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Simulation of Spin-Dependent Di-Hadron Production for the EIC[1] MEGAN STURM, University of Connecticut and Duke University, ANSELM VOSSEN, CHRISTOPHER DILKS, Duke University, ELECTRON ION COLLIDER USER GROUP COLLABORATION — Scattering accelerated electrons off protons and detecting the final state particles of the collisions allows us to study the internal structures of the nucleons. The Electron Ion Collider (EIC) is being designed for construction at Brookhaven National Laboratory (BNL) and a yellow report is currently being developed to outline the detector and collider parameters based on the requirements of the various physics channels . This project will contribute to the report by developing software to simulate specific aspects of di-hadron production in semi-inclusive deep inelastic scattering. In particular, we studied detector resolutions based on the true and detector smeared kinematics and implemented a weighting scheme to simulate polarization effects in the cross-section based on theoretical models. In addition to charged pions, we also studied pairs including neutral pions which were reconstructed from photon pairs. With these improvements, more accurate and comprehensive simulations can be used in the yellow report.

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