



TSVV objectives for 2026/27 (changes compared to 2021-25)

December 10, 2024

Frank Jenko

On behalf of the E-TASC Scientific Board



This work has been carried out within the framework of the EUROfusion Consortium, funded by the European Union via the Euratom Research and Training Programme (Grant Agreement No 101052200 — EUROfusion). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.



Main tasks:

- **Code development** (in collaboration with ACHs)
- **Code validation & applications** (with WPs)
- **Code dissemination** (including user training and support)
Easy availability (within EUROfusion) of an up-to-date release version of the source code for production runs

Prerequisites for code support:

- **Appropriate data environment (including IMAS interfaces)**
- **Open access for the EUROfusion community**

Implications:

- Existing TSVVs are expected to evolve and possibly merge
- New pilot TSVVs in fusion engineering and technology
- Potential adjustments in ACH responsibilities



The PSD proposal for additional funding aimed at targeted applications of TSVV codes to address WP needs was met with great enthusiasm. The implementation will follow a fast-track approach with light management to enable project setup by 2025:

1. WP TFLs/PLs will define their modeling needs and specify objectives (Sara created a SharePoint document).
2. They will reach out to PIs with ready-to-apply codes for clarifications and adjustments based on WP requirements.
3. Once a suitable code is identified, projects and training opportunities will be advertised via WPTE and TSVV community channels.
4. WP PLs and PIs will jointly select candidates from interested trainees and define a work plan.
5. Training will be scheduled flexibly, based on the availability of trainees and trainers.
6. WPs will provide support throughout the training via RTCs or sub-project leaders.
7. Funding will be allocated through the new PSD scheme.



- Increased focus on the physics of future machines (ITER, DEMO, optimized stellarators)
 - Core transport: high beta, energetic particles, impurities
 - Disruptions and REs
 - Edge physics: L-H transition, no/small ELM regimes (incl. RMPs)
 - Exhaust: divertor solutions, PWI, radiation
- Development of predictive capabilities (incl. VVUQ)
- Development of reduced models (for flight simulators)
- Extension to fusion engineering (see TSVV-14)
- Interface to computational research on fusion materials within EUROfusion



- Thrusts: Monthly meetings (JourFixe, including communication and recent news)
- Adequate resources for travel support; information on available funds is not (easily) accessible
- Communication platform: Mattermost
- Explore pathways to supporting an HPC/AI Summer School (see MIT, W&M), possibly in collaboration with European HPC centers, CERN, UKAEA, or FuseNet
- Next E-TASC General Meeting in 2025 (breakout sessions!)