

1 **Overview of STAR Measurements on Correlations and**
2 **Fluctuations**

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6 **Abstract**

7 Heavy-ion collisions with the RHIC Beam Energy Scan II (BES-II) program at
8 STAR provided a unique opportunity to explore the QCD phase diagram at finite
9 baryon density. Conserved charge fluctuations are believed to be sensitive to the QCD
10 phase structure. In this talk, we will present the recent STAR highlights on fluctuation
11 studies in search of the critical endpoint in QCD phase transition using the (net-)proton
12 high-order moments. Besides, the multi-particle momentum correlations can be used
13 to explore the collision dynamics (emission source size) and the final state interactions.
14 The measurements of femtoscopic correlations of particle pairs including π - π , K - K ,
15 p - p , p - d , d - d , p - Λ , p - Ξ , and d - Λ will also be discussed.