

No blow-up by nonlinear Itô noise for Euler equations

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We consider the 2D and 3D stochastic Euler equations. It is well-known that (under suitable assumptions on the noise) regular solutions exist locally in time. We show, by means of the Lyapunov function method and a Galerkin approximation, that the choice of a suitable non-linear multiplicative Itô noise provides a regularizing effect. Namely, we establish that with full probability the regular solutions are global in time.

The presentation is based on a joint work with Mario Maurelli and Fanhui Xu.