

Abstract Submitted
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Direct numerical simulation of turbulent flow over a backward-facing step¹ MICHAL A. KOPERA, CHRISTOPHER CANTWELL, ROBERT M. KERR, DWIGHT BARKLEY, University of Warwick, HUGH BLACKBURN, Monash University — Turbulent flow in a channel with a sudden expansion (backward-facing step) is studied by direct numerical simulation (DNS) of incompressible Navier-Stokes equations. Initial results are presented for a 3D DNS of a backward-facing step flow with Reynolds number 6000, based on average bulk upstream velocity and step height. The expansion ratio is 2. Turbulent inflow is provided by regeneration of velocity and pressure fields from a plane downstream from the inflow. Simulations are made using the Semtex DNS spectral element solver. The goal is to generate hi-resolution DNS data of a high Reynolds number flow over a backward-facing step for LES comparisons.

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