

Abstract Submitted  
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**Studying Nucleon Helicity Distributions at an EIC** THOMAS BURTON, BNL, EIC SCIENCE TASK FORCE TEAM — Measuring the quark and gluon helicity distributions is a key goal in understanding nucleon spin structure. An Electron Ion Collider (EIC) will provide the definitive measurement of these distributions. Gluon polarisation can be studied at low partonic momentum fraction,  $x$ , ( $\sim 10^{-4}$ ), where it is unconstrained by existing data. Meanwhile, measuring identified final-state hadrons will allow precise flavour decomposition of the sea quark helicity. The high luminosity and wide kinematic reach of an EIC mean measurements shall be made at currently unmeasured regimes of low  $x$  and high  $Q^2$ , and with unprecedented precision. The impact of EIC data on our understanding of nucleon helicity will be presented.

Thomas Burton  
BNL

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