

On the uniform control of some α -models

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Abstract

This talk deals with the internal and boundary controllability results of the so called Leray- α model of turbulence. This is a regularized variant of the Navier-Stokes system (α is a small positive parameter), the usual transport term is regularized with an operator that depends on α . In the limit α tending to 0^+ , we find the classical Navier-Stokes system. The main aim of the talk is to prove that the Leray- α systems are locally null controllable, with controls uniformly bounded with respect to α . We also prove that, if the initial data are sufficiently small, the controls converge as $\alpha \rightarrow 0^+$ to a null control of the Navier-Stokes equations. We also discuss some additional results and open questions.