

## Registration to the Symposium

Please note that registration should be made only through the official Symposium web site:

<http://www.hrlm-4th.org>

The Symposium registration fee will include all costs for coffee breaks, lunch, cocktails and a dinner during the symposium. In addition, a “social event” is planned, which will be announced on the Web site mentioned above.

Moreover, the registration fee covers all material needed for the conference as well as the proceedings to appear in the Springer Series on “Numerical Notes in Fluid Mechanics and Multidisciplinary Optimisation” (NNFM).

With the ardent support of our sponsors, the organizing committee offers a considerable reduction of the Symposium fee for university students.

### The following registration fees apply:

Registration Type	On & Before 10 Aug, 2011	After 10 Aug, 2011
Participants and contributors	400 €	450 €
Software vendors (stands included)	400 €	450 €
Students	250 €	250 €
Accompanying Persons	100 €	100 €

During the symposium, an **Exhibition of Commercial CFD Software** is planned. Thus, commercial CFD software vendors are welcome to demonstrate their product at the Symposium venue.

For further details, please contact the symposium chairmen or the local organizer via e-mails:

Prof. Song Fu ([fs-dem@tsinghua.edu.cn](mailto:fs-dem@tsinghua.edu.cn))

Prof. Shia-Hui Peng ([peng@foi.se](mailto:peng@foi.se))

Dr. Dieter Schwamborn ([dieter.schwamborn@dlr.de](mailto:dieter.schwamborn@dlr.de))

Dr. Werner Haase ([office@haa.se](mailto:office@haa.se))

The 1<sup>st</sup> and 2<sup>nd</sup> Symposium on Hybrid RANS-LES Methods served the exploitation of the EU project DESider (2004-2007, contact person: W. Haase). The 4<sup>th</sup> Symposium in Beijing will play an important role in the exploitation of the ongoing EU project ATAAC (2009-2012, contact person: D. Schwamborn).

The present Symposium has its focus on flow physics modelling and its aerodynamic applications, particularly in terms of advanced URANS, improved DES, and hybrid RANS-LES approaches in general.

The symposium offers the opportunity to communicate and exchange knowledge for academic researchers, graduate students, industrial engineers, as well as industrial R&D managers and consultants working in the fields of turbulent-flow modelling, simulations and measurements, and multidisciplinary CFD applications, such as flow control, aero-acoustics, aero-elasticity and any CFD-based multidisciplinary optimisation.

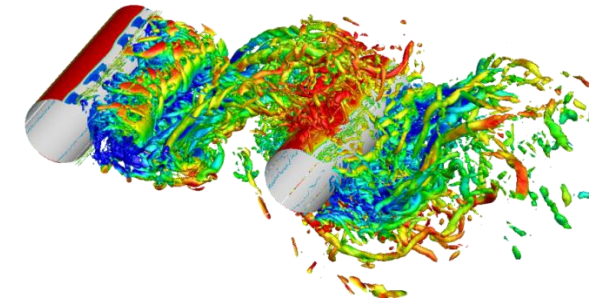
### Organising and Scientific Committee

B. Aupoix	ONERA, France
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L. Davidson	Chalmers University of Technology, Sweden
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F. Thiele	TUB, Germany

# Fourth Symposium on Hybrid RANS-LES Methods

Beijing, China,  
28-30 September 2011

Register at <http://www.hrlm-4th.org>



Co-organised by

Tsinghua University, Beijing, China

Deutsches Zentrum für Luft- und Raumfahrt (DLR)  
Germany

Chinese Society of Theoretical and Applied Mechanics  
(CSTAM), China

EU Project ATAAC Consortium



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# Fourth Symposium on Hybrid RANS-LES Methods

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Hybrid modelling methods of turbulent flows, combining RANS and LES techniques, do receive increasing attention in filling the gap between (U)RANS and LES computations in aerodynamic applications at industrial level aiming at high Reynolds numbers.

The present Symposium addresses the most recent and new development on advanced URANS, DES and other hybrid RANS-LES techniques, covering both fundamentals of flow physics modelling and applications to industrial flow problems.

