



EUROfusion

PROGRAMME MANAGER OFFICE

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To the Members of the General Assembly

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Dear colleagues,

Subject: Call for Participation in the 2015-2016 MST1 Experiments and Tasks

In 2015-2016, a series of experimental campaigns will be performed in the frame of the EUROfusion consortium Work package MST1, on the following two European divertor tokamaks: ASDEX-Upgrade and TCV. Note that this call covers participation in MST1 experiments run in 2015 and early 2016 as well as the associated analysis and modelling work until November 2016 (up to FEC-IAEA 2016).

ASDEX Upgrade with its all tungsten plasma facing components plays an important role as a medium sized counterpart to JET specifically for experimental investigations which rely on all metal plasma facing components. In 2015, AUG experiments will benefit from the installation of two new three-strap ICRF antennas that will allow a more efficient use of ICRF by minimizing the source of W through the reduction of the rectified RF sheath. It is expected that the MST1-AUG campaign will start on 8 June 2015 and will last until the 29 April 2016 (with no operation in August).

TCV which allows investigations on of variably-shaped plasmas and of the snowflake divertor is undergoing a major upgrade in heating power. During the year 2015, a new NBI system will be installed and commissioned. Nevertheless, the guaranteed heating power during the 2015 experimental campaign will be provided only by the ECRH system (2.5 MW available). During the 2016 part of the experimental campaign, it is foreseen that the new NBI capability will become available (1 MW) as well as extra ECRH power (up to 4MW total by the end of 2016). It is expected that the MST1-TCV campaign will start on the 5 October 2015 and will last until 29 April 2016.

The main objectives of the 2015-2016 programme are to:

- Understand the effect of density versus collisionality and operation with an all metal wall for ELM mitigation/suppression with pellets and resonant magnetic perturbations.
- Increase the efficiency and understanding of methods for disruption mitigation or avoidance and runaway electrons control.
- Increase the operational margin for ITER and DEMO relevant scenarios with high P_{sep}/R and tolerable target heat loads.





Following the General Planning Meeting (Lausanne, 19-23 January 2015), organised for the first time jointly for the work packages WP JET1 and WP MST1, a list of MST1 experiments and tasks has been prepared by the Task Force Leaders using as a basis the proposals submitted to the MST1 wiki pages and taking into account the input given by the Task Force members at the GPM or special MST1 meetings. The MST1-AUG experiments, MST1-TCV experiments and MST1 tasks are listed in Annex 2 together with their deliverables, number of pulses (relevant for experiments only) and contact MST1 Task Force Leaders.

Synergies between the MST1 experiments on TCV and AUG, as well as JET are clearly flagged in Annex 2. MST1-AUG and MST1-TCV experiments with the same overall goal have the same numbering, but may have deliveries adapted to each device. It is foreseen that common scientific teams will be built for these experiments.

In Annex 2, additionally to the experiments list, two types of tasks are also listed:

- The Coordinating Tasks: they aim at coordinating modelling activities throughout the different experiments on AUG and TCV. For these tasks only task coordinators are required. These task coordinators are also expected to interact with their JET counterparts (note that for the WPJET1, this responsibility is fulfilled by JET task force leaders/deputy leaders).
- The Scientific Tasks: they aim at preparing the future MST1-MAST programme and at maximising the interaction with JET on key topics (disruption prediction).

For both machines, the MST1-AUG and MST1-TCV experimental programmes will be performed in parallel with the local domestic programmes. The experimental schedules (Annex 3) have been constructed in close collaboration with the operators and contains about 20% contingency. The MST1-AUG experimental program is currently based on 48 MST1 days (28 in 2015 and 20 in 2016; assuming 16 pulses/day). The MST1-TCV experimental program is currently based on 45 days (20 in 2015 and 25 in 2016, assuming 26 pulses /day).

In this call we ask you to propose scientists with specific competencies in order for MST1 experiments to be successfully executed, analysed and modelled (see Annex 4 – section I). For this work, EUROfusion will contribute to the manpower and mission cost.

In parallel, we ask you to provide scientists for:

- Maintenance and commissioning of AUG / TCV diagnostics issued from collaborations between external research units and IPP / EPFL, respectively.
- Operational support of a few AUG and TCV systems which cannot be provided by IPP and EPFL staff, respectively, and which are needed for the MST1 programme.

