

Spectral element/spectral vanishing viscosity methods for large eddy simulation of turbulent flows *

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Abstract

A stabilization method for the spectral element computation of incompressible turbulent flow problems is investigated. It is based on a filtering procedure which consists in filtering the velocity field by a spectral vanishing Helmholtz-type operator at each time step. Relationship between this filtering procedure and SVV-stabilization method, introduced recently in [JCP, 2004, **196**(2), p680], is established. A number of numerical examples including LES simulation of the cylinder flow, are presented to show the accuracy and stabilization capability of the method.