

Abstract Submitted  
for the HAW09 Meeting of  
The American Physical Society

**Exploring QCD phase diagram with third moments of conserved charges** MASAKIYO KITAZAWA, MASAYUKI ASAKAWA, SHINJI EJIRI — We point out that the third moments of conserved charges, the baryon and electric charge numbers, and energy, as well as their mixed moments, change their signs around the QCD phase boundary in the temperature and baryon chemical potential plane. These signs can be measured in relativistic heavy ion collisions, and will give clear information on the phase structure of QCD and the state of the system in the early stage of relativistic heavy ion collisions. The behaviors of these moments on the temperature axis and at small quark chemical potential can be analyzed in lattice QCD simulations. We emphasize that the third moments obtained on the lattice, together with the experimental results, will provide a deep understanding about the QCD phase diagram and the location of the state created in heavy ion collisions.

Masakiyo Kitazawa

Date submitted: 01 Jul 2009

Electronic form version 1.4