

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Fluctuations in Lambda Multiplicity Distribution in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV at STAR¹ JONATHAN GONZALO BALL CAP, University of Houston, STAR COLLABORATION — The study of nuclear matter over a wide energy range is provided by the RHIC Beam Energy Scan (BES). This program focuses on locating the critical end point (CEP) in the QCD phase diagram. One of the signatures used to locate the CEP is a non-monotonic behaviour as a function of $\sqrt{s_{NN}}$ of proxies such as the event-by-event net multiplicity fluctuations. Fluctuation in net-protons exhibited a non-monotonic behaviour in the region of $\sqrt{s_{NN}} = 19.6$ GeV to 7.7 GeV in the first phase of BES (BES-I), which motivated the increase in statistics and extending the collision energy down to $\sqrt{s_{NN}} = 3.0$ GeV. The study of fluctuations in net-lambda multiplicity distribution allows to use its baryonic contribution for the search of the CEP. By using its non-diagonal baryon-strangeness correlator it allows along with proton-kaon correlations to study the difference in freeze-out temperatures for protons and strange particles. We present the event-by-event fluctuation analysis of the net lambda multiplicity distribution for the fixed target physics run at $\sqrt{s_{NN}} = 3.0$ GeV which will be compared with the results of the previous net lambda fluctuation studies for BES-I and net-proton fluctuation.

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Date submitted: 08 Jan 2021

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