

# fsPHENIX: A Detector Evolution for the Study of Nucleon Spin Structure and Cold Nuclear Matter at RHIC

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In a few short years, the Relativistic Heavy Ion Collider (RHIC) will embark on detailed studies of the Quark Gluon Plasma with a major new jet-optimized detector known as sPHENIX. On the same timescale, the recent RHIC Cold QCD plan outlines a compelling program of key measurements in spin-polarized p+p and p+A collisions that can be realized on the road to an Electron Ion Collider (EIC). To fully exploit the capabilities of sPHENIX and RHIC we consider new instrumentation in the forward direction (proton-going in p+A collisions and at the EIC) as an addition to the baseline sPHENIX detector. This evolution, known as fsPHENIX, will enable new measurements of spin asymmetries in jet production (both inter- and intra-jet), Drell Yan, and studies of cold nuclear matter utilizing the unique capabilities of the RHIC collider. I will give an overview of the fsPHENIX design, its relationship to sPHENIX and a future EIC detector, and the physics goals of the Cold QCD Plan.