

# Poster: Temperature Fluctuation and the Specific Heat in Au+Au Collisions at $\sqrt{s_{NN}} = 7.7 - 200$ GeV from STAR

Xiujun Li (for the STAR Collaboration)  
*University of Science and Technology of China*

Specific heat is a thermodynamic quantity that characterizes the equation of state of the system. For a system undergoing phase transition, the specific heat,  $C_V$ , is expected to diverge at the critical point. Temperature fluctuation of the system provides an estimation of  $C_V$ . The specific heat can be extracted from event-by-event temperature fluctuation. Thus the variation of thermal fluctuations with temperature can be effectively used to probe the QCD phase transition and QCD critical point [1].

In this poster, we will present the energy dependence of specific heat and temperature fluctuations of the QCD matter created in Au+Au collisions at  $\sqrt{s_{NN}} = 7.7, 11.5, 19.6, 39, 62.4$  and 200 GeV from STAR and compared with model calculations.

[1] Sumit Basu, Sandeep Chatterjee, Rupa Chatterjee, Tapan K. Nayak, Basanta K. Nandi, Phys. Rev. C 94 (2016) 044901.