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Title: FLAVOR DECOMPOSITION OF NUCLEON SPIN THROUGH SIDIS MEASUREMENTS AT JLAB 12 GeV and A FUTURE ELECTRON-ION COLLIDER

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Flavor Decomposition of Nucleon Spin Through SIDIS Measurements at JLab 12 GeV and a Future Electron-Ion Collider

The origin of the nucleon spin remains incompletely understood after several decades of extensive theoretical and experimental studies. The information provided by measurements of longitudinal double spin asymmetries in inclusive lepton-nucleon deep inelastic scattering (DIS) using polarized beams and targets has constrained the proton and neutron spin structure functions to an impressive level of accuracy. However, since inclusive DIS is only sensitive to the quark charge squared, quarks and antiquarks are probed on an equal footing, and the quark/antiquark and valence/sea distributions cannot be separated absent further assumptions. Semi-inclusive DIS (SIDIS) measurements have the potential to provide more detailed information on the flavor-separated structure of nucleon spin by "tagging" struck quarks in lepton-nucleon DIS through the identification of leading final state hadrons. The polarization of strange quarks in the nucleon is currently relatively poorly constrained by experimental data; it has been determined in global analyses of polarized PDFs using indirect constraints from beta decay data and the assumption of flavor SU(3) symmetry, and more recently from kaon SIDIS data, mainly from the HERMES and COMPASS experiments. The incomplete kinematic coverage of existing data leave significant room for improvement in the experimental determination of the polarization of strange quarks in the nucleon. In this talk, I will discuss the flavor decomposition of nucleon spin in SIDIS measurements using polarized beams and targets at JLab 12 GeV and at a future EIC, with an emphasis on kaon measurements.