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# Calculation of the Polarized Bethe-Heitler Cross Section for the Electron Ion Collider

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Luminosity is an essential quantity to measure the cross section of any process. At the Electron Ion Collider (EIC), it will be measured using the Bethe-Heitler process in which a real photon is radiated in the electron-ion (p or A) scattering: e + p(A) → e + p(A) + ɣ. The cross section is very large with respect to DIS and can be precisely calculated in leading-order QED, as was done by Bethe and Heitler for unpolarized beams of particles. The EIC will operate with polarized electron and ion beams, thereby requiring a calculation of the spin-dependent modifications to the cross section. A calculation of the polarized Bethe-Heitler cross section is presented.

## Category

Theory

## Collaboration (if applicable)

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