

# HERAFitter: Releases and Updates

June, 2013

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

---

---

Release	Date	Description
herafitter-0.3.1	11.06.2013	<ul style="list-style-type: none"><li>• Fixing interface with LHAPDF when fitting only <math>\alpha_S</math></li><li>• Fixing the floating point error for negative predictions in <math>\chi^2</math> calculation</li><li>• Fixing the treatment of the statistical correlations</li><li>• Fixing treatment for asymmetric uncertainties</li></ul>
herafitter-0.3.0	26.03.2013	<ul style="list-style-type: none"><li>• The <b>theoryfiles</b> directory is detached from the release (to be downloaded separately)</li><li>• Added via automake tools a <b>make check</b> to test sanity of the codes.</li><li>• Added a User Example directory for reference outputs.</li><li>• Inclusion of more data sets (like CMS, Tevatron).</li><li>• Implemented a treatment for asymmetric systematic uncertainties.</li><li>• Added updates to ACOT code which include higher order contributions for <math>F_2</math> and <math>F_L</math>.</li><li>• Added new dipole models.</li><li>• Implementation of treatment for the unintegrated PDFs.</li><li>• Reorganisation of the <math>\chi^2</math> module, the old style is preserved and it should be used for the offset method and covariance matrix for chisquare representation.</li><li>• Implementation of PDF reweighting based on eigenvectors.</li><li>• Added new parametrisation styles and regularisation techniques.</li><li>• A New FastNLO format was introduced.</li></ul>
herafitter-0.2.1	13.07.2012	<ul style="list-style-type: none"><li>• Fixing the RT Fast scheme: the k-factors were determined for single point instead for each data point which is now fixed.</li></ul>

---

Release	Date	Description
herafitter-0.2.0	9.05.2012	<ul style="list-style-type: none"> <li>• New implementation of RT scheme (VFNS): Standard and Optimal NLO and NNLO.</li> <li>• 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.</li> <li>• New module for heavy flavour treatment using FFNS ABM scheme.</li> <li>• New module for DIPOLE models (GBW, IIM).</li> <li>• New Hathor module for <math>t\bar{t}</math> cross section calculation - optional via configure flag.</li>   <li>• New Diffractive module for fits to diffractive data.</li> <li>• New data sets from HERA, Fixed target experiments, Tevatron and LHC.</li> <li>• New interface to LHAPDF to access external PDFs for prediction estimation - optional via configure flag.</li> <li>• New module for NNPDF reweighting tool - optional via configure flag.</li> <li>• New addition for error handling providing a summary of errors.</li> <li>• Improved interface to FASTNLO module via FASTNLOREADER.</li> <li>• Improved interfaces between QCDNUM and cross-section calculation codes. PDF caching mechanisms for faster computations.</li> <li>• Improved modularity of the structure by separating the chisquare definition from minimisation routine.</li> <li>• New common interfaces to access PDFs and alphas, in interface/src .</li> <li>• Improved handling of PDF parametrisation, in src/pdf_param.f .</li> <li>• Centralised passing of the constants to EW module via ewparam.txt card.</li> <li>• New implementation for scale variation for APPLGRID and FASTNLO via steering.txt card</li> </ul>
herafitter-0.1.0	15.09.2011	<ul style="list-style-type: none"> <li>• Initial release</li> </ul>