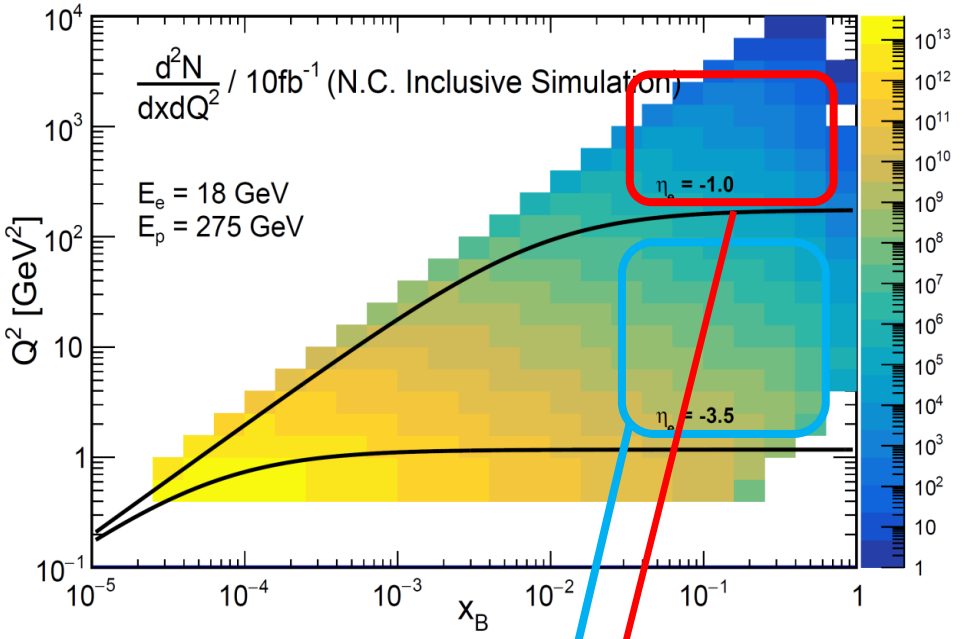
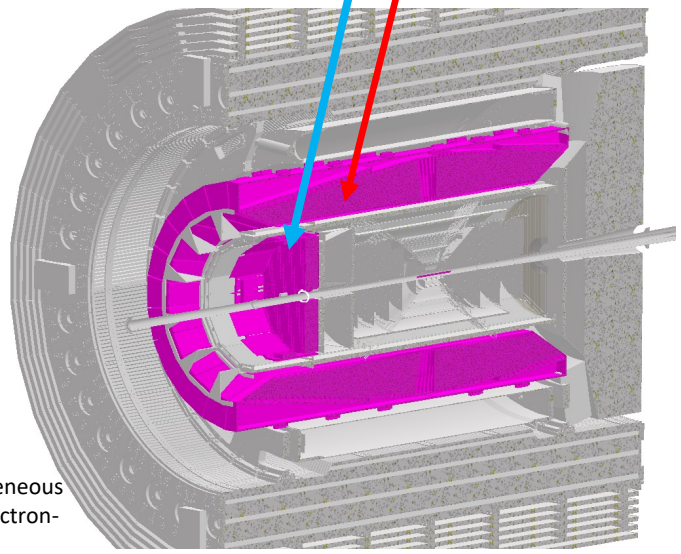
# Scattered Electron kinematics measurements is essential at the EIC

