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Longitudinal Structure Functions (F_L) at an Electron-Ion Collider JAMES C. DUNLOP, Brookhaven National Laboratory — Current knowledge of gluon distribution functions in nuclei is extremely limited in range in x and Q^2 , due to the energies available in fixed target experiments performed to date. An electron-ion collider (EIC) would greatly extend this range, into a region in the x and Q^2 plane where saturation of gluons is expected to become the dominant mechanism determining the properties of nuclear matter. Measurements of longitudinal structure functions (F_L) directly probe gluon distributions, as F_L is directly related to the gluon distribution at tree level. Projections for experimental measurement of F_L will be presented, along with considerations driving experimental setups.

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