In those cases, EUROfusion will contribute to missions only. The list of diagnostics and systems eligible for missions can be found in Annex4-section II.

With the present letter, **we invite you to submit proposals for participation in the MST1 programme**. Proposals should be made by using the Annex 5 and 6 excel forms. Note that Annex 5 contains three worksheets: “general information”, “AUG proposed participation” and “TCV proposed participation”. Filling the “general information” worksheet is self-explanatory.

Guidelines are provided both in Annex 2 and 4 for filling the “AUG proposed participation” and “TCV proposed participation” ones.

Specifically, you are invited to:

- **Using the Annex 5 Excel form:**
 - Make available, at the AUG-site / TCV site (referred to as on-site work in Annex 5) and at your home laboratory (referred to as off-site work in Annex 5), staff with the appropriate competencies (see Annex 4 – section I) for the implementation of MST1 experiments and tasks.
 - Request mission days for people able to provide operational support for the systems listed (see Annex 4 - section II.1) and maintenance/commissioning work on the diagnostics listed in (Annex 4 - section II.2).
 - Propose Scientific and Task Coordinators for the experiments and tasks of this call (see Annex 2).
 - Provide names of MST1 administrative and scientific contact persons (worksheet “general information”) which are key persons to ensure the interaction between the research units, the 3rd parties and the PMU.

When proposing participation to an experiment, it is highly recommended that staff propose stay(s) on the AUG or TCV sites, covering more than the single week when the experiment is to be performed. This is especially true for scientific coordinators. The overall commitment to the programme needs to be high enough to allow a significant contribution.

- **Using Annex 6 Excel form:** Provide the relevant costing information for the staff proposed

The selection process will be performed as follow:

- **No later than Friday 20 March 2015:** The MST1 administrative and scientific contact persons submit by e-mail (to MST1-PARTICIPATION@euro-fusion.org) responses to this call (Annex 5 and 6). The responses will be managed by Dr Marie-Line Mayoral and Dr Laura Barrera Orte, who will ensure the distribution of your input to the MST1 Task Force Leaders and to the relevant staff in the Programme Management Unit (PMU) so that the staff selection / mission allocation can be performed.
- **By Friday 24 April 2015:** Dr Marie-Line Mayoral and Dr Laura Barrera Orte send back to the MST1 contact persons, Annex 5 including the results of the selection and when necessary request for new visits dates
- **By Wednesday 6 May 2015:** The MST1 administrative and scientific contact persons make comments / provide if necessary new visit dates by email to MST1-PARTICIPATION@euro-fusion.org

The PMU will send an official letter to confirm the accepted visit dates on the AUG / TCV sites. As usual, participants in the MST1 work programme are advised not to make commitments on travel or accommodation related to their on-site work until they have received confirmation of their involvement and the final experimental schedule from the PMU. Should you have any questions please contact the persons in the list of contacts (Annex 7).



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I look forward to receiving your proposals for participation, which I hope will continue the strong involvement of your research unit in the joint scientific exploitation of the AUG and TCV Facilities under the frame of the MST1 work package

Yours sincerely,

Tony Donné
EUROfusion Consortium
Programme Manager

Encs.

- 1) Annex 1: Operational Boundary conditions for the MST1-AUG and MST1-TCV experimental campaigns
- 2) Annex 2: List of MST1 experiments and tasks with their deliverables, number of shots and contact TFL
- 3) Annex 3: Experimental schedule for the MST1-AUG / MST1-TCV campaigns
- 4) Annex 4: List of Competencies needed during MST1 Experimental Campaigns and List of diagnostics & systems eligible for mission support
- 5) Annex 5: Form to propose participation in the MST1 programme (formally known as Form A)
- 6) Annex 6: Form to enter costing statement of proposed staff
- 7) Annex 7: List of contacts persons for WP MST1 (general enquiries, list of contact Task Force leaders for each headlines and each tasks)

cc: Research Unit Administrative and Scientific Contact Persons, WP JET1 and WP MST1 Task Force Leaders and deputy leaders, D. Campbell, EUROfusion Programme Management Unit, JET Exploitation Unit, T. Jones, A. Kallenbach, S. Coda, IPH Project Leaders

