**EUROfusion Diagnostic Enhancements in support of ITER research plan priorities**

J. Figueiredo1,2, M. Zlobinski3, E. Gauthier4, B. Kurzan5, R. Villari6, S. Almaviva7 and JET contributors\*

*1 EUROfusion Programme Management Unit, Garching, Germany*

*2 Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal*

*3 Institute of Energy and Climate Research – Plasma Physics, Forschungszentrum Jülich GmbH, Jülich, Germany*

*4 CEA, Institute for Research on Fusion by Magnetic confinement, Saint-Paul-lès-Durance, France*

*5 Max-Planck-Institut für Plasmaphysik, Boltzmannstr. 2, 85 748 Garching, Germany*

*6 ENEA, FSN Department, Via E. Fermi 45, 00044 Frascati, Rome, Italy*

*7 ENEA, Italian National Agency for New Technologies, Environment and Sustainable Economic Development, Via Enrico Fermi, 45, Frascati 00040, Italy*

EUROfusion fusion devices, JET, ASDEX Upgrade and WEST have technical characteristics that make them a group of unique devices worldwide to address specific ITER research plan priorities. A set of diagnostic enhancements is in different stages of progress, from design to installation and commissioning, covering the implementation of a state of the art Laser Induced Desorption (LID) diagnostic and a Laser Induced Breakdown Spectroscopy (LIBS) at JET, a divertor Thomson Scattering system for the new upper divertor at ASDEX Upgrade and a vertical endoscope for a fast IR camera at WEST. These efforts specifically focus on tritium retention monitoring using laser induced desorption combined with mass spectrometry, on demonstrating LIBS mounted on a remote handling arm as a technique for T retention quantitative measurement in Be codeposits on main wall, on providing measurements expected to have a high impact on the interpretation of the physics of power and particle exhaust and at measuring the ELMs and disruption loads on the divertor target plate. An overview of the scope of these projects is presented.

\*See the author list of ‘Overview of JET results for optimising ITER operation’ by J. Mailloux et al. to be published in Nuclear Fusion Special issue: Overview and Summary Papers from the 28th Fusion Energy Conference (Nice, France, 10-15 May 2021)”

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