Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Overview of the EUROfusion Medium Size Tokamak scientific program PIERO MARTIN, Consorzio RFX and University of Padova, Italy, STEFANO CODA, Ecole Polytechnique Federale de Lausanne, Swiss Plasma Center, Switzerland, THOMAS EICH, Max-Planck-Institut fuer Plasmaphysik, Garching, Germany, ANTTI HAKOLA, VTT Technical Research Centre of Finland, HENDRIK MEYER, CCFE, Culham Science Centre, Abingdon, UK, EUROFUSION MST1 TEAM[1], AUG TEAM, MAST-U TEAM, TCV TEAM — The EUROfusion MST (Medium Size Tokamaks) task force is in charge of the European science programme in the ASDEX Upgrade, TCV and MAST-U tokamaks. This paper will present an overview of the main results obtained in the 2015/16 campaign in AUG and TCV and the future plans. We will discuss, among others, successful disruption and runaway electron control experiments with MGI and 3D fields, the achievement of full ELM suppression with RMP accompanied by the understanding of plasma response and the heat load pattern study, the exploration of regimes with impurity seeding at high P/R with 85 % radiation fraction and good confinement, the study of tungsten fuzz, where W samples with pre-formed nanostructures were exposed to H-mode Helium plasmas and the investigation on advanced divertor concepts. A survey of MHD limits and of MHD control in standard and high-beta regimes will be presented. The results from the AUG campaign dedicated to He plasmas in support of ITER initial operation will also be presented, as well as analysis of old MAST data that reveal interesting features in the filamentary transport.

[1]See http://www.euro-fusionscipub.org/mst1

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Date submitted: 18 Jul 2016 Electronic form version 1.4