Recent highlights from the STAR Experiment

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This talk will delve into the latest correlation and fluctuation measurements derived from the RHIC Beam Energy Scan-II (BES-II) data, collected by the STAR experiment. We will focus the recent results on higher-order net-proton cumulants ($C_1 - C_6$) and transverse momentum correlations and fluctuations from BES-II data.

Specifically, for the higher order proton cumulants, we will discuss findings from two sets of results from the BES-II data. Firstly, for 3.0 GeV Au+Au collisions, proton cumulants ($C_1 - C_6$) and their corresponding ratios across various centrality classes, building upon previously published results. Secondly, in the energy range of 7.7 to 27 GeV Au+Au collisions, collision energy dependence of cumulants ($C_1 - C_4$) and their ratios.

Furthermore, we will present measurements of transverse momentum correlations and fluctuations, particularly focusing on 2-particle correlators and their dependency on centrality at 3.0 and 3.2 GeV Au+Au collisions.