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The extraction of the F_2 and F_L structure functions from inclusive e+p and e+A scatterings at the EIC RAMIRO DEBBE, Brookhaven National Laboratory, EIC SCIENCE TASKFORCE TEAM — Among the many measurements projected to study the nucleon and nuclei structure at the eRHIC, the extraction of the longitudinal structure function F_L stands prominently. This is so because this measurement provides a unique tool to study the gluon distribution in the nucleus and nuclei and allows to test saturation effects in gluons at low x and low Q^2. In prepraration for these measurements, simulations are being performed to estimate the effects of detector resolution, radiative corrections and the presence of systemetic uncertainties which in turn determine the quality of extracted physics. The extraction of the F_L structure function will be done from a combination of inclusive measurements at different electron beam energies each with at least three values of the hadron beam energy. The selected electron and hadron beam energies will allow the extraction of the F_L and F_2 structure functions down to x values of 10^{-4} and the virtuality of the exchanged photon Q^2, ranging from 1 to 1000 GeV/c^2. The kinematic coverage of these measurements as well as the effects of the detector resoltution and systematic uncertainties on both F_L and F_2 will be discussed.

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