"Advances in tokamak integrated modelling"

March 20-24, 2023

https://www.differ.nl/atim

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The main goals / themes of the workshop

- Automated simulation and analysis pipelines for Uncertainty Quantification (UQ) and large-scale model validation

    ○ Presentation and training of dUQtools from NLeSC *training and using*

    ○ "Canonical integrated modelling UQ" and validation metrics *discussion*

    ○ Large-scale validation progress *presentation + discussion*

    ○ Cloud deployment *discussion*

- HFPS Simulation workflow methodology upgrades, performance optimization, and model coupling. See table on next page

- Software sustainability challenges regarding legacy overhead, containerization/cloud-deployment, and open source/open data: HFPS, QuaLiKiz, EX2GK, etc

- HFPS developments: workflow and physics upgrades

Agenda. Note that note all possible activities are listed. Self-organization in parallel sessions / sprints is also expected :) . Names in parenthesis are presenters, or discussion moderators/organizers

3 rooms/themes:
A: HFPS physics (Clarisse theme organizer)
B: IMAS/HFPS numerics + workflow (Jonathan +Francis theme organizer)
C: Uncertainty Quantification + large scale validation (Aaron theme organizer)

General sessions, accessible with zoom to all TSVV11 team here https://differ-nl.zoom.us/j/3488229182?pwd=L1pBd29wdVlZRkxZVGkxL3NWU1Jldz09#success

Mon	Tue	Wed	Thur	Fri
10:15 early birds welcome by Jonathan ;) **13:00-13:20 DIFFER welcome (Jonathan + Marco)** **13:20 - 13:40 Theme A intro (Clarisse)** **13:40 - 13:00 Theme B intro (Jonathan + FC)** **14:00 - 14:20 Theme C intro (Aaron)** **14:20 - 14:50 Agenda update + round table** **14:50 - 15:20 COFFEE** **15:20 - 16:00 C duqtools demonstration (Victor + Stef)** 16:00-16:45 C - duqtools training (Victor+Stef) 16:45-17:30 C - "canonical UQ" discussion (Aaron) **17:30 - 19:00 DIFFER reception (@DIFFER)**	**9:00 - 09:45: B MUSCLE3 overview, use-cases questions (Lourens)** **10:00** B: MUSCLE3 training/sprint (Maarten) A: FACIT coupling (Francis) **11:00: COFFEE** B: HFPS-HCD working session (Francis) **12:00-12:30 DIFFER tour** **12:30 LUNCH** **13:30** B: ETS/ASTRA/TSVV11 workflow strategy (Francis) **15:00: COFFEE** **15:30** A impurity transport progress/discussion (Clemente) 16:15 C IMAS data access - EX2GK, TRVIEW, WEST, MAST (Clarisse) 16:45 C Large scale validation workflow discussion (Aaron)	**9:00-09:45** B Discussion: views on software sustainability / open-source / CI / builds / reproducibility (UKAEA / NLeSC / ETS / ITER). (FC) **10:00** A: SOL-ped coupling (CB) A: QLKNN edge coupling in TCI (JC - sprint) **11:00: COFFEE** A: AI/ML workflows in int-mod (JC) **12:30 LUNCH** **13:30** Er at separatrix (CB - sprint) HPI2 on GW (FC - sprint) HFPS-HCD working session (Nathan) HFPS container release (Francis) **15:00: COFFEE** **19:00** **Workshop dinner (de Kazerne)**	**09:00-09:45 B: Presentation by Olivier on status of IMAS infrastructure** **10:00** B: dUQ-tools (Python HLI + visualization IDSs) (Victor+Stef) B: IMASPy (Karel+Maarten) A: Ramp-up session (Yann) **11:00: COFFEE** B: HFPS/duqtools on cloud (FC+ Victor+Stef) A: full pulse modelling strategy (Emiliano) **12:30 LUNCH** **13:30** A: MHD coupling (CASTOR/MISHKA) D' model (Patrick) **15:00: COFFEE** **15:30** C Large scale validation workflow (Aaron)	**09:00-12:00 Summary on progress:** **HFPS technical upgrades (FC)** **HFPS physics model upgrade (CB)** **11:00: COFFEE** **Validation workflow (AH)** **Other points (all)**