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Research of ICRF heating in simple mirror cell on GAMMA 10/PDX with TASK/WF code[1] YUSHI KUBOTA, SEOWON JANG, MAFUMI HIRATA, MAKOTO ICHIMURA, RYO SEKINE, HIROKI KAYANO, KAIRI SUGATA, Plasma Research Center, University of Tsukuba, Japan, ATSUSHI FUKUYAMA, Department of Nuclear Engineering, Kyoto University, Japan, RYUYA IKEZOE, Research Institute for Applied Mechanics, Kyushu University, Japan, TAKUMI AIZAWA, DAICHI NOGUCHI, NAOMICHI EZUMI, YOUSUKE NAKASHIMA, MIZUKI SAKAMOTO, Plasma Research Center, University of Tsukuba, Japan — Ion Cyclotron Range of Frequency (ICRF) heating make it possible to produce plasma with the ion temperature of more than 100 eV at end region of GAMMA 10/PDX and the end-loss plasma is utilized for the divertor simulation experiments. However, electron density of end-loss plasma is 10^{16} m^{-3} order, so more than tenfold increase of density is demanded. The heating experiments in plug/barrier cell, which has simple mirror configuration, implied improvement of heating efficiency when the ion cyclotron frequency at midplane was applied to an antenna near the midplane. These results are reproduced at the same density to the experiments by calculations of heating efficiencies using a full-wave code TASK/WF. In addition, for heating ions in higher density plasmas, calculations of ICRF heating efficiency in higher density plasmas are carried out and will be shown and discussed in this presentation. Using these knowledge of ICRF heating in GAMMA 10/PDX, a new device with the simple magnetic field configuration is developed in order to produce plasmas with ion temperature of up to 100 eV and electron density of 10^{19} m^{-3}.

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