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Stability and angular momentum transport of flows between co-rotating cylinders MARC AVILA, MPI Dynamics and Selforganization — The flow of gas in astrophysical disks is characterized by radially decreasing angular velocity and radially increasing angular momentum. In principle, disk-like flows can be obtained in experiments of fluid between co-rotating cylinders and so these are often used to extrapolate momentum transport and stability of accretion disks. Recent results from experimental setups in Princeton and Maryland reach, however, opposite conclusions as whether keplerian flows remain laminar or become turbulent at high Reynolds numbers. In this contribution direct numerical simulations of flows with the precise geometry and boundary conditions of the Princeton and Maryland experiments will be reported. It is found that in both cases the flows become turbulent at moderate Reynolds numbers. The underlying instabilities are due to axial boundary conditions in the experiments.

Marc Avila
MPI Dynamics and Selforganization

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