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The IGNITOR ICRH Antenna Design with TOPICA
RICCARDO MAGGIORA, VOLODYMYR KYRYTSYA, DANIELE MILANESIO, ORSO MENEGHINI, GIUSEPPE VECCHI, Politecnico di Torino — A flexible auxiliary Ion Cyclotron Resonance Heating (ICRH) system ($f = 80 - 120$ MHz) has been included in the IGNITOR machine design. ICRH systems have been successfully tested on a number of existing devices especially at high density. Ignition can be accelerated significantly by relatively low levels of ICRH (about 5 MW, a fraction of the final fusion heating) when applied during the current ramp-up. In addition, ICRH provides a useful tool to control the evolution of the current density profile. Four antennas, each composed by 4 straps independently fed by 4 matching systems, can deliver a minimum RF power of about 12 MW in the entire adopted frequency range. The possibility of adding two more antennas has been considered. The antenna design and optimization have been based on the simulation results obtained with TOPICA (Torino Polytechnic Ion Cyclotron Antenna code)[1].

[1] V. Lancellotti et al., *Nuclear Fusion*, **46** (2006) S476-S499

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