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Higher-Order Cumulants of Net-Proton Multiplicity Distributions in Au+Au $\sqrt{s_{NN}}$ = 3 GeV at STAR[1] SAMUEL HEPPELMANN, University of California, Davis, STAR COLLABORATION — The first RHIC Beam Energy Scan (BES-I), $\sqrt{s_{NN}}$ = 7.7 GeV to $\sqrt{s_{NN}}$ = 200 GeV, was run from 2010-2014 to search for the turn-off signatures of the quark-gluon plasma (QGP). The QGP signatures studied in BES-I became insensitive at energies below $\sqrt{s_{NN}}$ = 19.6 GeV. The fluctuations in the event-by-event net-proton multiplicities exhibited a dip in the kurtosis × variance of the net-proton number at $\sqrt{s_{NN}}$ = 19.6 GeV and a rise at 7.7 GeV. Motivated by the findings of BES-I, STAR has initiated a phase II of the BES program (BES-II) and the Fixed Target program. The BES-II program improves upon the earlier BES-I program with increased detector acceptance, luminosity, and statistics at each energy, while the Fixed Target Program extends the minimum energy. In this talk, results from the 2018 first dedicated fixed target physics run at $\sqrt{s_{NN}}$ = 3 GeV will be presented. We will discuss the cumulants of event-by-event net-proton multiplicities as a function of rapidity and centrality. The results will be compared to results from the BES-I program and the HADES experiment.

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