



EUROfusion Standard Software

2nd E-TASC General Meeting | Garching | Feb 9-13, 2026

Frank Jenko

Head of the DSO & Co-Chair of the E-TASC Scientific Board



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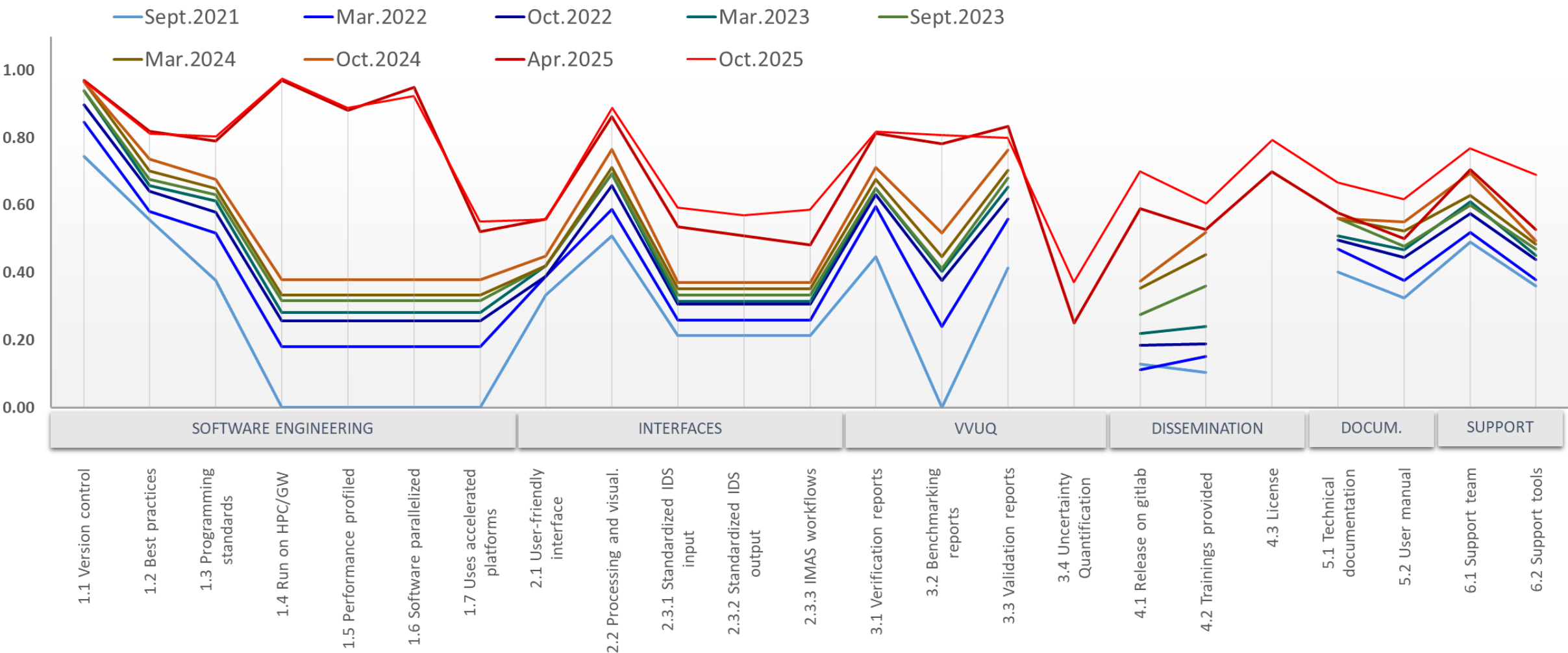
EUROfusion standard software will be developed with a very rigorous, consistent quality assurance process that is common across the E-TASC initiative; it is designed to benefit a wide range of users across EUROfusion, well beyond the team of code developers, and will adhere to the following guidelines and criteria:

- Free availability (within EUROfusion) of an up-to-date release version of the source code used for production runs
- Good software engineering practices (version control, regression/unit testing, shared development rules etc.)
- High-quality code documentation via user manuals and reference publications (including, in particular, a detailed description of the underlying model)
- Excellent support of users, co-developers, and support staff within EUROfusion (via contact person, mailing list, issue tracker, and the like)
- Specific plans for code verification and validation (involving a third party), in particular within EUROfusion, including aspects of uncertainty quantification
- User-friendly, intuitive interfaces and visualisation/post-processing tools, including interfaces to the IMAS Data Dictionary (where applicable)
- Specific plans for code dissemination and user training within EUROfusion

Progress towards EUROfusion Standard Software



Quantified progress of TSVV codes towards EUROfusion Standard Software



The quality assurance framework for EUROfusion Standard Software (endorsed by the E-TASC SB on March 12, 2025)
<https://idm.euro-fusion.org/?uid=2Q72WQ&version=v2.2>

GENE/GENE-X user training and tutorial

January 12-16, 2026



- User training event as part of **code dissemination**
- **Hybrid** format:
on-site + Zoom
- Mixed **tutorial** and **hands-on** sessions
- **Few prerequisites:**
Unix + (some) Python
- **Participants:**
~30 in-person
~50-100 remote

Registration has been closed because of the high number of participants.

