xFitter:Releases and Updates February, 2016

		k is bug fixes.
Release	Date	Description
xfitter-1.2.0	15.02.2016	 Project renamed from herafitter to xfitter. Added stand-alone scripts for downloading data/theory files: getter . No need of theory directory anylonger, the theory files are now stored under same location with data files. Change in the executable names: FitPDF → xfitter DrawPdfs → xfitter-draw postproc → xfitter-process
		 Updated configure.ac to work with latest QCDNUM which is now available with autotools installation (> 17.01.10). – new QCDNUM allows possibility to have more than standard PDFs.
		 Added QED PDFs via generalised nxn convolution engines of QCDNUM. Added interface to APFEL which provides access to: evolution code: added DGLAP_APFEL option for standard evolution, or DGLAP_APFEL_QED for QED adjusted evolution. FONLL heavy flavour schemes with multiple options.
		 Added interface to n-space code MELA for Mellin Transformation and it is available via configuration flag. Added direct access to LHAPDFs avoiding QCDNUM: LHAPDFNATIVE option Added more data formatted for xfitter: updated Tevatron data, LHCb, HERA)
		 Addeddisable-root option (root is enabled by default). Default steering updated to HERAI+II data. Removed DrawResults package, which was redundant, and added and updated drawing options for data files. Added fixes to DIS electroweak part of the code. Fixed several fortran warning messages. Unifying theory interface for expression between FastNLO and APPLGRID usage. Updated FastNLO to the latest version Installation possible withprefix option, added xfitter-config script. Added new options for the reweighting using Giele-Keller weights. Merged common codes between profiling and reweighting. Fixing lapack and blas tests to give configure errors and stop Updated the ABM calculations in sync with OPENQCDRAD 2.0b4 Added possibility to get integrated cross sections for DIS. Tools/RunJobs and steerings for diffraction adjusted to xFitter.

xFitter versions are labeled as **xfitter-i.j.k** where **i** is the stable release number, **j** is beta release number, and **k** is bug fixes

Release	Date	Description
herafitter-1.1.1	3.03.2015	• Fix in the reweighting code in the new interface to LHAPDFv6 involving the
		gluon ID (different gluon ID is used between LHAPDFv5 and v6)
		\bullet Fix in TMD code: remove the <code>CERNLIB</code> dependence and update to <code>LHAPDFv6</code> ,
		fix to the treatment of heavy quarks; updated steering files and ${\tt README}$.
		• Fix of the TheoryType expression parsing used in data files
		• Fix in transformation from a Hessian to MC PDF set to preserve correlations
		• Fixed/improved the dynamic memory allocation for systematic arrays NSysMax
		and WORK arrays.
		• Fix of the warning for treatment of statistical errors (when default treatment
		changed to poisson errors).
		• Fix in the χ^2 code using additional rescale of stat. uncertainty to account for
		systematic shifts
		• Fixed/added drawing options for Diffractive PDFs.
		• Added F_2 structure function in reaction type instead of cross section.

Release	Date	Description
herafitter-1.1.0	29.09.2014	• Removed dependence on CERNLIB and related libraries.
		• Added interface to LHAPDFv6.
		• Added more and improved drawing options for visualisation of results.
		• Added possibility to deal with multi-dimensional data (virtual grids).
		• Additional options in parametrisation styles: added mixed forms between
		HERA style for gluon and sea and CTEQ style for valence.
		• Added new data from Tevatron, ATLAS and CMS.
		• Added improvements and more flexibility in the χ^2 and covariance matrix code:
		possibility to transform into nuisance representation for data with uncertainties
		given in the covariance form.
		• Included a new fastNLO version, which was generalised in order to accommodate
		DiffTop grids.
		• Added DiffTen gride rie fastNLO

• Added DiffTop grids via fastNLO.

