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Fluctuations in Lambda Multiplicity Distribution in Au+Au Collisions at $\sqrt{s_{NN}} = 3$ GeV at STAR¹ JONATHAN GONZALO BALL CAP, University of Houston, THE STAR COLLABORATION COLLABORATION — The study of nuclear matter over a wide energy range is provided by the RHIC Beam Energy Scan (BES), the program focuses on locating the critical end point (CEP) in the QCD phase diagram. For the first BES, the kurtosis×variance in net-proton multiplicity distribution as a function of $\sqrt{s_{NN}}$ exhibited a non-monotonic variation with 3.1σ significance, which is expected to be a signature of the CEP. This result 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 and strangeness contribution to study freeze-out parameters in the context of quark-mass dependence, which can also be used to compare with the results from net-proton fluctuations and net-kaon fluctuations. 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 and net-proton fluctuations at the same energy.

¹US Department of Energy

Jonathan Gonzalo Ball Cap
University of Houston

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