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Electromagnetic Radiative Corrections for the Qweak Experiment KARTHIK GARIMELLA, D. T. SPAYDE, Hendrix College, QWEAK COLLABORATION — The principle of the Qweak experiment is to accurately determine the weak charge of the proton through study of electron asymmetry in electron-proton scattering. The Qweak experiment utilizes the parity-violating nature of the weak force in order to evaluate the weak charge. The weak charge enables the calculation of the weak mixing angle at specific Q^2 values, a testable parameter of the Standard Model. During a target event, the electron may emit or absorb photons - a process known as bremsstrahlung. This particle exchange can occur internally when the electron is within the field of the nucleus or externally. It affects the energy of the electron and must be accounted for during the analysis of electron asymmetry. The data from the experiment can be corrected to include the effects of bremsstrahlung using a simulation created by the Qweak collaboration using the GEANT4 software toolkit developed at CERN. The effects of bremsstrahlung on the parity-violating asymmetry will be discussed and the modifications implemented in the simulation will be presented.

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