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Large-eddy-simulation of wall-bounded turbulent flows – Layer-adapted meshes vs. weak Dirichlet boundary conditions –

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ABSTRACT

In this paper we consider the numerical simulation of wall-bounded turbulent flows using a variational multiscale method. We consider two approaches: (i) the simulation on layer-adapted anisotropic grids (see, e.g., [2]), and (ii) the simulation on isotropic meshes with weak Dirichlet boundary conditions (see, e.g., [1]). A comparison of both variants is presented for the well-known testcase of turbulent flow in a channel at $Re_\tau = 395$. Moreover, we study the applicability of a recent a priori analysis of a class of variational multiscale methods to wall-bounded flows, see [3].

References

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