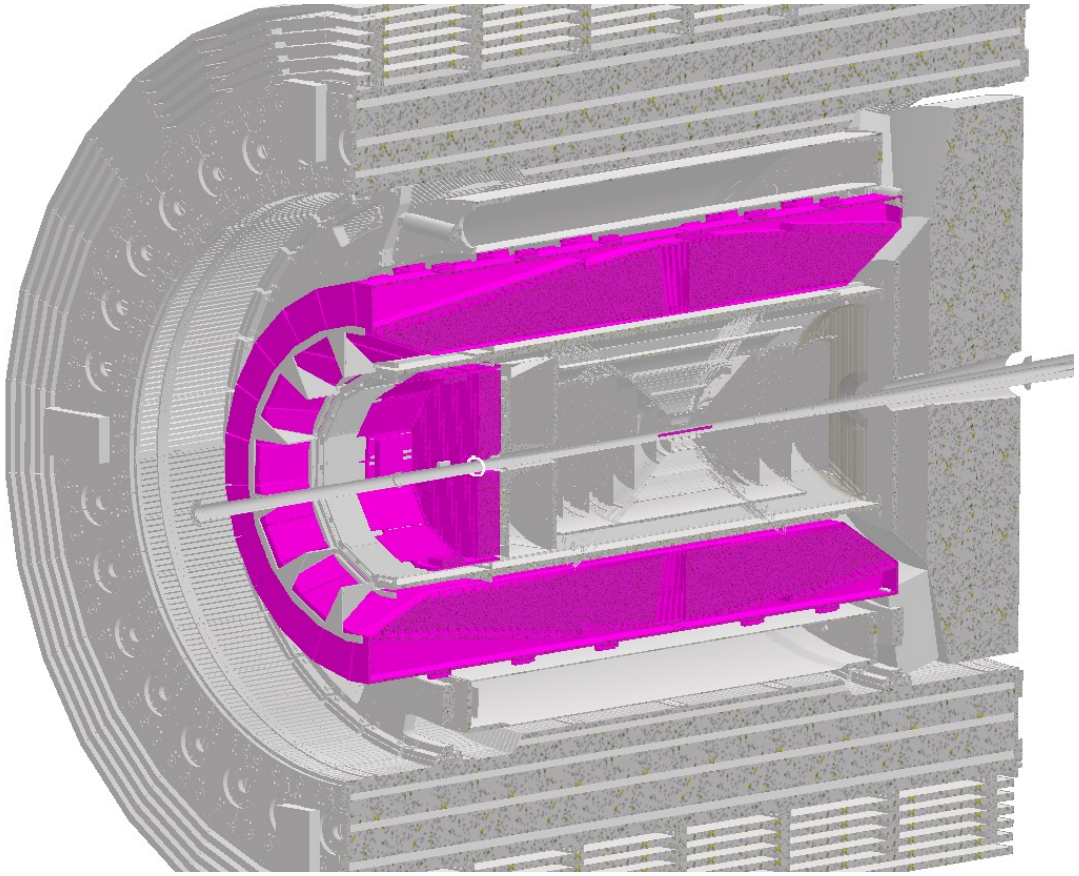
- High precision, hermetic detection of the scattered electron is required over a broad range in η and over energy range from 0.1 to tens of GeV
  - Required for electron kinematics measurement
  - Required for clean electron identification, e/h separation
- Lead tungstate PbWO4 (PWO) is precision calorimeter of choice for many experiments at Jefferson Lab, PANDA/GSI, ePIC/EIC.
- A bridge between PWO and less stringent resolution requirements could be provided by SciGlass (developed with DOE/STTR) in the central region and matched to the backward region. Allow for cost effectiveness.
- Optimization of the entire electron-going scattered electron system is ongoing and could be of interest for Detector-2

