

Voigt regularization for the explicit time stepping of the Hall effect term

Aziz Takhirov *

Abstract The Hall effect term is important in many plasma applications. Due to its nonlinearity, often it must be made fully explicit in realistic simulation. Since it contains two spatial derivatives, classical time-stepping schemes result in very restrictive CFL condition. We consider weakening the restrictive time step condition via Voigt regularization.

* Texas A&M University. Email: aziz.takhirov@math.tamu.edu.