

Bertoin, Jean

Some properties of Burgers turbulence with white or stable noise initial data. (English)

Zbl 0984.60078

Barndorff-Nielsen, Ole E. (ed.) et al., Lévy processes. Theory and applications. Boston: Birkhäuser. 267-279 (2001).

The author reviews some qualitative and quantitative results on the weak solution to the inviscid Burgers equation $\partial_t u + \partial(u^2/2) = 0$ with random initial datum. (The solution is defined as the limit $u_0 = \lim_{\varepsilon \downarrow 0} u_\varepsilon$, where u_ε is a unique solution of the Burgers equation $\partial_t u + \partial(u^2/2) = \varepsilon \partial_{xx}^2 u$.) Specifically, he first considers the case where the initial datum is a white noise (the derivative in the Schwartz sense of a two-sided Brownian motion). Then he discusses some extensions to a stable noise (the derivative in the Schwartz sense of a stable Lévy process with index $\alpha \in (1/2, 2]$).

For the entire collection see [Zbl 0961.00012].

Reviewer: [Vigirdas Mackevičius \(Vilnius\)](#)

MSC:

[60H30](#) Applications of stochastic analysis (to PDEs, etc.)

[35Q53](#) KdV equations (Korteweg-de Vries equations)

Cited in **3** Documents

Keywords:

[Burgers equation](#); [white noise](#); [stable process](#)