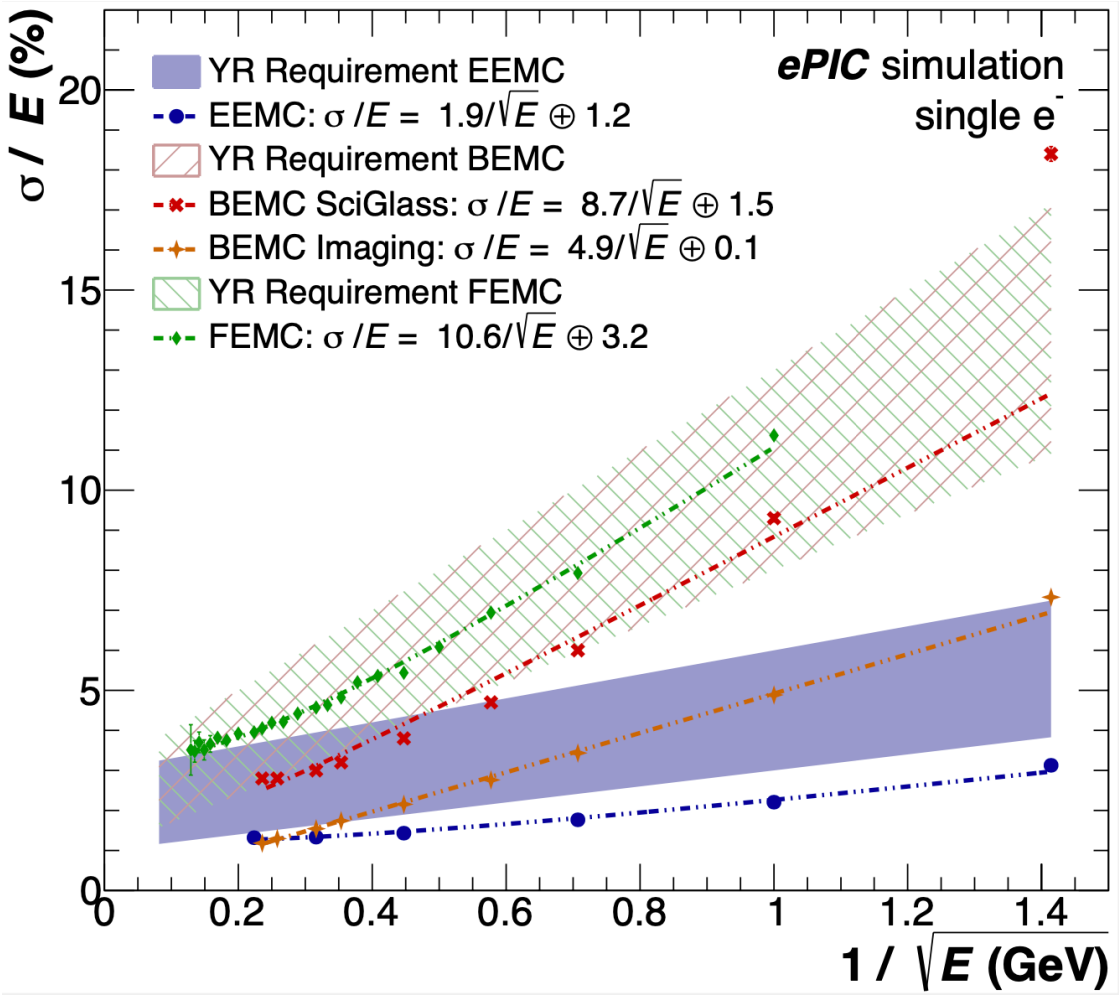


Example of homogeneous detection in the electron-going direction

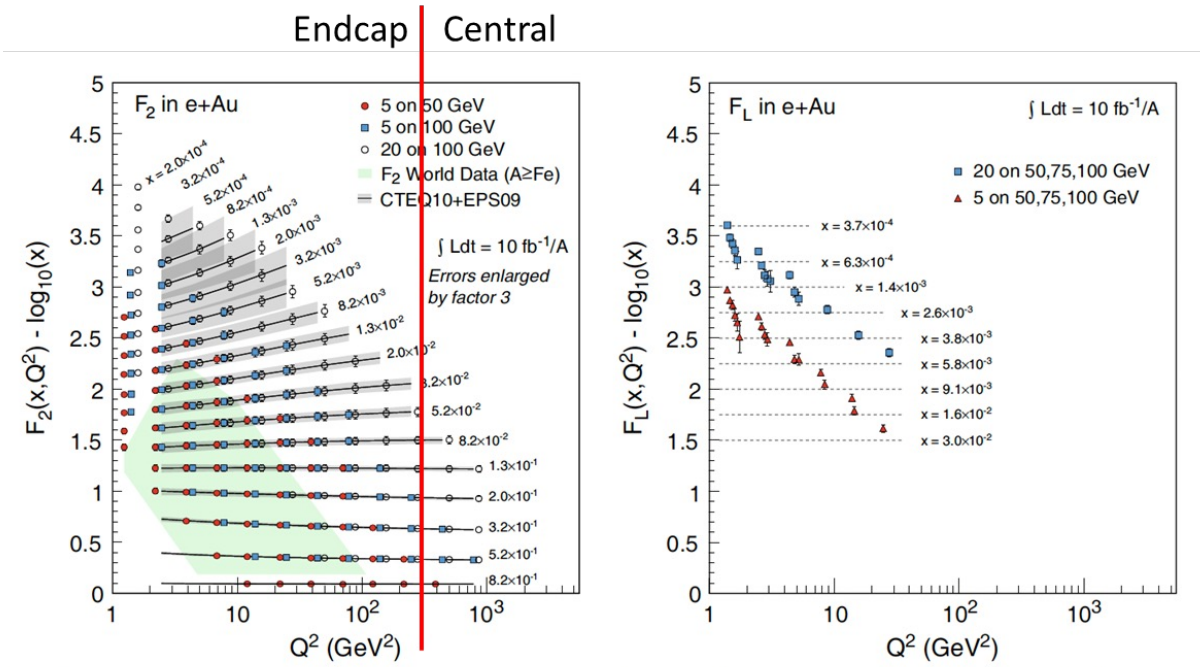
# Resolutions in ePIC configuration

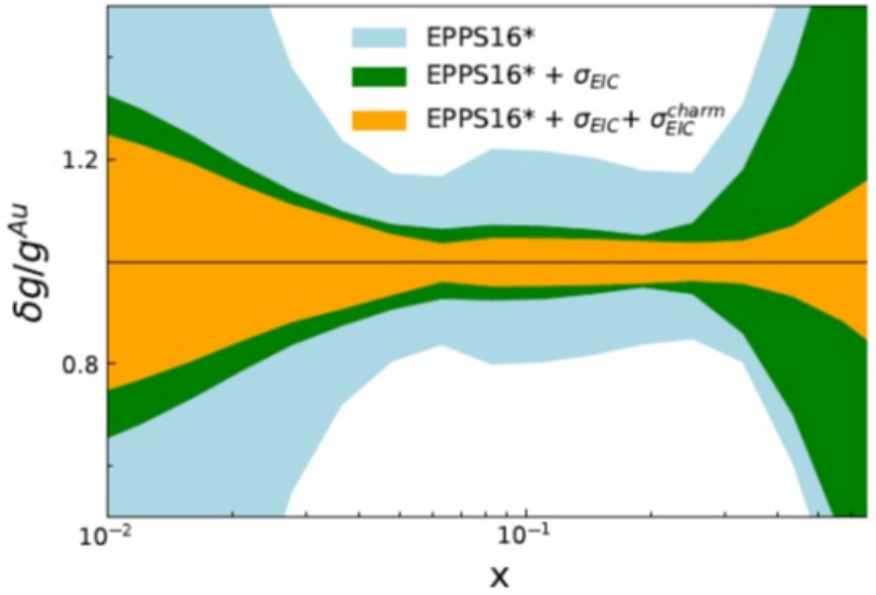




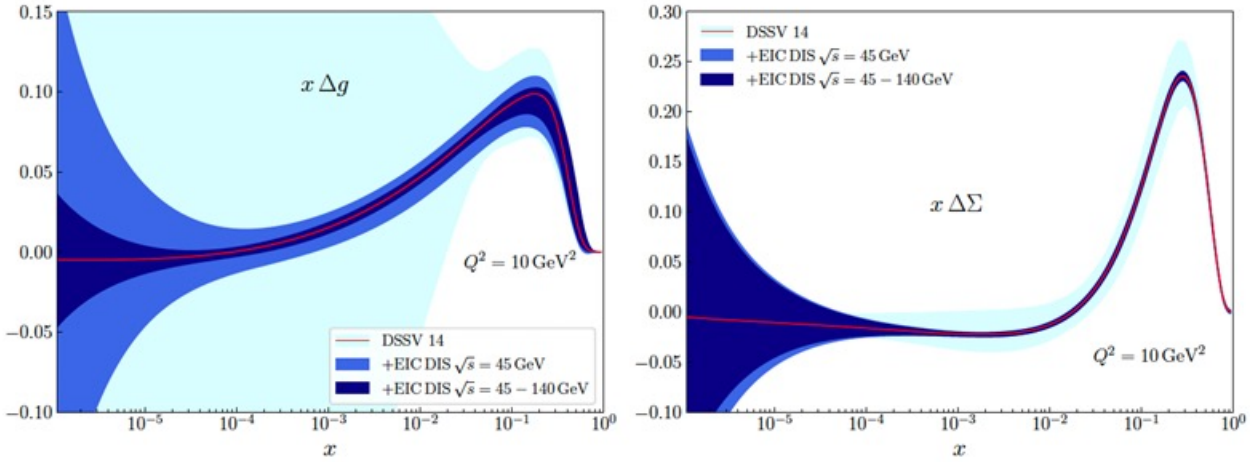
# Physics Opportunities

Inclusive channels, requiring only electron reconstruction, to understand gluon substructure of the proton and nuclei




$$\frac{d^2\sigma^{ep\to eX}}{dxdQ^2} = \frac{4\pi\alpha^2_{e.m.}}{xQ^4}\left[\left(1-y+\frac{y^2}{2}\right)F_2(x,Q^2)-\frac{y^2}{2}F_L(x,Q^2)\right]$$



# Physics Opportunities

- Access to the energy dependence over a wide kinematic phase space also enables access to exclusive physics processes, meson production channels and DVCS
- To detect the final-state real photon the electromagnetic calorimeter must cover the complete angular range, be hermetic and operate with high efficiency and good resolution.