

Preamble to the scientific program of the 2014 Medium Size Tokamak Campaign

The scientific program of the 2014 Medium Size Tokamak Campaign is based on:

- the roadmap to fusion,
- the outcome of the 2014 MST call for experimental proposals,
- its analysis during the 2014 MST1 General Planning Meeting held in Beilngries from 21-24 October 2014,
- the operational constraints suggested by the operator, and
- the final synthesis delivered by the Task Force Leaders.

The 2014 MST1 campaign MST1-AUG14, will be organized in 40 experiments to be executed in ASDEX Upgrade and 10 tasks (see Annex 2). Each of the experiments - identified by a unique ID - is univocally attached to one of the headlines of the roadmap and is based on the proposals submitted to the MST1 call for proposal ended on October 2nd. For the call for manning two MST1 task force leaders will serve as first point of contact for each of the experiments or tasks (see Annex 6).

Experiments for the 2014 MST1 program:

The proposals, which a specific experiment is based on, are reported in the list next to each experiment and are marked either as “directly related” or as “supportive” proposals. The former (“directly related”) are the proposals more closely related to the experiments. Their original deliverables and scientific plan will have the major influence on the experiment. The latter (“supportive”) are indirectly linked to the experiments and their original deliverables are not considered to be first priority for the experiment.

Each experiment contains a list of key high level deliverables linked to the roadmap headlines and will be executed and analysed by a scientific team assembled following this call for participation. The scientific teams in conjunction with the task force leaders will define a more detailed set of deliverables guided by the directly related and supportive proposals, to ensure the strongest output from the limited experimental time. For the sake of an easier scientific management of the experiment, whenever necessary the experiment will be organized in thrusts. Thrusts will be defined by the Task Force Leader together with the scientific coordinator. Thrusts share the global goals of the experiment, but may aim at achieving them with specific tools. Thrusts may therefore be identified as “sub-experiments”.

Links between the main experiments are indicated, where a close collaboration between the individual scientific teams would be of mutual benefit.

The campaign includes, additionally to experimental activity, the modelling activities. Modellers should apply for resources. They will need to link their modelling work – code development,

validation, benchmarking, interpretation, ...- to one or more of the experiments, respecting its deliverables and if they wish, to the modelling coordinating related tasks (see below and Annex 2).

Tasks for the 2014 MST1 program:

There are two types of tasks:

1. Those concerning coordination of modelling activities on specific areas. Scientists participating in these tasks are expected to coordinate and support the modelling in specific areas for the MST1 scientific program, to verify that the relevant data are taken during the experiments to allow modelling of the data with codes and to help liaising with modelling activities in the EU.
2. Those dealing with specific activity in support of the MST1 priorities to be carried out by means of specific data analysis work in MAST and TCV (also in preparation for future exploitation of these devices within the MST1 Task Force). As for the AUG experimental proposals, scientists from all the Research Units are invited to apply for these tasks.

A global list of competencies (Annex 5) is attached to the call. The participants are requested to indicate the experiment(s) and/or tasks they are interested in (as part of the scientific team or as scientific coordinator), and the competencies they intend to offer - necessarily selecting them from the list (Annex 4a). All competencies (except diagnostics related ones) refer to both experimental and modelling activity. The participants are also encouraged to include one or two key references to their work, which best illustrate these competencies.

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