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JET ITER-Like Antenna Simulation Using the TOPICA Code

DANIELE MILANESIO, RICCARDO MAGGIORA, Politecnico di Torino, Italy
— In this work, we carried out the analysis of the recently installed JET ITER-Like antenna with TOPICA code. Comparisons between TOPICA simulations and measurements taken during the actual experiment are presented. As routinely done for all simulated antennas, TOPICA inputs are the technical drawings of the launcher and the accurate density and temperature profiles, which, in this case, have been provided by the JET team. The standard outputs are the input parameters of the antenna, namely the impedance matrix, the electric current distribution and the electric field pattern at the interface between the antenna region and the plasma column. This work provides an additional proof that the code can be adopted to predict the behavior of the ITER antenna, and to confidently use TOPICA for the challenging task of optimizing the complex design of the actual ITER antenna. More generally viewed, the possibility to reliably simulate the detailed geometry of an ICRF antenna, given a realistic plasma description, and to obtain the actual antenna input parameters, is of paramount importance to evaluate and predict the system performances, and to assist in system operation.

Riccardo Maggiora
Politecnico di torino, Italy

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