As with the First Symposium (Stockholm, 2005), the Second (Corfu, 2007), and the Third (Gdansk, 2009), the aim of the Fourth Symposium is to continue with the provision of a forum for researchers and industrial engineers to exchange knowledge and expertise, to discuss and to present recent achievements in development as well as in applications of hybrid RANS-LES methods - including flow-physics models and related numerical issues. Hence, this Symposium encourages to present new emerging ideas and inspires participants to pursue and intensify efforts towards future developments and applications of hybrid RANS-LES methods.

## Main Topics

- Advanced URANS modelling
- Improved DES modelling
- Hybrid URANS-LES methods (including embedded LES and othersimilar modelling approaches)
- Comparative studies of modelling approaches
- Modelling-related numerical issues
- Industrial applications
- Commercial CFD software exhibition

## Invited Special Speech

**Dietrich Knoerzer** (European Commission, Belgium):  
“Towards the Greening in Aviation - Aeronautics in the Research Framework Programme of the European Union”

**Huiliu Zhang** (COMAC, China):  
“On the Current Progress of China’s Commercial Aircraft”

## Invited Speakers

**Adel Abbas, Klaus. Becker** (Airbus Operations S.A.):  
“Advanced Numerical Simulation - Vision and Strategy”

**Florian Menter** (ANSYS Germany, Germany):  
“Global vs. Zonal Approaches in Hybrid RANS-LES Turbulence Modelling”

**Kozo Fujii** (ISAS/JAXA, Japan):  
“Role of RANS, Hybrid and LES for Wing Flow Simulations at Relatively Low Reynolds Numbers”

**Sharath Girimaji** (Texas A&M University, USA):  
“Partially Averaged Navier-Stokes (PANS) Method for variable-resolution turbulence simulations: Theory and Practice”

**Dieter Schwamborn** (DLR, Germany), **Misha Strelets** (NTS, Russia):  
“ATAAC – an EU-Project Dedicated to Hybrid RANS/LES Methods”

## Abstracts, Presentations, Papers

- An **Abstract of 1-2 (max) pages** must be submitted.
- **Full Papers (10 pages for Distributed, 15 pages for Invited Papers)** have to be submitted according to the schedule of the symposium.
- Following a peer review, **Revised Full Papers** will be published (Springer Series: “Notes on Numerical Fluid Mechanics and Multidisciplinary Design”).
- **For each presentation 25 minutes** are allocated. **Invited Keynote Lectures** will last for **50 minutes**, including (a few minutes) time for discussion.
- **Both abstracts and full papers** must be uploaded to the Symposium Web site – MS-Word templates will be provided (for abstracts and full papers, LaTeX for full paper only) on the conference Web site.

## Important Dates

**10 June 2011** Submission of abstracts  
**15 July 2011** Notification on paper acceptance  
**19 Sept. 2011** Final deadline for full papers  
**28-30 Sept. 2011** Conference  
**10 Oct. 2011** Papers sent out for peer review to reviewers

**Contributors should note that revised full papers are due 4 weeks after receipt of review.**

## Tentative Programme

### 27 September 2011

18:00 - 20:00	Early registration / Reception
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### 28 September 2011

08:00 – 09:00	Registration
09:00 – 10:40	Welcome Opening
10:40 – 11:00	Coffee
11:00 – 12:40	Session I
12:40 – 14:00	Lunch
14:00 – 14:50	Invited keynote I, <b>Dieter Schwamborn, Misha Strelets</b>
14:50 – 16:30	Session II
16:30 – 16:50	Coffee
16:50 – 18:30	Session III
19:00	Reception

### 29 September 2011

08:30 – 09:20	Invited keynote II, <b>Kozo Fujii</b>
09:20 – 10:35	Session IV
10:35 – 11:00	Coffee
11:00 – 12:15	Session V
12:15 – 13:50	Lunch
13:50 – 14:40	Invited keynote III, <b>Florian Menter</b>
14:40 – 18:40	Great Wall Tour
19:30	Conference Dinner, Badaling Great Wall Hotel

### 30 September 2011

08:30 – 09:20	Invited keynote IV, <b>Sharath Girimaji</b>
09:20 – 10:35	Session VI
10:35 – 10:55	Coffee
10:55 – 12:10	Session VII
12:10 – 12:30	Closing remarks
12:30	“Farewell” Lunch