

## The Electron Ion Collider User Group Meeting



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### Electroweak physics at the EIC

*Friday, 8 July 2016 17:20 (25 minutes)*

We discuss measurements of parity violating asymmetries in the DIS region at an EIC with high luminosity. With  $\gamma Z$  interference in the electroweak processes, the parity violating asymmetries are associated with a new series of structure functions,  $F_1^{\gamma Z}$ ,  $F_3^{\gamma Z}$ ,  $g_1^{\gamma Z}$ ,  $g_5^{\gamma Z}$ , which provide unique, yet unmeasured, combinations of unpolarized/polarized parton distribution functions. We will present the projections of these structure functions from electron-proton collisions at future EIC with different beam energy configurations considering QED, QCD radiative corrections as well as corrections of detector smearing. We will also present the weak mixing angle  $\sin^2(\theta_W)$  study at much higher  $Q^2$  range than fixed target measurements using electron-deuteron collisions at an EIC.

**Presenter:** ZHAO, Yuxiang

**Session Classification:** Jets and Novel Probes (Experiment)