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Angular correlations of identified hadrons in the STAR BES data

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The angular correlation function (CF) indicates the correlation of particles in the relative pseudo-rapidity and relative azimuthal angle. It is used to study the properties of strongly interacting matter at relativistic energies. Recent results from the ALICE experiment at the LHC show unexpected structures of CF in the proton-proton and antiproton-antiproton correlations. Also results from the STAR experiment at RHIC on directed flow show discrepancy between net-baryons and net-mesons trends of (dv_1/dy). These examples of observations suggest that study of CF of identified particles can provide more insight into nuclear matter properties, in comparison with measurements of unidentified particles.

The STAR capability of identifying particles at mid-rapidity, paired with the data from broad energy range of Au+Au collisions in the Beam Energy Scan program, provides opportunity to investigate the phase diagram of strongly interacting matter through the CF analysis. In this talk recent STAR experimental results from Au+Au collisions at $\sqrt{s_{NN}} = 7.7 - 200$ GeV from the RHIC's Beam Energy Scan will be presented.

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