Studies of Open Charm and Bottom Hadron Reconstruction at the Electron-Ion Collider MATTHEW KELSEY, Lawrence Berkeley National Laboratory, LAWRENCE BERKELEY NATIONAL LABORATORY TEAM — The heavy-flavor program for the future Electron-Ion Collider (EIC) at Brookhaven National Laboratory offers many potential measurement opportunities probing the nucleon structure and cold nuclear medium effects with electron-proton(ion) collisions. Among many other interesting topics, a particular expected achievement is the improvement to the gluon nuclear parton distribution function from the measurement of the charm structure functions. In this presentation, we will present the studies of open heavy-flavor hadrons in a wide kinematic region using simulated electron-proton collisions in PYTHIA with detector performance based on a silicon-based tracker for the future EIC detector. We study the reconstruction of open charm and bottom hadrons, and the effects of using secondary vertex reconstruction to suppress backgrounds including the impacts of primary vertex resolution. The impact of the expected statistical precision on various physics observables with the nominal projected integrated luminosity will be discussed.

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