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Spin Physics Program of New Generation sPHENIX Detector at RHIC

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The sPHENIX experiment is a new experiment and its new detector of Relativistic Heavy Ion Collider (RHIC) in the Brookhaven National Laboratory. It is an upgrade of the PHENIX experiment. The sPHENIX is to complete the scientific mission of RHIC in study of QGP and the spin structure of the proton. The sPHENIX detector will provide precision vertexing, tracking and electromagnetic and hadronic calorimetry in the central pseudorapidity region $|\eta| < 1.1$, with full azimuth coverage, at the full RHIC collision rate, delivering unprecedented data sets for hard probe tomography measurements at RHIC. The sPHENIX was commissioned using Au+Au collision in 2023, and currently taking physics data with transversely polarized proton+proton collisions at the the collision energy of 200 GeV. The status of detector commissioning and possible physics targets of the proton spin program using the sPHENIX detector will be discussed.

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