

The Taylor vortex dynamo

Christophe Gissinger¹

24 rue Lhomond, 75005 PARIS
`christophe.gissinger@lps.ens.fr`

The generation of a magnetic field by dynamo action in a Taylor-vortex flow is investigated numerically. I first discuss how the Taylor vortices generate a spatially subharmonic dynamo, for which the axial wavelength of the magnetic field is twice the one of the flow pattern. Then, I investigate for the first time the influence of the Reynolds number and the turbulent fluctuations on the structure and the onset of the Taylor-Couette dynamo. Finally, based on the subharmonic nature of this system, I propose new configurations which could be relevant for future laboratory experiments.