

Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Coherent Vortex Simulation (CVS) of compressible turbulent mixing layers using adaptive multiresolution methods¹ KAI SCHNEIDER, MSNM-CNRS & CMI Université de Provence, Marseille, France, OLIVIER ROUSSEL, TCP, Universität Karlsruhe, Germany, MARIE FARGE, LMD-CNRS, Ecole Normale Supérieure, Paris, France — Coherent Vortex Simulation is based on the wavelet decomposition of the flow into coherent and incoherent components. An adaptive multiresolution method using second order finite volumes with explicit time discretization, a 2-4 Mac Cormack scheme, allows an efficient computation of the coherent flow on a dynamically adapted grid. Neglecting the influence of the incoherent background models turbulent dissipation. We present CVS computation of three dimensional compressible time developing mixing layer. We show the speed up in CPU time with respect to DNS and the obtained memory reduction thanks to dynamical octree data structures. The impact of different filtering strategies is discussed and it is found that isotropic wavelet thresholding of the Favre averaged gradient of the momentum yields the most effective results.

¹We thankfully acknowledge financial support from the ANR, project M2TFP and from the DFG-CNRS project 'LES in Complex flows'.

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Date submitted: 09 Oct 2007

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