

# Stationary Euler flows near Kolmogorov and Poiseuille

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We review some recent results on the asymptotic stability of stationary solutions to the two-dimensional Euler and Navier-Stokes equations of incompressible flow. In many cases, nonlinear asymptotic stability of certain stationary solutions follows by way of decay mechanisms in the associated linearized problems – both in the Euler equations (through so-called inviscid damping) and in the Navier-Stokes equations (via enhanced dissipation). In contrast, we will see that the dynamics near the so-called Kolmogorov flow are more complex: in particular, while linear stability holds, nonlinear asymptotic stability is false, even for analytic perturbations.