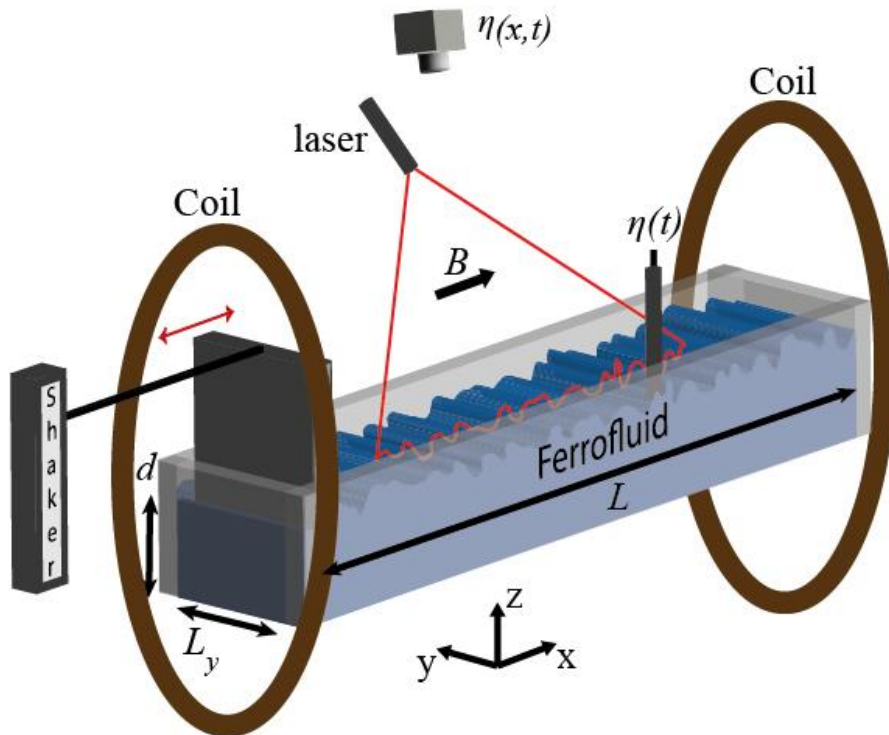


From wave turbulence to shock-wave regime: intermittency and Burgers turbulence

Guillaume Ricard & Eric Falcon

Matière et Systèmes Complexes (MSC), Université Paris Cité

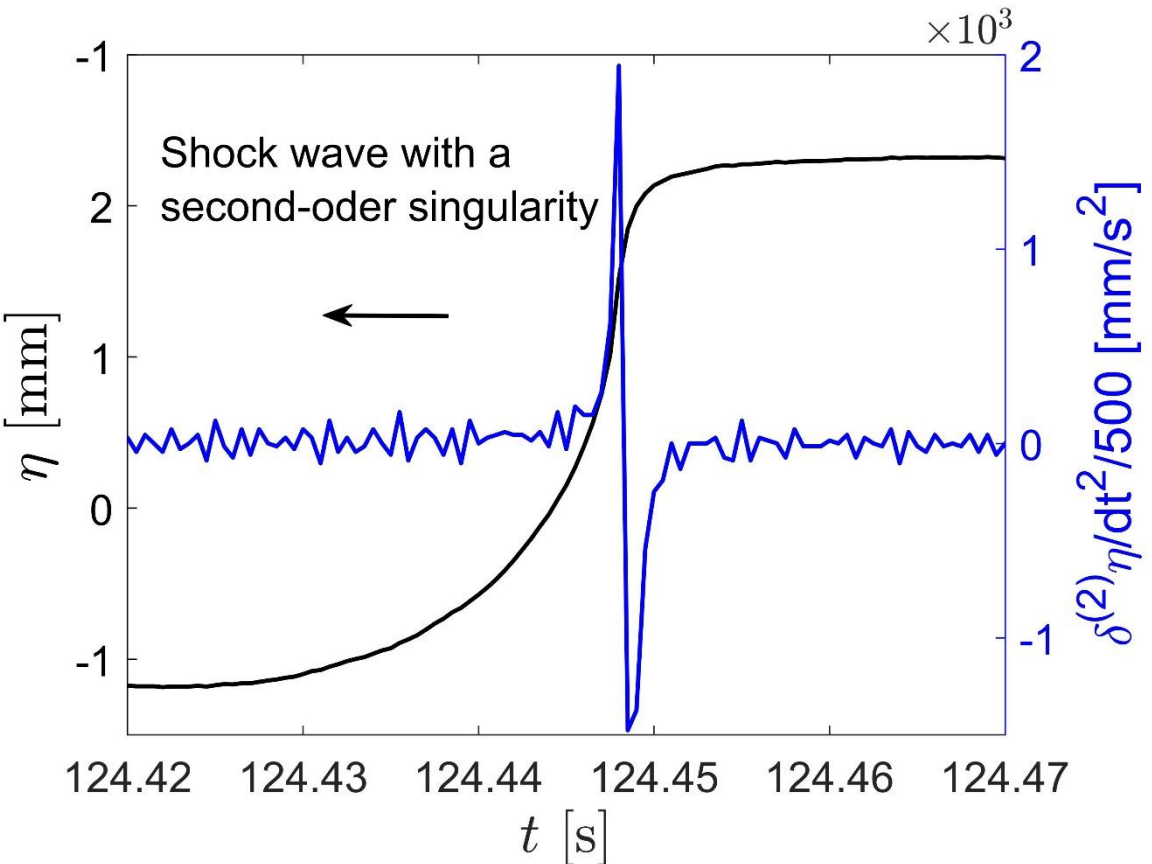


Experimental setup

Canal between two Helmholtz coils and filled with a ferrofluid

A shaker generates random surface waves

Non-dispersivity and shock waves



Shock waves with an almost **vertical front** are randomly generated.

Magnetic effects imply **non-dispersivity**:

$$\omega^2 = \underbrace{gk + \frac{\gamma}{\rho}k^3}_{\text{dispersive terms}} + \underbrace{v_A^2[B]k^2}_{\text{non-dispersive term}}$$

Shock waves **drive the energy spectrum** and generate a **strong intermittency**.

