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State of the art of neutron diagnostics for JET DT plasmas and prospects for ITER

D. Rigamonti[1,7], L. Giacomelli[1,7], G. Gorini[2,1], A. Muraro,[1] M. Nocente[2,1], E. Perelli Cippo[1], M. Rebai[1], M. Tardocchi[1], G. Ericsson[3], S. Conroy[3,7], J. Eriksson[3], A. Hjalmarsson[3], F. Belli[4], D. Marocco[4], F. Riva[4], J. Figueiredo[5], A. Murari[6], A. G. Kaveney[7], V. Kiptily[7], A. Milocco[7,2], Z. Ghani[7], and JET Contributors*

1) Institute for Plasma Science and Technology, CNR, via Cozzi 53, 20125 Milan, Italy
E-mail : davide.rigamonti@istp.cnr.it
2) Dipartimento di Fisica "G. Occhialini", Università degli Studi di Milano-Bicocca, Milano, Italy
3) Department of Physics and Astronomy, Uppsala University, SE-75105 Uppsala, Sweden
4) ENEA, Centro Ricerche Frascati, Frascati, Italy
5) Instituto de Plasmas e Fus˜ao Nuclear, Instituto Superior Tecnico, Universidade de Lisboa, Lisboa, Portugal
6) Consorzio RFX (CNR, ENEA, INFN, Universita' di Padova, Acciaierie Venete SpA), Corso Stati Uniti 4, 35127 Padova, Italy
7) Culham Centre for Fusion Energy, Culham, United Kingdom
**See the author list of E. Joffrin et al. 2019 Nucl. Fusion 59 112021*

The forthcoming JET DT campaign represents a unique possibility for validating the suite of neutron diagnostics of a DT burning plasma. In particular, issues such as operation at high 14 MeV neutron flux, availability, long term stability, remote control will be important. This work will present the state of the art of the 14 MeV neutron diagnostics systems of JET, with special emphasis on the major enhancements that have been carried out in the last ten years. The plasma parameters that can be provided by the entire suite of neutron diagnostics will be presented: i) time resolved 14 MeV neutron emissivity/fusion power (by absolute neutron flux monitoring); ii) the neutron spatial emissivity (neutron camera); iii) information on the fuel ion distribution (high resolution neutron spectrometers).
Finally, the benefit for ITER and DEMO of experience acquired at JET will be discussed.

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