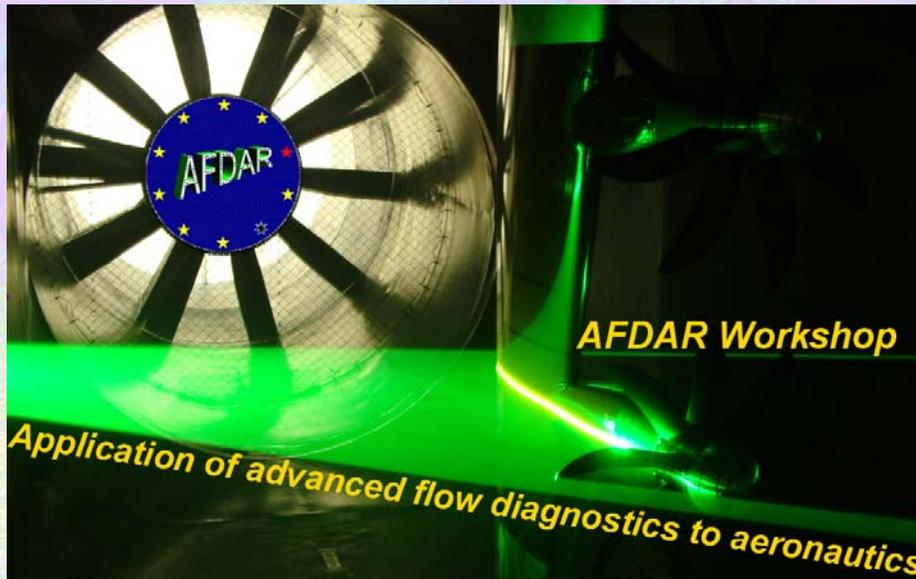


## **Final announcement**



# **AFDAR Workshop Application of advanced flow diagnostics to aeronautics**

**February 06 – 07, 2013**

**DLR Braunschweig  
Germany  
Building 118, AVZ-015**

**<http://events.dlr.de/Display/index.php?cid=6107ec4x129>**

### **General**

The aim of this workshop is to support the exchange of knowledge between those experimentalists and developers who perform or have performed experiments in aeronautical research using advanced flow diagnostic tools and those scientists and end-users utilizing experimental data for industrial research and validation of associated numerical methods. This workshop primarily addresses the advances of the Particle Image Velocimetry techniques and their capabilities of being combined with other field measurement techniques. For the investigation of aeronautical flows with mutual interactions between flow and structure several aspects of the flow as there are aero-acoustics, aero-elastics or aero-thermodynamics have to be tackled simultaneously. Therefore the workshop should provide the opportunity to gather up-to-date information on all aspects of combined experimental field measurement techniques and the structure and content of the related flow field and model surface data.

This workshop will provide an excellent opportunity for scientists and managers from European industry to participate in the discussion between experts and developers in the fields of advanced experimental measurement techniques (such as Tomo PIV) and of problems encountered in the application of such techniques within industrial facilities. The workshop is expected to help to stimulate advanced ways of approaching future aerodynamic studies.

AFDAR (Advanced Flow Diagnostics for Aeronautical Research) is an EC funded project within the 7<sup>th</sup> frame work programme and runs for three years since Dec. 2010. The partners mainly from European universities, research institutes and small and medium enterprises are working together in the development of time-resolved and tomographic (3D) PIV techniques and their combination with other advanced flow diagnostic tools in order to reach a state of maturity and reliability for their applications in industrial research.

### **Scope and main topics**

Investigations in the field of aeronautics often require huge data sets with high spatial and temporal resolution due to the unsteady nature of flows especially at application limits of flow systems and at high-lift-configuration wings. Optical field measurement methods like PIV, PSP, IPCT or Acoustic Array reach a relatively high spatial (and temporal) resolution of significant measures in a field (volume) of the flow or on the model surface, respectively. Today new camera and illumination techniques (laser and LED's) are capable to even enhance the resolution in both domains significantly. On the other hand CFD developers push the borders of their computers when they adapt the spatial and temporal grid resolution to a given flow in order to capture all important flow characteristics. Especially for high Reynolds number flows non-intrusive field measurement techniques can give parts of the desired information about the flow conditions, which are not achievable otherwise.

The workshop is organized with a focus on the problems and solutions at the application of advanced flow diagnostics tools to industrial research facilities.

## Organisation

The workshop will be held over two days ending in the afternoon at the second day. Three hours on the first day will be dedicated to a visit of the AFDAR demonstration experiment at the innovative high-lift model “Bürgernahe Flugzeug” (BNF) using combined Time Resolved Tomo PIV and Acoustic Array techniques for the investigation of the flap side edge noise at the new open anechoic test section of the DNW-NWB wind tunnel.

In each of three sessions a prominent scientist will contribute an invited talk. Topics for talks may address following problems:

- Examples of aeronautical investigations using advanced and combined measurement techniques
- Advanced PIV methods in industrial facilities
- Combined experimental and numerical approaches for large Reynolds number flow investigations
- Perspectives for cooperation with industrial research

## Registration

Registration should be done on the registration website only. The registration fee for the 2 day workshop, which includes lunch and refreshments and a dinner on Wednesday evening, is: €150 for all participants (not being AFDAR partners).

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Please indicate optional your (preliminary) title of contribution, if you are planning to give a talk at the workshop.

## Abstract

Deadline for submission of two-page abstracts is **December 17** to email below.

## Organizer

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## Secretary

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## Invited speaker

**Prof. Rolf Radespiel**

TU Braunschweig

**Prof. Georg Eitelberg**

Director DNW / TU Delft

**Dr. Andreas Wiedemann**

AIRBUS, Germany

## How to reach us at DLR Braunschweig?

### DLR Braunschweig

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DLR's Braunschweig facility is located northeast of Braunschweig city center between airport and the A2 autobahn.

#### 1. Airplane to Hannover airport

S-Bahn from **Hannover airport** -

**Hannover central station** ~ 30 min

Train from **Hannover central station** -

**Braunschweig** by ICE train ~30 min

Take the bus route 436 from the central railway station in the direction 'Flughafen' until bus stop 'DLR' (see the dashed line on the map).

**2. Car** (distance from autobahn A2 exiting at “BS- Flughafen” ~0.4 km)

