

# SEVENTH WORKSHOP ON RESEARCH IN TURBULENCE AND TRANSITION



Escola Tècnica Superior d'Enginyeries Industrial i  
Aeronàutica de Terrassa

Technical University of Catalonia

Terrassa, October 14th, 2013

Iberian-East ERCOFTAC Pilot Centre

## Foreword

The Seventh Workshop on Research in Turbulence and Transition will be held at ETSEIAT (Terrassa School of Industrial and Aeronautical Engineering), in Terrassa (Barcelona, Spain) on October 14th, 2013. These Workshops have been conducted since 2003 at the initiative of CIMNE, Iberian-East and Iberian-West Pilot Centres of the European Research Community on Flow, Turbulence and Combustion (ERCOFTAC), and is a Europe-wide organization that promotes research on topics related to fluid dynamics, turbulence and combustion, and their industrial applications.

The aim of this Workshop is to contribute to a better knowledge of the activities carried out by various Iberian research groups in any field relevant to the turbulence or/and transition. The papers presented correspond to groups from Barcelona, Terrassa and Tarragona.

The organizers of the Workshop want to thank the ETSEIAT at Technical University of Catalonia.

## How to arrive

Terrassa School of Industrial and Aeronautical Engineering  
Terrassa Campus, Building TR5. C. Colom, 11 08222 Terrassa  
<http://www.etseiat.upc.edu/contact>



10:20	<b>Welcome</b>
10:40	<b>Numerical simulation of heat transfer and temperature distribution in a printed circuit board enclosure</b> S. Varela, G. Usera, A. Vernet and J.A. Ferrè
11:00	<b>Analysis of a confined laminar reactive flow in a cylindrical cavity using PLIF and PIV</b> I. Sancho, s. Varela, J. Pallarés and A. Vernet
11:20	<b>Analysis of the suction chamber of external gear pumps and their influence on cavitation and volumetric efficiency</b> D. del Campo, R. Castilla and E. Codina
11:40	<b>Coffee break</b>
12:00	<b>Direct numerical simulation of bubbles rising through viscous liquids</b> J. Castro, N. Balcázar, I. Jofre, O. Lehmkuhl, J. Rigola, A.Oliva
12:20	<b>Direct numerical simulation of a NACA0012 airfoil with massive separation</b> I. Rodríguez, O. Lehmkuhl, R. Borrell, A.Oliva
12:40	<b>New differential operators and discretization methods for eddy-viscosity models for LES</b> F. Xavier Trias, A. Gorobets and A. Oliva
13:00	<b>On the large-eddy simulations of the flow past a cylinder at critical Reynolds numbers</b> O. Lehmkuhl, I. Rodríguez, J. Chiva and R. Borrell
13:20	<b>Lunch</b>
15:20	<b>Transient and dynamic numerical simulation of the fluid flow through valves based on large eddy simulation models</b> J. Rigola, O. Estruch, O. Lehmkuhl, A.Oliva and C.D. Pérez-Segarra
15:40	<b>Large eddy simulation of a turbulent jet diffusion flame using unstructured meshes</b> C.D. Pérez-Segarra, J. Ventosa, O. Lehmkuhl and A. Oliva
16:00	<b>Coffee break</b>
16:20	<b>Variational multiscale large eddy simulation of turbulent incompressible flows</b> O. Colomé, S. Badia, R. Codina and J. Principe
16:40	<b>Variational multiscale large eddy simulation of turbulent thermally coupled flows</b> M. Ávila, R. Codina, and J. Principe
17:00	<b>Final discussion and conclusions</b>