

On anomalous dissipation and regularization in Gaussian isotropic turbulence

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In this work we study several properties of the solutions to the stochastic transport and the stochastic continuity equations constructed by Le Jan and Raimond in [Ann. Probab. 30(2): 826-873, 2002]. Our results hold true in the general case of Gaussian, space-homogeneous and isotropic noise, with α -Holder regularity in space, $\alpha \in (0, 1)$. We can cover the full range of compressibility ratios giving spontaneous stochasticity of particle trajectories. In particular, we are not limited to the incompressible case.

Based on joint work with Theodore Drivas and Lucio Galeati