

ENHANCED MODE CONVERSION
IN FUSION DISCHARGES WITH LARGE
CONCENTRATION OF MINORITY IONS

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S u m m a r y

The efficiency of Fast Wave (FW) mode conversion to Ion Bernstein Wave (IBW) is studied for two-component ion species plasmas with high minority concentration. The analysis of the mode conversion efficiency is carried out, as an example, for D(H) plasmas of tokamak JET. The 1D wave code consideration is based on the developments of the Budden [1] and triplet [2] approximations taking into consideration the treatment by [3]. It is shown how to choose the antenna phasing to reach the most effective mode conversion for a given plasma density profile. At the same time, there is no important dependence of the efficiency on the minority concentration, when it exceeds some value (about 10 % for D(H) plasmas of tokamak JET). The reaching of the effective mode conversion is easier in the layer at High Field Side (HFS). The obtained results are important to study a local electron heating in the discharges with a minority concentration which is higher than that in the usual mode conversion regimes.