

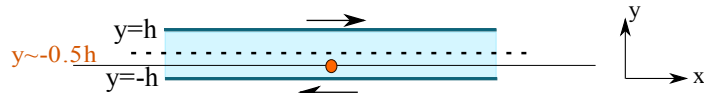
Growth dynamics of turbulent spots in plane Couette flow

Marie Couliou, Romain Monchaux – IMSIA, ENSTA ParisTech

Plane Couette flow

Experimental set-up:

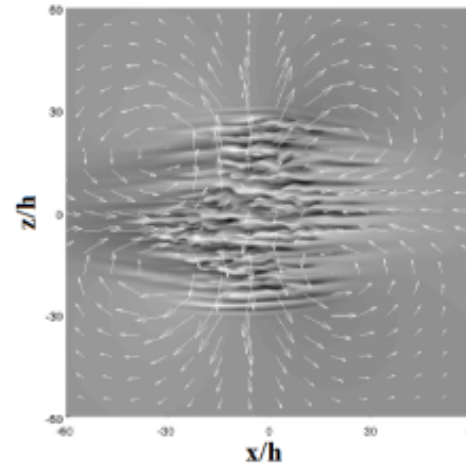
- Measurements
 - Visualizations
 - Particle Image Velocimetry
- Perturbation



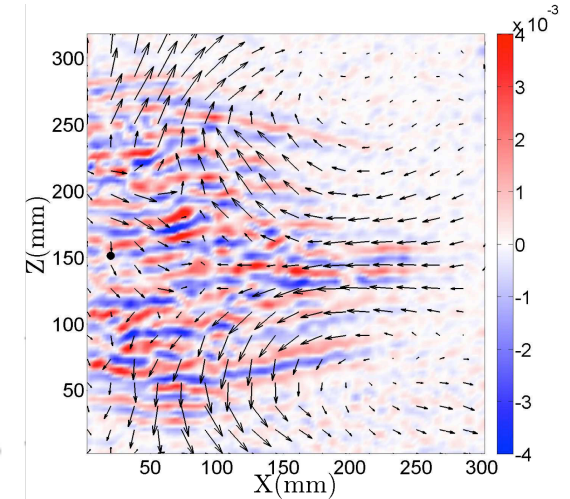
Simulations:

- DNS
- Perturbation
 - Four pairs of counter-rotating vortices in the middle of the domain

Large-scale flow recirculation

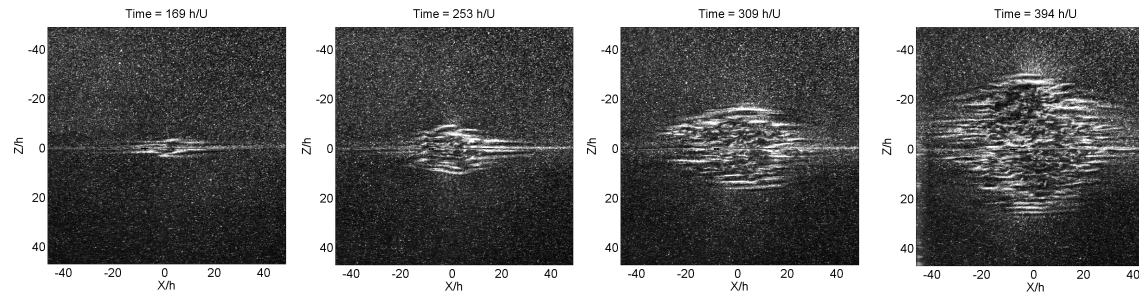


Duguet and Schlatter, PRL, 2013, 110



PIV measurements (Couliou and Monchaux, POF, 2015, 034101)

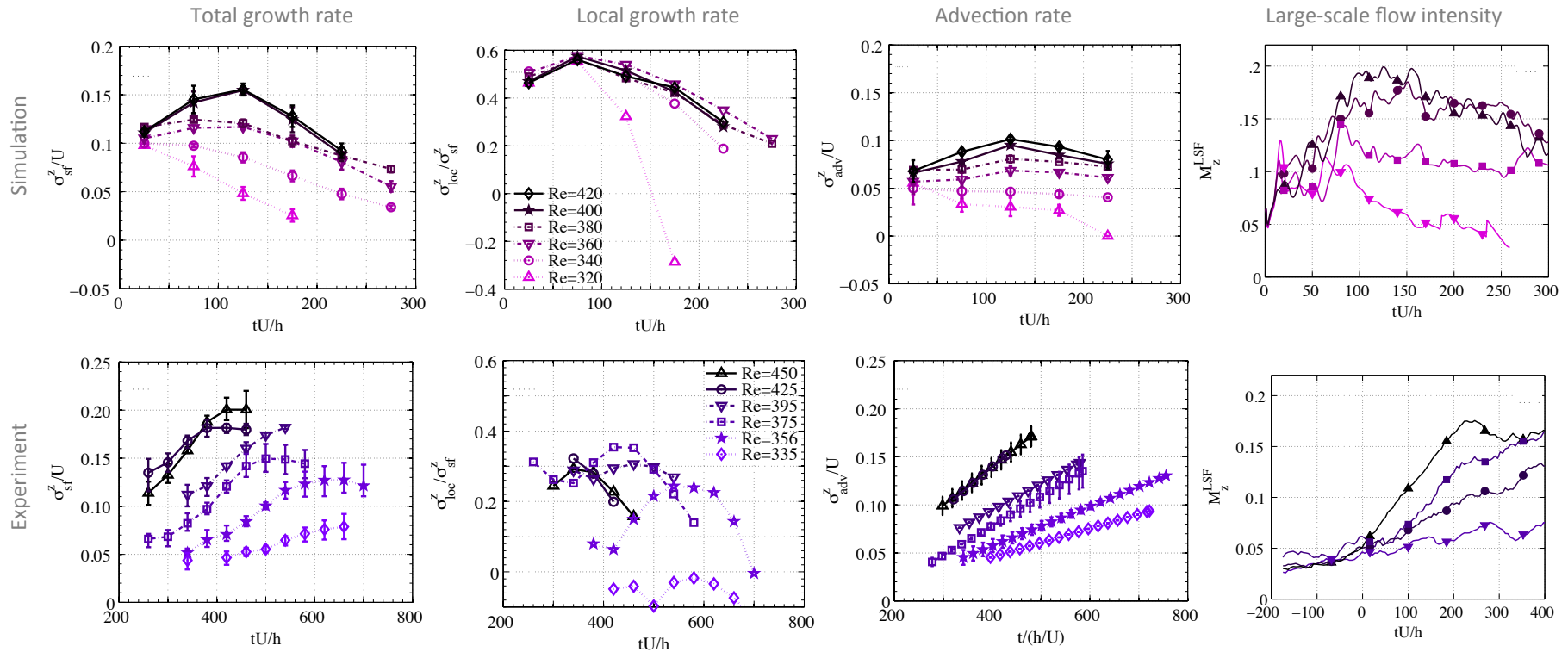
Growth of turbulent spots



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Growth rates and growth mechanisms



- Two growth mechanisms have been isolated
- Large-scale flows are involved in both
- Influence of the boundary conditions on the large-scale flow topology
- Strong link with decaying turbulence

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