GENE/GENE-X user training and tutorial

Focus on tutorial and hands-on sessions



Tutorials

Monday, January 12, 2026	Tuesday, January 13, 2026	Wednesday, January 14, 2026	Thursday, January 15, 2026	Friday, January 16, 2026
	9:00 AM Setting up GENE simulations - linear, nonlinear, parameter scans, etc - Gabriele Merlo (IPP) Tobias Goerler (IPP)	9:00 AM Welcome & Introduction	9:00 AM Overview of GENE-X postprocessing tools	9:00 AM GENE-X equilibrium and data preprocessing
	9:45 AM Post-processing GENE generated files - Tobias Goerler (IPP) Gabriele Merlo (IPP)	9:30 AM Introduction to GENE-X for users	10:00 AM How to install the Torx library	10:00 AM Hands on: bring your own case to preprocess
	10:30 AM Coffee Break	10:30 AM Coffee break	10:30 AM Coffee break	10:30 AM Coffee break
	11:00 AM Hands-On Session II: Starting a number of GENE flux-tube simulations	11:00 AM Installing the code: first steps	11:00 AM Hands on: installation of Torx and first steps	11:00 AM Hands on: bring your own case to preprocess
	12:00 PM Lunch break	12:00 PM Lunch break	12:00 PM Lunch break	12:00 PM Lunch break
1:00 PM Welcome - Frank Jenko (MPPL)				
1:10 PM Introduction to GENE - GENE Family, Physics Models used in GENE - Tobias Goerler (IPP)	1:30 PM Hands-On Session III: Flux-tube simulations and analysis	1:30 PM Parameters required for a GENE-X simulation	1:30 PM Optimize simulation performance	1:30 PM Hands on: setup your own case
1:55 PM Break				
2:00 PM GENE - Numerical Methods - Tobias Goerler (IPP)	2:30 PM Coffee break	2:30 PM Coffee break	2:15 PM Simulation pitfalls	2:30 PM Break
2:45 PM Coffee break				2:45 PM Reserved for requests / Closing
3:15 PM GENE - optimization approaches and pitfalls (CPU/GPU) - Gabriele Merlo (IPP)	3:00 PM Hands-On Session IV: Global GENE simulations	3:00 PM Hands on: installation and first steps	3:00 PM Coffee break	
4:00 PM Installing GENE - basic introduction - Tobias Goerler (IPP)		4:00 PM Hands on: setting up a simulation test case	3:30 PM Hands on: Creating your own postprocessing notebooks with Torx	
4:30 PM Hands-On Session I: Installing GENE / Running regression tests	4:30 PM Final Q&A, closing and contingency			
5:15 PM Q&A and requests for the next day				
		6:30 PM Workshop Dinner		

Hands-on

Dinner

GENE/GENE-X user training and tutorial

Training material for users created

GENE-X wiki

Technical documentation

Advanced build options

Build GENE X on machine without internet

GENE X Bash Functions

Known issues and fixes

SLURM gres option

Setting up CI/CD

User guide

Automatic build with Confix

First steps


Quickstart instructions

Running on a cluster

Testing GENE-X

Guide to simulation parameters

Welcome to the GENE-X Wiki!



"What and what not"

The Wiki provides advanced documentation that is **not** about the source code itself. This includes specific information, quality-of-life features, machine settings, and many more..

Hint

Alternative pages with information are

- The [Gitlab pages](#) that provide code-related documentation.
- The [README](#) that provides minimum-required information to do something with the code.

GENE-X community

Please consult our webpage contact form if any questions arise at any point.

We encourage you to subscribe to the [genex-users](#) mailing list which provides a platform to ask questions and to get the most recent code information.

If you would like to be part of our [Slack channel](#), please consult the

Page contents:

Welcome to the GENE-X Wiki!

"What and what not"

GENE-X community

Quick links

FAQ

Table of contents

Recordings

Users Wiki

2 Installation.mp4 - VLC media player

Media Playback Audio Video Subtitle Tools View Help

← → ↺

https://vdiupp.mpg.de/portal/webclient/#/desktop

Menu

ulblp@viper02:~/genex

File Edit View Search Terminal Tabs Help

ulblp@viper02:~/genex

ulblp@viper02:~/genex

ulblp@viper02:~/genex

```

[ulblp@viper02 genex]$ ls -l
total 84
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 bash
drwxr-xr-x  5 ulblp t3tok 4096 14. Jan 11:10 cicc
drwxr-xr-x  3 ulblp t3tok 4096 14. Jan 11:10 cmake
-rw-r--r--  1 ulblp t3tok 26636 14. Jan 11:10 CMakeLists.txt
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 confix
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 coverage
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 doc
drwxr-xr-x  3 ulblp t3tok 4096 14. Jan 11:10 external
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 img
-rw-r--r--  1 ulblp t3tok 16726 14. Jan 11:10 LICENSE
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 parallax
-rw-r--r--  1 ulblp t3tok 15203 14. Jan 11:10 README.md
drwxr-xr-x  2 ulblp t3tok 4096 14. Jan 11:10 reax
drwxr-xr-x 24 ulblp t3tok 4096 14. Jan 11:10 src
drwxr-xr-x  4 ulblp t3tok 4096 14. Jan 11:10 tools
[ulblp@viper02 genex]$

```

Automatic build with ...

ulblp@viper02:~/genex

08:16

OmniSia Horizon — Mozilla Firefox

Zoom Workplace

tutorial — Dolphin

zoom

BptGENE-X user training: hands-on

57:52

this is what you should see then. So you have basically the same structure as before,

GENE-X released as Open Source code



genexcode.org

- **GENE-X is FOSS now**
(free and open source software)
- **License is MPL2.0**
(similar to LGPLv3 – compromise between permissive and restrictive)
- Code can be downloaded and built immediately: **frictionless access** for users and training
- **Helpdesk / contact formulary** available on website
- **Slack channel / mailing list** available for users