

# KINETIC OVER-RELAXATION METHOD FOR THE DIOCOTRON INSTABILITY IN 3D

ABSTRACT. We apply a CFL-less kinetic over-relaxation scheme to the guiding-center model in plasma physics in a cylindrical geometry. The method is a succession of free-transport steps and collisions steps. The free transport steps are solved with Discontinuous Galerkin method in the poloidal planes and by an exact characteristic method in the third direction. The collision steps are solved with over-relaxation. We apply this method to the Diocotron instability test case in three dimensions.