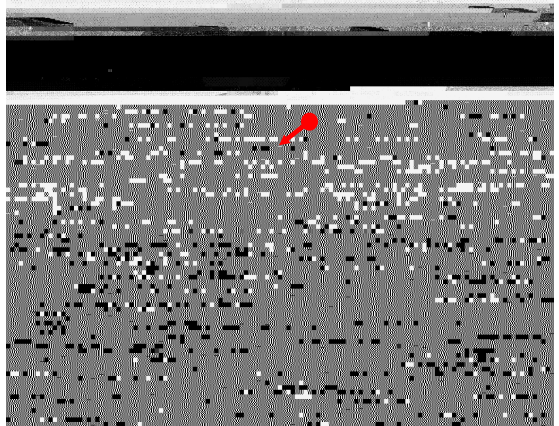


Lagrangian dispersion of light solid particle
in a high Re number turbulence;
LES with stochastic process at sub-grid scales

Measurements of Lagrangian statistics of light particle in the high Re turbulence

(from Mordant and Pinton, ENS of Lyon, 2001, 2004)



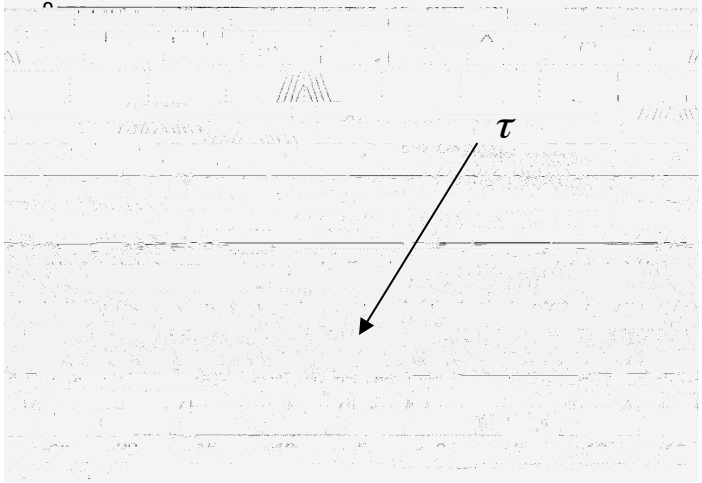
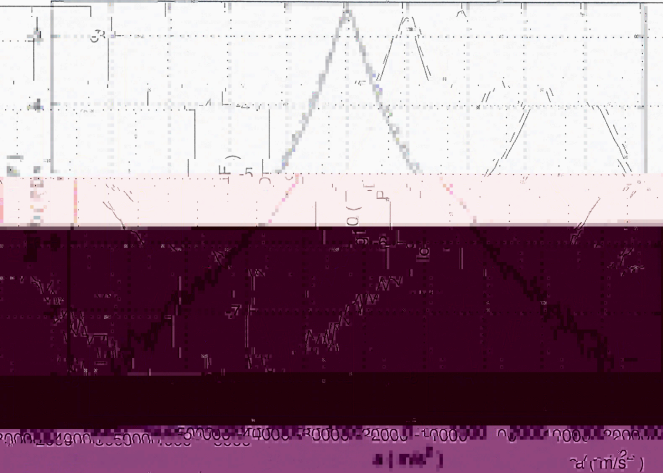
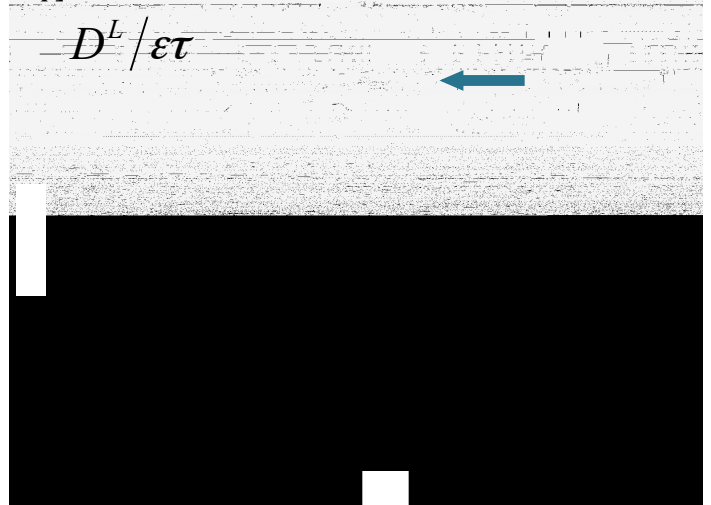
$$\text{Re}_p = 740$$

