functions
- 2018 – .. : NISER / CERN
 - ALICE Collaboration
 - ❖ Fluctuations/Correlations
 - ❖ ALICE Communications



The Search for the Critical Point of QCD: STAR Capabilities for Low $\sqrt{s_{NN}}$ Running

OUTLINE

- Motivation
 - Theoretical predictions
 - Results from SPS and RHIC
- Low $\sqrt{s_{NN}}$ RHIC running
 - RHIC conditions
 - RHIC limitations
- STAR Capabilities
 - Trigger
 - Physics
 - Event Rates & requirements
- Summary

Tapan Nayak
(for the STAR Collaboration)

Workshop:
Can We Discover QCD Critical Point at RHIC
Brookhaven National Laboratory
March 9-10, 2006

QM2009: higher moments
<https://arxiv.org/pdf/0907.4542.pdf>

Study of the Fluctuations of Net-charge and Net-protons Using Higher Order Moments

Tapan K. Nayak* for the STAR collaboration

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11 Sep 2009

Abstract

We present the STAR preliminary results on mid-rapidity and low transverse momentum mean, standard deviation, skewness, and kurtosis of net-charge and net-proton distributions in Au+Au and Cu+Cu collisions at $\sqrt{s_{NN}} = 200$ GeV for various collision centralities. All the measured high moments of these distributions can be scaled by the number of participating nucleons, consistent with the soft process emissions. The ratios of fourth to second order cumulants of both the net-charge and net-proton distributions are consistent with models without QCD crit-

