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Abstract Submitted
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Fluctuations of net-Lambda distributions in Au+Au collisions measured as a function of collision energy with the STAR detector at RHIC¹ NALINDA KULATHUNGA, Univ of Houston, STAR COLLABORATION — Chemical freeze-out parameters (temperature and baryochemical potential) in the QCD phase diagram can be extracted using measured moments of multiplicity distributions of conserved charges. Previously, net-Kaons were used as a proxy for net-strangeness, but we approach the problem using net-Lambda ($\Lambda - \bar{\Lambda}$) cumulants as they are subject to strangeness and baryon number conservation laws. We show the first three cumulants (C_1, C_2, C_3) and cumulant ratios ($C_2/C_1, C_3/C_2$) of net-Lambda and compare them to Poisson baseline and negative binomial expectation for four beam energies ($\sqrt{s_{NN}} = 19, 27, 39$ and 62 GeV Au+Au collisions). Deviations from the Poisson baseline are considered interesting as a part of searches for enhanced fluctuations possibly resulting from the existence of a critical point in the nuclear matter phase diagram. The results are compared to previous STAR measurements of net-Proton and net-Kaon cumulants.

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