ID de Contribution: **57** Type: **Contribution orale**

The unpredicted scaling of the one-dimensional Burgers/Kardar-Parisi-Zhang equation

jeudi 6 juillet 2023 10:00 (15 minutes)

The Burgers equation exactly maps to the Kardar-Parisi-Zhang (KPZ) equation, which describes the kinetic roughening of stochastically growing interfaces. In one dimension, the KPZ equation is exactly solvable, and its statistical properties are known to an exquisite degree. Yet recent numerical simulations [1] unveiled a new scaling, with a dynamical exponent z=1 different from the KPZ one z=3/2. In this talk, I will show that this scaling is controlled by a fixed point which has been missed so far and which corresponds to an infinite effective coupling. This fixed point can be accessed using the functional renormalisation group, and it yields z=1 [2]. The FRG also allows for the calculation of the correlation function at this fixed point. I will discuss the associated scaling function, providing both an analytical asymptotic form and the complete numerical solution, which accurately match the result from the numerical simulations.

[1] Cartes, Tirapegui, Pandit, Brachet, Phil. Trans. Roy. Soc. A 380, 20120090 (2022)
[2] Vercesi, Fontaine, Brachet, Canet, to appear (2023)

Affiliation de l'auteur principal

Université Grenoble Alpes

Auteurs principaux: M. VERCESI, Francesco (Université Grenoble Alpes); M. FONTAINE, Côme (Université Grenoble Alpes); Dr BRACHET, Marc (Université PSL); CANET, Léonie (Université Grenoble Alpes)

Orateur: CANET, Léonie (Université Grenoble Alpes)

Classification de Session: Mini-colloques: MC24 Bicentenaire des équations de Navier-Stokes

Classification de thématique: MC24 Bicentenaire des équations de Navier-Stokes