

Growth and asymptotics in incompressible fluids

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Fluids are ubiquitous in the nature, but equations of fluid mechanics are among the most challenging PDEs to analyze. The question of global regularity v.s. finite time blow-up remains open for many fundamental fluid equations, and even for the equations that is known to remain regular for all times, there are many open questions regarding their long-time behavior. In this talk, I will review some recent progress on growth and asymptotics in various incompressible fluid equations, including the Euler equation, Boussinesq equation and incompressible porous media equations.