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The sPHENIX Forward Upgrade

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During 12 years of operations, PHENIX has discovered a strongly coupled QGP and studied many of its basic properties, examined effects in cold nuclear matter, measured the gluon helicity structure of the proton, and probed the proton transverse spin structure. PHENIX is planning a large upgrade for the next decade, sPHENIX, to answer many of the questions spurred by our discoveries during the last decade. This sPHENIX upgrade includes replacing the central arm spectrometers with an open geometry solenoid surrounded by electromagnetic and hadronic calorimetry. With this new open geometry, we plan to upgrade our detector at forward rapidities with additional calorimetry and tracking. The larger acceptance will improve our access to low- x distributions in heavy nuclei, extend our measurements of quarkonia in p+p, d+A, and A+A to more forward rapidities, and allow for measurements away from the Bjorken plateau expanding the study of the high energy heavy ion environment. In addition to heavy ion and cold nuclear matter measurements, the envisioned forward rapidity upgrade will allow for a more systematic approach to understanding the large transverse spin measurements seen at RHIC as well as serve as the baseline detector for a future eRHIC detector, ePHENIX.

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