

	Highlight news: CompHEP is in the top rating list on The OpenScience Project
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CompHEP: a package for evaluation of Feynman diagrams, integration over multi-particle phase space and event generation (supported in part by RFBR grants 96-02-19773-a, 99-02-04011-HHMO_a, 01-02-16710-a, 04-02-17448-a).

CompHEP Collaboration

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ABSTRACT

At present time when a new generation of TeV energy colliders is beginning to operate one needs to calculate cross sections for a great number of various reactions. The CompHEP package was created for calculation of multiparticle final states in collision and decay processes. The main idea in CompHEP was to enable one to go directly from the Lagrangian to the cross sections and distributions effectively, with the high level of automation.

While ortodox event generators are software libraries (see [Event generator](#)) of various matrix elements, CompHEP starts from the level of Feynman rules for a gauge model Lagrangian and calculates symbolically the matrix element for any process defined by a user. In this sense CompHEP is a “generator of generators” (or, following the abovementioned reference, a “meta-generator”). The Feynman rules for a gauge model Lagrangian in the format of CompHEP model files can be generated by [LanHEP](#).

News

- 07/10/2014 CompHEP source is available without registration and login through the [link](#).
- 09/12/2013 Available CompHEP v4.5.2rc is the latest stable release.
- 01/02/2013 Available CompHEP v4.5.2rc11 as the latest which fixes all of the reported problems.
- 31/12/2010 Available CompHEP v4.5.1 as a RPM package for CentOS and Fedora.
- 16/03/2009 New official version of CompHEP (4.5.1) is available. It is a bug-fixed version.
- 05/02/2009 New official version of CompHEP (4.5.0) is available.
- 19/08/2008 [42 of the Best Free Linux Scientific Software](#). CompHEP is on the first place in Physics category.
- 13/06/2008 Users are invited to place an information about models in CompHEP format at [users model library](#).
- 17/05/2008 Current [HEP allocations](#) for Cray XT3 Jaguar, National Center for Computational Sciences. “Monte Carlo Simulation and Reconstruction of CompHEP—Produced Hadronic

Backgrounds to the Higgs Boson Diphoton Decay in Weak-Boson Fusion Production Mode".

[Project](#) by Harvey Newman, Caltech.

- 13/03/2008 New developments described in the talk by E.Boos at [Monte Carlo Tools for Beyond the Standard Model Physics](#) (CERN, March 11-12). [Slides](#).
- 24/02/2007 Update of the section [Tutorials](#).
- 20/01/2007 New section opened on the site for [community contributions](#).
- 14/11/2006 Two new versions of CompHEP-PYTHIA interface (cpyth-1.2.7 and cpyth-2.0.4) are available. Sources can be taken from the "Downloads" page.
- 13/09/2006 A new version of CompHEP-PYTHIA interface and a new interface CompHEP-HERWIG has been released. Sources can be taken from the "Downloads" page.
- 26/07/2006 Status talk on CompHEP at MC4LHC (CERN, July 17-26, 2006) ([conference homepage](#), [slides](#)) by L.Dudko
- 01/07/2006 Talk on new physics with CompHEP by M.Dubinin at [Tools for SUSY and the New Physics](#) (LAPP, 26-28 June 2006). [Slides](#)
- 13/11/2005 CompHEP is one of the major achievements of Russian Academy of Sciences in 2004. See [2004 Annual report of RAS](#) or [local copy](#).
- 16/08/2005 [Bug tracking](#) system added.
- 10/07/2005 Instructions for compiling CompHEP under Mac OS X added (special thanks to Prof. M.Peskin). See [documentation](#).
- 08/07/2005 **user corner** opened for comments and discussions.
- 03/07/2005 New wiki based web-site was deployed for the project. All users are invited to make new registration.

Read [old news](#).

Authors of publications containing results obtained by means of CompHEP are requested to include the references

- E.Boos et al, [CompHEP Collaboration], CompHEP 4.4: Automatic computations from Lagrangians to events, Nucl. Instrum. Meth. A534 (2004) 250 ([arXiv:hep-ph/0403113](#)).
- A.Pukhov et al, CompHEP - a package for evaluation of Feynman diagrams and integration over multi-particle phase space. User's manual for version 3.3, INP MSU report 98-41/542 ([arXiv:hep-ph/9908288](#))
- Home page: <http://comphep.sinp.msu.ru>

If you are using CompHEP-PYTHIA interface (cpyth), please cite:

- A.S. Belyaev et al, CompHEP - PYTHIA interface: integrated package for the collision events generation based on exact matrix elements, in: Advanced computing and analysis techniques in physics research (Proc. of ACAT'2000, Fermilab, 16-20 October 2000), p.211 ([arXiv:hep-ph/0101232](#))

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