

# Thrust 1 Meeting N01 Meeting Minutes

**Meeting date/purpose:** 09/07/2021:

**Attendees:** N. Vianello (NV), S. Wiesen (SW), E. Serre (ES), C. Roch (CR), T. Goerler (TG), P. Tamain (PT), D. Told (DT), F Jenko (FJ)

**Quorum:** M. Wischmeier

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**Meeting commencement time:** 14:30 CEST

## ▼ Meeting structure

1. N. Vianello: WPTE Inputs and high level modelling request
2. T. Goerler: TSVV1 Status
3. P. Tamain: TSVV3 Status
4. D. Told: TSVV4 Status
5. General discussion

## ▼ N. Vianello: WPTE Inputs for Thrust 1 TSVVs

**N. Vianello** presented an overview of the WPTE research topics and their relation with the different TSVVs. For a selected series of them provide the main modelling requests/needs highlighting high level modelling needs.

## ▼ Discussion

- **SW:**
  - We need a timeline for the validation process in order to know which of the physical question poses may be handle first
  - Validation exercise could be promoted also through theory-driven experimental proposal with full set of parameters/diagnostic needed for validation. NV commented this should happen already in the forthcoming call for proposal and interaction with relevant SCs should happen
  - Could we foreseen an agile approach for certain code feature with sprint-like approach in short time frame? This will need f.e. already available dataset to be matched
- **DT:**
  - TSVV4 is still in developing mode and validation exercise is foreseen for later stage
  - Which will be according to WPTE the #1 issue to be addressed for?
- **TG:**

- Priorities coming from RTs are an important input even though they should be prioritize. Availability of in depth validated data is mandatory together with local diagnostic expertise to interact with
- **CR**
  - Which of these topic can be addressed before the others? This is in support of SW question
- **PT:**
  - Huge amount of points raised by WPTE but there is the need to digest and provide a timeline for their capabilities to drive eventually the validation exercise and the focus

#### ▼ T. Goerler

**TG** presente the activities started within TSVV1, including legacy from the Pilot phases. Several validation exercises started as for example investigation in EDA Ar-seeding discharges (K. Stimmel et al to be submitted to PoP (2021)) with the observation of turbulence both at ion and electron scales . Afterwards a series of activities for all the listed deliverables were presented as available from the Slides. To be noted the 2/3 day workshop anticipated for Oct/Nov this year. **CR** asked to provide a feedback on which of the questions raised by WPTE can be addressed first

#### ▼ P. Tamain

2021-2023: develop and test technical solutions to implement new physical capabilities and solve critical points: realistic geometry, neutrals and impurities and code acceleration

2024-2025: assessment and selection of the most effective solutions

Upcoming milestones:

- Full-f gyro-fluid module with collisional closure
- reduced turbulence models in SOLEDGE3X by 12/2021
- Large scale simulations: Request to WPTE to provide validation pulses, L-mode low recycling in ASDEX or WEST inspired from TCVX21
- Fluid neutrals 12/2021
- Kinetic neutrals 12/2022 --> Request to WPTE validation pulses through density regimes in TCV
- Multiple light ion species in turbulence code 12/2012. How this can be validated? D-T?
- HDC available by 12/2021 with fluid neutrals. Is there any short-term interest for WPTE experiments
- Promote interaction TSVV4/TSVV3 for the neutrals as well as sheath physics.

#### ▼ D. Told

Three codes developed:

- GENE-X: FCI approach. Low-k gyrokinetic for the moment
- PCILS: still in slab geometry with sheath boundary condition. Approach derived from ORB5
- GyselaX: extending the capabilities of existing code to include code

2 Focus groups:

- Solver for nonlinear Poisson solver
- Sheath boundary conditions fist meeting 13th @ 15.00. PI of TSVV3 invited

No support by ACH obtained for PCILS code

Cheap to run cases for validation given the strong development phase

CR: asked about possible commonality in the code development but DT answered that they are actually too different to find benefit from each other concerning the numerical approach

Actions	Date
PI to provide feedback on which of the question raised by WPTE can be addressed first	To be defined
PI and SCs discuss possible experimental proposals devoted to validation	WPTE Call 2021

**Meeting conclusion:** 16:45