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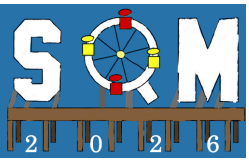

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sPHENIX measurements of long-range correlations in p+p collisions at RHIC

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Energetic collisions of heavy nuclei have long been known to create a hot and dense state of matter known as the quark-gluon plasma (QGP). The QGP may also be created in collisions of heavy-on-light and even light-on-light nuclear collisions. One key signature of QGP formation is the development of long-range angular correlations, which indicate the propagation of early-time position-space correlations into late-time momentum-space correlations. Such signatures have been observed in p+p collisions at the LHC, and in p/d/h+A collisions at RHIC, but not yet in p+p collisions at RHIC energies. The sPHENIX detector has a variety of sub-systems which cover a large pseudorapidity acceptance, as well as a uniquely high-rate data acquisition system which collected a very large data sample in Run-24 p+p running. These capabilities make it an ideal detector to potentially observe long-range collective behavior in high-multiplicity p+p collisions for the first time at these energies. In this talk, we present the latest sPHENIX results on long-range correlations in p+p collisions at 200 GeV and the broader implications for understanding the origin of such effects across collision systems and energies.

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