

QCDNUM QCD+QED evolution

Work in progress

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QCD+QED evolution in QCDNUM

- For QCD+QED we need to evolve 12 pdfs with 4 of them coupled
- Idea: write an evolution toolbox where the user can feed-in the splitting functions, perturbative expansion coefficients, and do n-fold coupled evolutions

Turns out to be quite a large project

- QCD evolution has three-fold nested loops
 - Loop over thresholds (VFNS)
 - Iteration loop for backward evolution
 - Loop over subgrids (dense grids at large x)
- Present nesting order not OK for a user-driven evolution → lots of code re-arrangement
- Pdfs can reside in both internal and/or in local memory → new address mechanism needed

Joblist

- ✓ Basic nxn evolution routine
- ✓ Loop over subgrids
- ✓ New address mechanism for PDFs
- Upgrade internal memory (in progress)
- Iteration loop for backward evolution
- Loop over thresholds
- User interface
- Update write-up (continuously in progress)

Outlook

No showstoppers up to now

Tedious development because I want to keep all existing user interfaces backward compatible

Slow progress in baby-steps to not break the code and loose control