Elastic and quasielastic electron-proton scattering

Initialize limits

Set event generation limits to give full population of desired kinematics after taking into account resolution, energy loss, radiative corrections, etc...

Generate vertex

Generate position based on target geometry, beam witdh, raster.

Generate beam energy.

Generate scattering kinematics

Hydrogen Elastic: Generate θ_e, ϕ_e.

D(e,e'p): Generate θ_e, ϕ_e, θ_e, ϕ_e, p_e - calc. p_m, apply jacobian.

A(e,e'p): Generate θ_e, ϕ_e, θ_e, ϕ_e, p_e, p_p - calc. E_m,p_m.

Apply spectral function weight.

Modifications to kinematics

Apply radiative corrections (generate radiated photons)

Apply coulomb distortions (effective momentum approximation)

Follow particles.

Apply energy loss, mult. scattering in target/detector materials.

Run particles through model of spectrometers

Apply cross section weighting to good events.

Save events to ntuple.

Calculate normalization factors.

Luminosity.

Event generation phase space.