QED PDFs in HERAFitter
work in progress

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Status and plans

Implemented:

- A parametrization of photon PDF in `HERAPDF` style:

$$x\gamma(x) = A_\gamma x^{B_\gamma}(1-x)^{C_\gamma}(1 + D_\gamma x + E_\gamma x^2)$$

  I used minuit parameter indices 91, 92, 93, 94 and 98 for parameters A_γ, B_γ, C_γ, D_γ and E_γ, respectively.
- Modification of momentum sum rule

$$\int_0^1 dx\, x \left[\gamma(x, Q^2) + g(x, Q^2) + \Sigma(x, Q^2)\right] = 1.$$

  to accomodate photon PDF
- QED-evolution with the latest beta version of `QCDNUM` program (v. 17-00-01c) (partially implemented)

Plans:

- Complete the implementation of QED-evolution
- Implement `APPLGRID` interface to `SANC` Monte Carlo generator for evaluation of $\gamma\gamma \to \ell^+\ell^-$ cross-section at LO