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sPHENIX new measurements of heavy flavor hadronization in p+p collisions at RHIC

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sPHENIX is a next-generation experiment at RHIC for jet and heavy-flavor physics which was fully commissioned in 2024. Using its novel streaming-readout-capable, precision tracking system, sPHENIX collected 100 billion unbiased p+p collisions, and a further sample of minimum-bias Au-Au collisions, in Run-24. A key measurement of the sPHENIX heavy flavor physics program are measurements of the ratios of heavy flavor hadron yields, in both Au+Au and p+p collisions. These measurements, which include comparisons of Λ_c to D^0 and the D_s^+ to D^+ differential yields, probe questions related to the hadronization of heavy-flavor baryons compared to mesons and of strangeness enhancement in the charm sector, both in the Quark-Gluon Plasma medium and in vacuum. For example, there are no previous measurements of the Λ_c/D^0 and D_s^+/D^+ baselines in p+p collisions at RHIC energies, modern Monte Carlo event generators give widely different predictions, and the ratios in Au+Au at RHIC are only poorly known. This talk presents the progress towards a new measurement from sPHENIX of the first Λ_c/D^0 and D_s^+/D^+ ratios in p+p collisions at RHIC.

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