SEMPARIS – Séminaires en région parisienne

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Seminar of the theory group of APC

Mardi 3 Juillet 2018, 14 :00
APC, 454A - Valentin
Domaines : hep-th

Titre : *Correlation functions in fully developed turbulence*

Orateur : **Léonie Canet (Université de Grenoble)**

Résumé : *Turbulence is an ubiquitous phenomenon in natural and industrial fluid flows. Yet, it still lacks a satisfactory theoretical description. One of the main open issues is to calculate the statistical properties of the turbulent steady state, and in particular what is generically called intermittency effects, starting from the fundamental description of the fluid dynamics provided by Navier-Stokes equation. In this presentation, I will focus on isotropic and homogeneous turbulence in three-dimensional incompressible flows. In the first part, I will give an introduction on the basic phenomenology of turbulence, and show what are the typical manifestations of intermittency. In the second part, I will explain how one can derive exact asymptotic (i.e. at large wave- numbers) properties of the correlation functions in the turbulent state, using a field-theoretic approach, based on the Non-Perturbative Renormalisation Group, and compare them to numerical simulations and experiments.*