

DNP20-2020-000809

C

Abstract for an Invited Paper
for the DNP20 Meeting of
the American Physical Society

New results from RHIC

MARIA ZUREK, Lawrence Berkeley National Laboratory

The Relativistic Heavy Ion Collider is the world's only high-energy polarized proton-proton collider, providing access to hard scattering processes at $\sqrt{s} = 62, 200, \text{ and } 500 \text{ GeV}$. Measurements with longitudinal beam polarizations have given new insights into the helicity structure of the proton, while measurements with transverse polarizations have provided new ways to probe polarized parton distribution functions in the collinear and transverse momentum dependent frameworks.

In this talk, I will highlight recent results from the RHIC Spin program addressing its main physics questions: How do gluon spins contribute to the proton spin? What is the landscape of the polarized quark-sea in the nucleon? And what can transverse spin effects teach us about the structure of the proton and properties of QCD? Finally, I will give an outlook on the forward upgrade of the STAR detector and spin physics opportunities beyond the year 2021.