



## **Some nonlinear phenomena in an experimental Dynamo**

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Some new results of the von Karman Sodium experiment will be presented. In this experiment, for the first time, a dynamo has been generated from an unconstrained turbulent flow sustained by two counter-rotating disks in liquid Sodium. Thus we have got an instability which grows from a highly random media. Moreover various dynamical behaviours of the magnetic field can be measured, depending on the relative velocity of the disks. These regimes include reversals similar to those observed on earth and oscillations similar to those observed in sun. After a short description of the experiment, we will focus on new dynamical aspects recently discovered. Despite the turbulent nature of the flow, it will be shown that these dynamics of the magnetic field can be described as a small dimensional dynamical system involving only the interactions of few modes.