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| **TSVV or WP** | **Code name** | **Contact person** | **Contact person e-mail** | **Description of tasks required to ACH** | **Manpower estimate in [PMs]** | **ACH category** | **Preferred ACH(s)** | **Criticality 2024** | **Additional comments** |
| *Provide short name of the TSVV or WP* |  | *Provide first & last name* |  | *Provide detailed description of the current status of the code and the task to be performed by the ACH team on improving it. Please note that in order to assess the requested task, technical details of the code are required.* | *Provide a realistic estimate* | *Cat.1 (HPC)*  *Cat.2 (IM)*  *Cat.3 (DM)* | *CIEMAT*  *EPFL*  *MPG*  *IPPLM*  *VTT*  *(more than one ACH can be identified)* | *Criticality for the task to be carried out in 2023 (see text below):*  ***low***  ***medium***  ***high*** | *Any additional information (comments, links, etc.)* |
| TSVV-5 | EIRENE | Dmitriy Borodin | d.borodin@fz-juelich.de | EIRENE is to be IMASified according to the action items agreed during the TSVV-5 code camps with ITER participation in 2021/22. We need to extend the IMASification of EIRENE through SOLPS-ITER (=B2.5-EIRENE) by adding more data from the EIRENE side. For more profound IMASification of EIRENE we need to create new GGD objects covering all the specific cell geometries (3D) available inside EIRENE. Detailed list of subtasks is already discussed with ACH-IPPLM (D.Yadykin), significant amount of work is carried out, however a continuation is clearly necessary to cover all the data types and (in context of various grids). | 9 PM | *Cat.2 (IM)* | *IPPLM* | high | Initial support on IMASification appointed to TSVV-5 looks insufficient |
| TSVV-5 | EIRENE | Dmitriy Borodin | d.borodin@fz-juelich.de | EIRENE is to be IMASified including the natural access to the AMNS data via the IMAS alternative to the EIRENE-associated databases. This means an effort in both directions: EIRENE should be able to use the AMNS data via the IMAS, but also the available valuable datasets should be linked for common use. Also the consistency checks by those 2 alternative ways (which should exist at first in parallel) are necessary. | 3 PM | *Cat.2 (IM)* | *IPPLM* | medium | Initial support on IMASification appointed to TSVV-5 looks insufficient |
| TSVV-5 | EIRENE | Dmitriy Borodin | d.borodin@fz-juelich.de | Algorithmic development: implementation and optimization of improved particle tracking procedures, source estimators and newly developed fluid-kinetic-hybrid schemes for variance reduction in standalone and coupled EIRENE-CFD simulations  • Flexible combination of analogue and non-analogue particle tracing schemes with collision, track-length and next-event estimators in EIRENE-NGM  • Optimisation of TAPENADE (or similar tools) use for algorithmic differentiation including the adaptation for HPC. | 6PM | *Cat.1 (HPC)*  Or  *Cat.3 (DM)* | *MPG*  *VTT* | medium | Much work is to be done on the physics side, however considerable part of the subtask is on the IT side |
| TSVV-5 | EIRENE | Dmitriy Borodin | d.borodin@fz-juelich.de | Continuation of the EIRENE profiling, optimisation of the code structure with a focus on interfaces between the fluid codes and EIRENE, implementation of schemes identified with EIRON. It also important to mimic those developments in extensions to CI, documentation and other code infrastructure. | 6PM | *Cat.1 (HPC)* | *MPG or*  *VTT* | high | The most suitable person would be Huw Leggate (MPG), who has already contributed a lot to the EIRENE development |
| TSVV-5 | EIRENE,  EIRON | Dmitriy Borodin,  Yannick Marandet | [d.borodin@fz-juelich.de](mailto:d.borodin@fz-juelich.de)  [yannick.marandet@univ-amu.fr](mailto:yannick.marandet@univ-amu.fr) | Further development and exploitation of the reduced EIRENE model called EIRON for testing of various domain decomposition and CPU load balancing schemes. Strong focus is to be put on the representative equivalent in EIRON of the full size EIRENE collisional-radiative models (CRMs) including all the data variety and amounts. | 4PM | *Cat.3 (DM)* | *VTT* | High | This should be rather continued by ACH-VTT, which has suggested and developed this useful tool |
| TSVV-5 | EIRENE,  CFD-EIRENE packages incl. SOLPS-ITER | Dmitriy Borodin | [d.borodin@fz-juelich.de](mailto:d.borodin@fz-juelich.de) | Development of the catalogue-structured simulation repository (probably bases on EUDAT) is necessary. The preliminary work was done together with ACH-VTT (requirements formulated and focus-group from TSVV-5 side identified, previous experience summarised). ITER SimDB is supposed to be a very small subset, cross-indexed. | 4 PM | *Cat.2 (IM) or Cat.3 (DM)* | *VTT IPPLM* | high | Some work is done by VTT, but nothing ready at least testing on the TSVV-5 side was produced. |
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ACHs are expected to provide essential expertise and support in computer science, scientific computing, and software engineering for the entire E-TASC initiative and to help develop a suitable portfolio of EUROfusion standard software, which embodies our standards in experimental design and interpretation for the European R&D programme in support of ITER operation, EU-DEMO design, and associated facilities.

**Category 1. High Performance Computing** (scalable algorithms, code parallelization & performance optimization, code refactoring, GPU-enabling etc.)

* ACH-01: **MPG**
* ACH-02: **EPFL**
* ACH-03: **CIEMAT**

**Category 2. Integrated Modelling and Control** (code adaptation to IMAS, IMAS framework development, code integration etc.)

* ACH-04: **IPPLM**

**Category 3. Data management** (open access, data management, data analysis tools, aspects of AI and VVUQ etc.)

* ACH-05: **VTT**

**Criticality 2024** shall refer to impact of proposed task to the overall time planning for development of your code, please indicate

* **high** – only if delay of proposed task will delay other work on your code;
* **medium** – if the task can be done in 2025 and will not slow down the development of the code in 2024;
* **low** – if implementation can wait until after 2025.