Abstract

This will be an abstract.

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2 Dynamics of the problem

As it is said in the intruduction, the primary problem considered in this work is the integration of the incompressible Navier-Stokes equations with a random forcing term:

$$\partial_t \boldsymbol{u} + (\boldsymbol{u} \cdot \nabla)\boldsymbol{u} = -\boldsymbol{\nabla} p + \nu \Delta \boldsymbol{u} + \boldsymbol{f} \tag{1}$$

$$\boldsymbol{\nabla} \cdot \boldsymbol{u} = 0 \tag{2}$$

where $\boldsymbol{u}$ is the velocity field, p is the pressure, ν is the kinematic viscosity, and $\boldsymbol{f}$ is the random forcing term. The forcing term is chosen to be gaussian for the streamfunction formulation, which is detailed below.

2.1 Streamfunction formulation

In [Bat00], called *streamfunction* and denoted by ψ. Thus

The forcing term is assumed to be Gaussian, in particular of the form:

3 Simulation

3.1 Introduction

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References

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[Bat00] G. K. Batchelor. *An Introduction to Fluid Dynamics*. Cambridge Mathematical Library. Cambridge University Press, 2000.