

Magnetic reconnection in Magnetohydrodynamics for small and large initial data in $\mathbb{R}^3$

CLAUDIA PEÑA VÁZQUEZ DE LA TORRE (cpena@bcamath.org)

ABSTRACT. The magnetohydrodynamic equations (MHD) describe the motion of fluids in the presence of a magnetic field. Under certain conditions, some of its solutions present an interesting behavior: they change the topology of their magnetic integral lines over time. This phenomenon is known as magnetic reconnection.

The purpose of this work is twofold. First, to obtain global existence and uniqueness of a smooth global solution for a class of initial data of arbitrary size in critical spaces for the system. Then, to show that this solution presents magnetic reconnection, without loss of regularity.