Abstract Submitted
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On the stochastic modeling of Lagrangian velocity and acceleration in turbulent flows LAURENT CHEVILLARD, Laboratoire De Physique De l'ENS De Lyon, BIANCA VIGGIANO, Department of Mechanical and Materials Engineering, Portland State University, Portland, Oregon, USA, JAN FRIEDRICH, ROMAIN VOLK, MICKAEL BOURGOIN, Laboratoire De Physique De l'ENS De Lyon, RAUL BAYOAN CAL, Department of Mechanical and Materials Engineering, Portland State University, Portland, Oregon, USA — We propose to answer the following question: can we build up an infinitely differentiable stochastic process, such that asymptotically, when the Reynolds number goes to infinity, it becomes irregular (in a Holder sense) and intermittent (in a way we will clarify)? This has importance while modeling velocity and acceleration of particles following their trajectories in a turbulent flow. We propose such a process as a solution of a stochastic differential equation, making it causal. We proceed with analytical and numerical solutions, and compare against experimental and numerical data. Come, it will be fun.

Laurent Chevillard
Laboratoire De Physique De l'ENS De Lyon.

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