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ITER Reference ICRF Antenna Analysis with TOPICA Code
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TOPICA (Torino Polytechnic Ion Cyclotron Antenna) code is an innovative tool for
the 3D/1D simulation of Ion Cyclotron Radio Frequency (ICRF), i.e. accounting for
antennas in a realistic 3D geometry and with an accurate 1D plasma model [1]. The
TOPICA suite, validated against measurements and data of mock-ups and existing
antennas, has been proved to be a reliable tool for antennas performance prediction
during operating conditions. The first part of this work reports on an extensive set
of comparisons between TOPICA code and RANT3D code [2] results adopting dif-
ferent geometrical model of an ITER Reference ICRF antenna. Furthermore, in the
second part, a detailed analysis of the performances of an ITER-like ICRF antenna
geometry has been carried out, underlining the strong dependence and asymmetries
of antenna input parameters due to plasma conditions. Electric current distribution
on conductors in the vacuum region and electric field distribution in the vacuum
region and at the interface with plasma edge are shown as well.

[1] V. Lancellotti et al., Nucl. Fusion, **46** (2006) S476-S499
[2] M. D. Carter et al., Nucl. Fusion, **36** (1996) S209

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