

Abstract Submitted  
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**Experimental Evolution of Local and Global Variables in the Subcritical Transition in Channel Flow** JOSE EDUARDO WESFREID, GREGOIRE LEMOULT, JEAN-LUC AIDER, PMMH (ESPCI-CNRS) Paris, France — We perform experiments on the subcritical transition to the turbulence in a water channel with plane Poiseuille flow, perturbed by controlled injection of water normally to the wall. For different values of Reynolds number  $Re$  and different amplitude of the perturbation  $u_{jet}/u_{cl}$ , we observed different states from laminar to turbulent. Using Particle Image Velocimetry, we study the dynamics of a local variable of the velocity field as the transverse magnitude and simultaneously we follow a global one, as the deformation of the mean velocity profile  $\tilde{u} = \bar{u}_{cl}/\bar{u}_{cl,unperturbed}$ . We discuss the evolution in the phase space of those variables as a function of the strength of the perturbation, and compare it with predictions made from low dimensional models.

Jose Eduardo Wesfreid  
PMMH (ESPCI-CNRS) Paris, France

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