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On the Global Attractor of 2D Incompressible Turbulence with Random Forcing

We revisit bounds on the projection of the global attractor in the energy–enstrophy plane obtained by Dascaliuc, Foias, and Jolly [2005, 2010]. In addition to providing more elegant proofs of some of the required nonlinear identities, the treatment is extended from the case of constant forcing to the more realistic case of random forcing. Numerical simulations in particular often use a stochastic white-noise forcing to achieve a prescribed mean energy injection rate. The analytical bounds are illustrated numerically for the case of white-noise forcing.