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Overview of the EUROfusion Medium Size Tokamak scientific program MATTHIAS BERNERT, Max Planck Institute for Plasma Physics, Garching, Germany, TOMMASO BOLZONELLA, Consorzio RFX, Padova, Italy, STEFANO CODA, SPC-EPFL, Lausanne, Switzerland, ANTTI HAKOLA, VTT Technical Research Centre of Finland Ltd., Espoo, Finland, HENDRIK MEYER, CCFE, Culham Science Centre, Abingdon, UK, THE TCV TEAM, THE MAST-U TEAM, THE ASDEX UPGRADE TEAM, THE EUROFUSION MST1 TEAM¹ — Under the EUROfusion MST1 program, coordinated experiments are conducted at three European medium sized tokamaks (ASDEX Upgrade, TCV and MAST-U). It complements the JET program for preparing a safe and efficient operation for ITER and DEMO. Work under MST1 benefits from cross-machine comparisons but also makes use of the unique capabilities of each device. For the 2017/2018 campaign 25 topic areas were defined targeting three main objectives: 1) Development towards an edge and wall compatible H-mode scenario with small or no ELMs. 2) Investigation of disruptions in order to achieve better predictions and improve avoidance or mitigation schemes. 3) Exploring conventional and alternative divertor configurations for future high P/R scenarios. This contribution will give an overview of the work done under MST1 exemplified by the highlight results for each top objective from the last campaigns, such as evaluation of natural small ELM scenarios, runaway mitigation and control, assessment of detachment in alternative divertor configurations and highly radiative scenarios.

¹See author list of H. Meyer et al 2017 Nucl. Fusion 57 102014

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