

QUASI-LINEAR ELECTRON CYCLOTRON ABSORPTION IN A
SLAB MODEL FOR TBR-2

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The electron cyclotron radiation generated by a gyrotron of operating frequency $f=35\text{GHz}$ and power of 60kW shall be used for heating and current drive experiments in the tokamak TBR-2, a project currently under study. We are developing a quasi-linear code, that presently contains a self-consistent diffusion coefficient for electron cyclotron waves, averaged over tokamak magnetic surface, and includes collisions by means of a linearized Fokker-Planck collision term. We apply this code to a slab model for TBR-2, in order to get insight on the outcome of experiments and on possible quasi-linear effects. The plasma is supposed with an initial current, that presents features of lower hybrid generated currents. A numerical analysis of some interesting situations is conducted and the role of several parameters is discussed.

ENRICHMENT MEASUREMENTS IN A VACUUM-ARC PLASMA CENTRIFUGE

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A vacuum-arc plasma centrifuge is a device where the plasma source is an electric discharge between a metallic and a grounded mesh anode triggered by a pulsed laser. The plasma produced is fully ionized and composed of the cathode material. The plasma rotation about the cylinder axis is sustained by the self-consistent radial electric field, produced inside the plasma column, crossed with the externally applied axial magnetic field. This paper describes the experiment and presents the effect of the magnetic field upon several plasma parameters as temperature, density, rotation velocity and enrichment for carbon, magnesium and zinc plasmas.