

# Experimental PhD - Training position

## Transition to turbulence

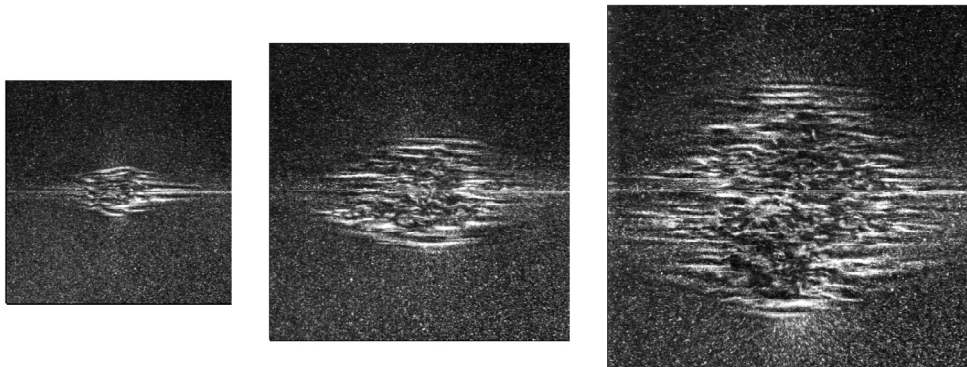
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### Context

Our group has designed an experimental plane Couette flow in order to study transition to turbulence in this geometry. This flow belongs to the class of flows that turn turbulent through subcritical scenarios involving laminar-turbulent coexistence, including the emergence of organized patterns. Other examples are Taylor-Couette, plane Poiseuille and pipe flows. We aim at characterizing the transition as much as possible, particularly by using up-to-date measurement systems such as Stereoscopic Particle Image Velocimetry and high resolution visualizations. We are also performing direct numerical simulations in a complementary way.



### Required background of the student

Fluid mechanics, physics, instabilities, dynamical systems, turbulence.

### Representative publications of the group

Couliou, M., & Monchaux, R. (2017). Growth dynamics of turbulent spots in plane Couette flow. *Journal of Fluid Mechanics*, 819, 1-20.

Couliou, M., & Monchaux, R. (2018). Childhood of turbulent spots in a shear flow. *Physical Review Fluids*, 3(12), 123901.



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