

## **LHCD coupling and ICRF sheaths at JET**

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\**See appendix of M.L. Watkins et al., Fusion Energy 2006 (Proc. 21st Int. Conf. Chengdu, 2006) IAEA*

In JET, the LHCD launcher and one of the four ICRF antennas (Antenna B) are magnetically connected. It is known that when Antenna B is powered, degradation in the LHCD performance can occur. This effect, also observed at Tore Supra, was attributed to the density depletion caused by RF sheath effects and related drifts [1] [2]. It is essential, in particular for optimised shear scenario development, to be able to use at the same time the full capabilities of the ICRF and LHCD system. This is important for two reasons: (i) switching off Antenna B will switch off Antenna A as well (powered by the same generators) resulting in reduced total available ICRH power; (ii) the new ITER-like ICRF antenna will be magnetically connected to the LH launcher.

Experiments investigating the interaction between both systems are presented. The effects of the Antenna B power and phasing on the LHCD coupling are discussed. At low ICRF power, the LHCD operation is not affected significantly. At large ICRF power D<sub>2</sub> injection near the LH launcher was used to maintain the LH coupling. Statistical analysis of the related data is presented and the best conditions for mutual operation of both systems are assessed.

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[1] A. Ekedahl, L. Colas, M.-L. Mayoral, et al, 2003, 15<sup>th</sup> Topical Conference on RF Power in Plasmas, p. 259

[2] M. Becoulet et al., Physics of Plasmas, 9(6), 2002