

H QCDNUM17-01 Releases and Updates

QCDNUM17-01 versions are beta-releases on the road to QCDNUM18. In these pre-releases a routine may become obsolete, with a message that points to a new routine described in this write-up. These messages serve as a guide to bring your code up-to-date.

- 17-rr/uu dd-mm-yy – Description
- 17-01/15 31-10-19 – Few minor modifications for the XFITTER project.
- 17-03-19 – Pdf acces not anymore restricted to those evolved with the current set of parameters.
- More flexibility in threshold setting with `setcbrt`.
 - Initial scale not anymore restricted to $\mu_0^2 < \mu_c^2$.
 - Can select output pdf set 1–24 in `evolfg` (used to be 1–3).
 - Possibility to evolve with intrinsic heavy flavours.
 - Can include intrinsic heavy quarks in `sumfxq` (`isel = 9`).
 - Basis pdf $e_2 = u-d \rightarrow d-u$ (to speed-up basis transformations).
 - New routine `wfile` to maintain a weight file on disk.
 - New routine `nfrmiq` returns $n_f(\mu^2)$ for any pdf set.
 - New routine `setlim/getlim` to set/get cuts in x and μ^2 .
 - New routine `evsgns` for singlet/non-singlet evolution.
 - New routine `ffplot` to create a plot file.
 - New routine `ievtyp` returns the evolution type of a pdf set.
- 17-01/14 21-12-17 – C++ interface for out-of-the-box QCDNUM, ZMSTF and HQSTF.
- Provide `qstore` common block for use in C++ programs.
 - Fix error in `idspfun`, `evtable` and a bookkeeping bug.
 - Replaced routine: `pdfext` \rightarrow `extpdf`.
- 17-01/13 23-01-17 – Much faster interpolation routines, with extended functionality.
- Replaced routines: `fsnsxq` \rightarrow `bvalxq`, `fpdfxq` \rightarrow `allfxq`, `fsumxq` \rightarrow `sumfxq`, `pdflst` \rightarrow `fflist`, `pdftab` \rightarrow `ftable`.
- 17-01/12 26-02-16 – Fix error in the NLO singlet time-like evolution [32].
- Introduce matching conditions in the time-like evolution.
- 17-01/11 13-11-15 – New option in `setint` to set the number of perturbative terms in the `evdglap` evolution.
- 17-01/10 27-10-15 – Build library with AUTOTOOLS (or with the `makelibs` script).
- Bug fix in `pdfext`.
- 17-01/0h 08-09-15 – Internal memory can hold up to 24 (was 9) pdf sets.
- Different pdf sets can have different evolution parameters.
 - Imported pdf sets can have more than 13 gluon and quark pdfs.
 - New function `ipdftab` to address pdfs in internal memory.
 - Replaced routines: `getalfn` \rightarrow `altabn`, `chkpdf` \rightarrow `nptabs`, `pdfinp` \rightarrow `pdfext`, `nflavor` \rightarrow `nflavs`, `evfcopy` \rightarrow `evpcopy`.
- 17-01/0g 31-05-15 – Toolbox workspace can be organised into sets of tables.
- New toolbox table types for pdfs (5) and expansion coefficients (6).

- New addressing scheme for tables in toolbox or internal memory.
- New suite of toolbox routines for coupled DGLAP evolution.
- Pdfs in a toolbox workspace can be copied to internal memory.
- Possibility to steer QCDNUM with data cards.