

## Fluid Dynamos and Precession Driving

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The successful fluid dynamo experiments of Riga and Karlsruhe in 1999 prompt to study the feasibility of a large scale MHD wind tunnel without internal walls, as in natural dynamos. Since precession motion imposed on a closed container is able to drive a flow at the largest available scale, a systematic test study has been undertaken, using a cylindrical container (28 litres). The main control parameter of the flow is the precession rate  $p$  (ratio of precession to rotation frequencies). A critical rate  $p^*$  (showing hysteretic properties) clearly separates laminar flow (steady in the precession frame) and turbulence. The laminar domain may be considerably extended by adding radial blades at one container's end. The turbulent regime verifies Kolmogorov's scaling with a low power coefficient and MHD flows with magnetic Reynolds numbers of a few hundreds seems within reach. Extensions of this work are in progress (PIV and kinematic dynamo computations).

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