Release	Date	Description
herafitter-1.0.0	10.12.2013	 Added possibility to change the name of the output directory in steering.txt Added a dummy reaction type for testing data formats. Centralised implementation of the scale variations for the DIS processes. Enabled possibility to perform LO PDF fits. Added possibility to determine generalised minima based on multiple sampling of minuit files. Improved quantitative comparison of data to predictions by adding: Possibility to include PDF uncertainties in the χ² evaluation; Possibility to use external predictions as text les (similar format style as for data) in the χ² evaluation;
		 Added more options for χ² representation: Use of covariance and/or correlation matrix (statistical or systematic); Use of parabolic approximation for asymmetric uncertainties.
		 Considerable improvements in the drawing tools: Added new executable to draw PDFs: DrawPdfs; Added possibility of multiple overlays, each PDF can be plotted separately; Possibility to visualise the pulls (only for data sets that provide bin ranges).
		 Possibility to fit Lead PDF; Improved interface to Transverse Momentum Distributions (TMDs): Evolution is fully integrated into HERAFitter; Evolution of valence quarks is also included; Calculation of the longitudinal cross-section is also included;
		 Simplified interface to the parametrisation style; Fixes to the LHAPDF reweighted PDFs due to random seed generator causing large fluctuations. New generalised APPLGRID interface: Added parser to identify theory expressions; Added possibility to select the values for the CKM matrix elements from APPLGRID or HERAFitter . Added possibility to flag a data bin to be excluded from the fit.
		• Tool to convert covariance matrix to nuisance parameter representation.

Release	Date	Description
herafitter-0.3.1	11.06.2013	 Fixing interface with LHAPDF when fitting only α_S Fixing the floating point error for negative predictions in χ² calculation Fixing the treatment of the statistical correlations Fixing treatment for asymmetric uncertainties
herafitter-0.3.0	26.03.2013	 The theoryfiles directory is detached from the release (to be downloaded separately) Added via automake tools a make check to test sanity of the codes. Added a User Example directory for reference outputs. Inclusion of more data sets (like CMS, Tevatron). Implemented a treatment for asymmetric systematic uncertainties. Added updates to ACOT code which include higher order contributions for F₂ and F_L. Added new dipole models. Implementation of treatment for the unintegrated PDFs (or TMDs). Reorganisation of the χ² module, the old style is preserved and it should be used for the offset method and covariance matrix for chisquare representation. Implementation of PDF reweighting based on eigenvectors. Added new parametrisation styles and regularisation techniques. A New FastNLO format was introduced.

Release	Date	Description
herafitter-0.2.1	13.07.2012	• Fixing the RT Fast scheme: the k-factors were determined for single point instead for each data point which is provided.
		instead for each data point which is now fixed.
herafitter-0.2.0	9.05.2012	 New implementation of RT scheme (VFNS): Standard and Optimal NLO and NNLO. New module for heavy flavour treatment using VFNS ACOT scheme using k-factor technique. Different variants of ACOT scheme available, as well as ZM-VFNS. New module for heavy flavour treatment using FFNS ABM scheme. New module for DIPOLE models (GBW, IIM). New Hathor module for tt cross section calculation - optional via configure flag. New data sets from HERA, Fixed target experiments, Tevatron and LHC. New interface to LHAPDF to access external PDFs for prediction estimation - optional via configure flag. New module for NNPDF reweighting tool - optional via configure flag. New addition for error handling providing a summary of errors. Improved interface to FASTNLO module via FASTNLOREADER. Improved intefaces between QCDNUM and cross-section calculation codes. PDF caching mechanisms for faster computations. Improved modularity of the structure by separating the chisquare definition from minimisation routine. New common interfaces to access PDFs and alphas, in interface/src . Improved handling of PDF parametrisation, in src/pdf_param.f. Centralised passing of the constants to EW module via ewparam.txt card.
		• New implementation for scale variation for AFFLGRID and FASTNLO via steering.txt card
herafitter-0.1.0	15.09.2011	• Initial release