

**Power deposition of H minority heating with compact ICRF antenna in KSTAR**H.Y. Lee^a, J.S. Kang^a, K. Saito^b, H.H. Wi^a, S.J. Wang^a, and J.G. Kwak^a¹ National Fusion Research Institute, South Korea ² National Institute of Fusion Science, Japan
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The new compact ICRH antenna with low electric field and conjugate-T has been installed in KSTAR [1]. It is necessary to study the effect to the KSTAR plasma by H minority heating as the main ICRH scheme [2]. The TRANSP-TORIC code has been adopted for analyzing the ICRH effect. The calculation using TRANSP-TORIC has been conducted with additional 1 MW ICRH power to the KSTAR operation at $B_0 = 2.0$ T. About 80 % ICRH power coupling efficiency is shown from the H minority heating and the majority ions and electrons obtains the most energy from minority heating. In addition, the ratio between the energy gain of ions and electrons from minority heating is analyzed along the H minority ions concentration and parallel refractive index of RF. It shows the possibility of energetic particle generation from the H minority heating. The more detailed information will be discussed in the presentation.

References

[1] K. Saito, et al., Fusion Eng. Des. 154 (2020) 111496

[2] J.G. Kwak, et al., in proceedings of 23th IAEA Fusion Energy Conference (2010) No. EXW/P7-11