

2nd International Workshop on High-Order CFD Methods

Objectives

- To provide an open and impartial forum for evaluating the status of high-order methods (order of accuracy > 2) in solving a wide range of flow problems.
- To assess the performance of high-order methods through comparison to 2nd order production CFD codes widely used in the aerospace industry with well defined metrics.
- To identify pacing items in high-order methods needing additional research and development in order to proliferate in the CFD community.

General Information

- The workshop is open to participants all over the world. Everybody is welcome.
- The workshop is a follow-on event.
- Fifteen benchmark cases are included from the 1st International Workshop on High-Order CFD Methods, three additional test cases are added.
- Open forums will be included in the workshop to discuss pacing items and further research areas in high-order methods.

Important Dates

- December 31, 2012 - Final specification of additional test cases including common grids.
- February 28, 2013 - Abstract. Do send an incomplete abstract if you believe data will be ready on April 30, 2013.
- March 25, 2013 - Acceptance e-mail sent out.
- April 30, 2013 - Data submittal.
- May 27-28, 2013 - Workshop (registration required to participate)

For up-to-date information, visit the workshop website:
<http://www.dlr.de/as/hiocfd> or email hiocfd@dlr.de
Follow <http://twitter.com/hiocfd> for updates!

Test Cases

Fifteen benchmark cases are included from the 1st International Workshop on High-Order CFD Methods (<http://zjw.public.iastate.edu/hiocfd.html>), three additional test cases are added.

The second workshop will address in particular the more difficult applications. Although all test cases remain active, we highly encourage contributions to the C.3 test case suite.

C1. Easy, 2D

- C1.1 Internal inviscid flow over a smooth bump
- C1.2 Transonic Ringleb flow
- C1.3 Flow over the NACA0012 airfoil, inviscid and viscous, subsonic and transonic
- C1.4 Flat plate boundary layer
- C1.5 Radial expansion wave
- C1.6 Vortex transport by uniform flow

C2. Intermediate, 2D & 3D

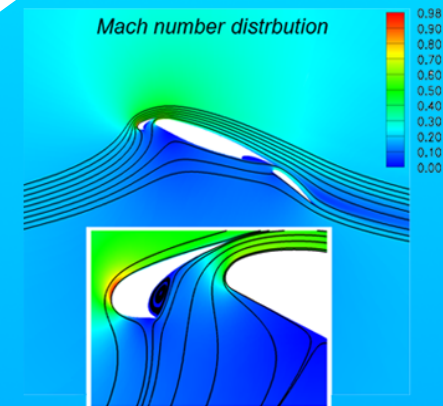
- C2.1 Unsteady viscous flow over tandem NACA0012 airfoils with a smooth initial condition
- C2.2 Turbulent flow over a RAE airfoil
- C2.3 Analytical 3D body of revolution
- C2.4 Delta wing at low Reynolds number

C3. Difficult, 2D & 3D

- C3.1 Turbulent flow over a multi-element airfoil
- C3.2 Turbulent flow over DPW III wing alone
- C3.3 Transitional flow over a SD7003 wing
- C3.4 2D laminar flapping wing case
- C3.5 Direct Numerical Simulation of the Taylor-Green Vortex at $Re = 1600$
- C3.6 DNS and LES of flow over 2D periodic hill
- C3.7 DNS/LES of LP turbine
- C3.8 CRM wing/body

Organizing Committee

Norbert Kroll (Co-Chair, Local Organizer), DLR
Z.J. Wang (Co-Chair), University of Kansas
Remi Abgrall, INRIA and University of Bordeaux
Francesco Bassi, University of Bergamo
Doru Caraeni, CD-adapco
Andrew Cary, Boeing
Herman Deconinck, VKI
Chris Fidkowski, University of Michigan
Ralf Hartmann, DLR
Koen Hillewaert, CENAERO
H.T. Huynh, NASA Glenn Research Center
Tobias Leicht, DLR
Georg May, RWTH Aachen University
Per-Olof Persson, UC Berkeley
Bram van Leer, University of Michigan
Miguel Visbal, AFRL



Venue and Accommodation

The workshop will take place at the **NH Hotel Köln City** - Holzmarkt 47. D-50676 Köln - Tel. +49.221.27.22.880

A number of rooms have been reserved in the conference hotel at a rate of 119 EUR per night (including breakfast). Workshop participants are kindly asked to book a room at their earliest convenience, but not later than April 15, 2013. Please mention the keyword „Higher Order Workshop“ during booking.

What to do in Cologne

Welcome to Cologne where the cathedral spires tower over Germany's oldest city and its innumerable cultural and historical treasures, world-famous museums and active art scene. Take a trip through 2000 years of history and visit cultural monuments from the Roman Empire to modern times.



Built between 1248 and 1880, Cologne Cathedral is regarded as a masterpiece of medieval Gothic architecture. It is one of the finest ecclesiastical edifices in the world.

Whether visiting the Romano-Germanic Museum, looking around the Roman Praetorium or taking a walk past the medieval city gates – Cologne's 2,000-year history can be felt everywhere. The Romano-

Germanic Museum is, besides its outstanding glass collection, home to the Dionysos mosaic and the famous tomb of Publius.

Situated directly on the Rhine and marked by narrow gables and high slated roofs, a district of its own type asserts itself in the Old City of Cologne, the unmistakable, historically appearing character of which stands out immediately.

Also, Cologne is an art and culture metropolis of international renown: 42 museums, such as the Museum Ludwig, which houses the biggest pop art collection outside the USA, the new cultural Quarter at Neumarkt and 120 galleries with the widest variety of collections from all eras bear witness to Cologne's reputation as a centre for art and culture.

Sources: Text: www.cologne.de - Image: Gaëlle Brezillon

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DLR at a glance

DLR is Germany's national research centre for aeronautics and space. Its extensive research and development work in Aeronautics, Space, Energy, Transport and Security is integrated into national and international cooperative ventures. As Germany's space agency, DLR has been given responsibility for the forward planning and the implementation of the German space programme by the German federal government as well as for the international representation of German interests. Furthermore, Germany's largest project management agency is also part of DLR.

Approximately 7000 people are employed at 16 locations in Germany: Cologne (headquarters), Augsburg, Berlin, Bonn, Braunschweig, Bremen, Goettingen, Hamburg, Juelich, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Stade, Stuttgart, Trauen, and Weilheim. DLR also operates offices in Brussels, Paris, and Washington D.C.



**Deutsches Zentrum
für Luft- und Raumfahrt**

Institute of Aerodynamics and Flow Technology

Prof. Dr. Norbert Kroll

Lilienthalplatz 7
D-38108 Braunschweig

Telefon: +49 531 295 - 2440
Telefax: +49 531 295 - 2320

www.DLR.de/as



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May 27 - 28, 2013
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