=

=

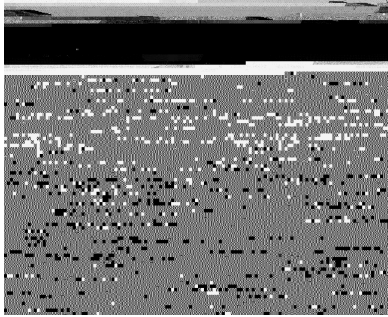
$$\rho_p / \rho_f = 1,06$$

$$d_p = 250$$

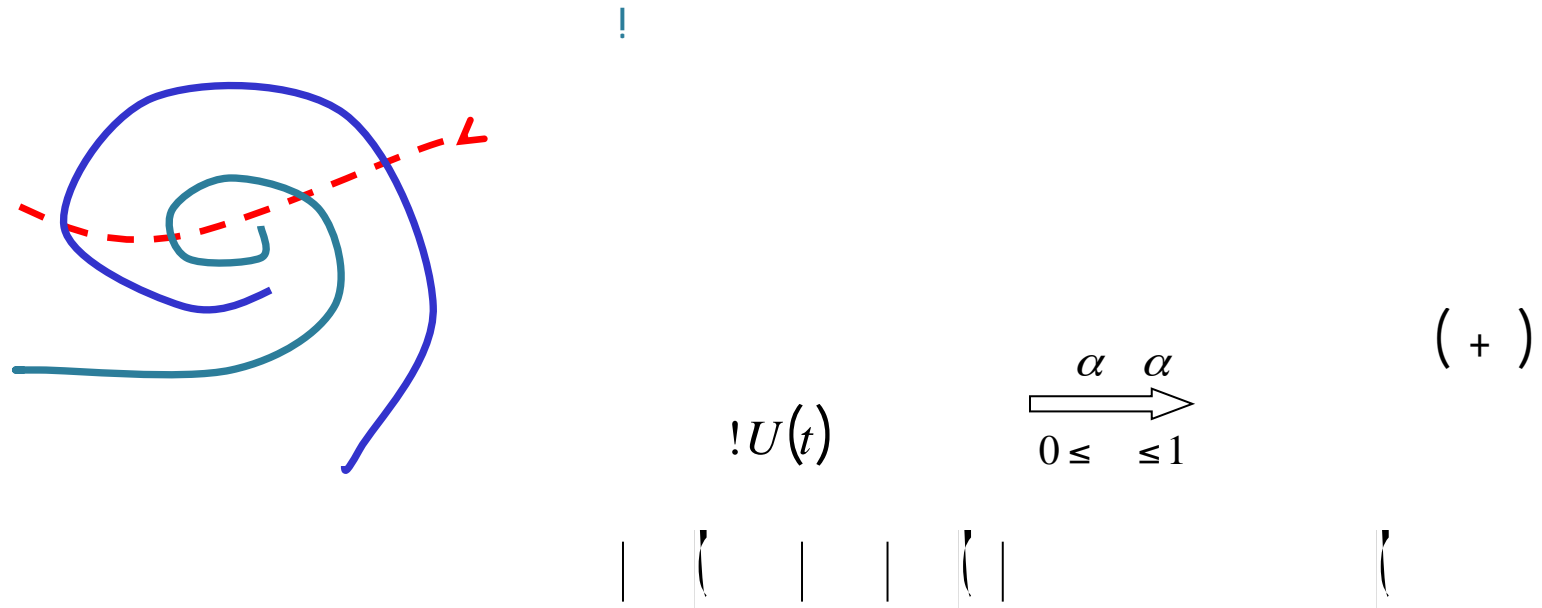


In Diesels: Re

Our objective



Turbulent cascade as fragmentation under scaling symmetry



* Gorokhovski (2003) *CTR, Stanford, Annual Briefs*

** Gorokhovski & Chtab (2005), *Lecture Notes in Computational Science and Engineering series, Springer*

Log-brownian stochastic process with constant force

!

$$= \ln(\dots)$$

$$\dots - \dots \langle \dots \rangle - \dots \langle \dots \rangle$$

!

$$\langle \alpha \rangle / \langle \alpha \rangle = \left(\dots \right) l$$

!

$$\ln \dots \frac{\langle \ln \dots \rangle}{2} \sqrt{\frac{\langle \ln^2 \dots \rangle}{2}}$$

!

$$= +$$

!

$$\frac{dV_p}{dt} = \frac{U_{local} V_p}{Stokes}$$

