

## General Information

The Database Workshop with test cases from academy and industry will be open to delegates worldwide.

Contributions to simulation/optimization test cases computations will not be required to attend the Database Workshop. Everybody is welcome!

The Database Workshop on Computational Multiphysics Simulation and Design Optimization is organized by Las Palmas de Gran Canaria University, Spain and University of Jyväskylä, Finland, in association with CSC, VTT, Stanford / MIT Consortium for Multidisciplinary System Design and University of Houston, College of Technology.

## The Database Workshop

The need of advanced optimization software for single/ multiphysics design encourages an attempt to a confrontation of computational optimization results stored in a Database on carefully selected problems of industry and society. Opening such a confrontation to all world scientists will allow a more general evaluation of uncertainties in Single/Multi Discipline optimization (MDO) and will provide a reference to define useful validation guidelines for future design in industry and society.

## Objectives of the Database Workshop

- Propose to the scientific/industrial community involved in Design and Control problems, test case analysis and optimization problems for multiphysics software validation.
- Gather a forum of international experts for evaluating by comparison of computerized data the efficiency and robustness of existing and new multidiscipline optimization software without and with uncertainties on selected test cases installed on the Finnish Database.
- Provide industry and society reference test cases for validation of advanced software used to design their new digital complex products.
- Identify collaborative areas requiring additional R&D effort in Multi-criteria / Multidisciplinary Design Optimization.

## Important Dates

3<sup>rd</sup> release of test cases May 15<sup>th</sup>, 2011  
Last registration date November 15<sup>th</sup>, 2011  
Data results installed in Database November 15<sup>th</sup>, 2011

## Registration fee for

Open Express One Day Course 150 €  
Open Express One Day Course & DBW 200 €  
Open Express One Day Course & DBW for students (without lunch and closing dinner) 50 €

## Accommodation

Three hotels: Santa Catalina 5\* (recommended), Hotel Cristina Las Palmas 5\*, Hotel Reina Isabel 4\*

## Secretariat

Nayra Blanco, Las Palmas de Gran Canaria University  
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## Logistic and Scientific Secretariat

- A. Alonso, ULPGC, Spain
- N. Blanco, ULPGC, Spain
- T. Tuovinen, Univ. Jyväskylä, Finland
- K. Valpe, Univ. Jyväskylä, Finland

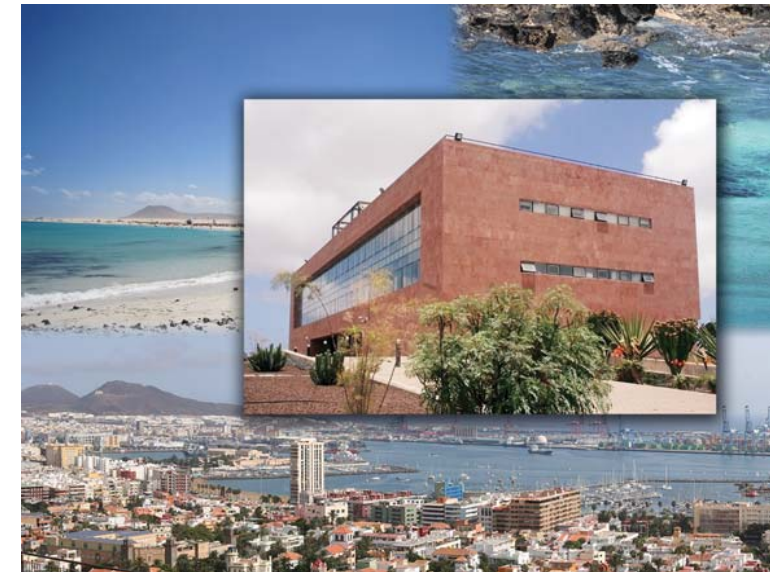


# Open Express One Day Course & Integrated Multiphysics Simulation & Optimization

A Database Workshop for Multiphysics  
Optimization Software Validation

Las Palmas de Gran Canaria University/  
Salón de Actos del Edificio Central del  
Parque Científico y Tecnológico

December 12–13, 2011



Organized by CEANI Division, SIANI Institute,  
from Las Palmas de Gran Canaria University, Spain  
and University of Jyväskylä, Finland,  
in association with CSC, VTT, Stanford / MIT Consortium for  
Multidisciplinary System Design and University of Houston,  
College of Technology

Website: <http://www.mit.jyu.fi/scoma/DBW2011>

## Optimization Test cases for Computation

Academic test cases are marked with TA and industrial test cases with TI.

### TA1 A numerical set-up for benchmarking and optimization of fluid-structure interaction

Chairmen: Stefan Turek, ture@mathematik.uni-dortmund.de  
Mudassar Razzaq, mudassar.razzaq@math.tu-dortmund.de  
Organization: TU Dortmund

### TA2 Inverse or optimization problems for multiple (ellipse) ellipsoid configurations

Chairman: Jyri Leskinen, jyri.leskinen@mit.jyu.fi  
Organization: University of Jyväskylä

### TA4 Optimization of beam profile in fluid-structure interaction

Chairman: Peter Råback, raback@csc.fi (presented by Pekka Neittaanmäki, University of Jyväskylä)  
Organization: CSC - IT Center for Science

### TA5 Shock control bump optimization on a transonic laminar flow airfoil

Chairman: Ning QIN, n.qin@sheffield.ac.uk  
Organization: University of Sheffield

### TA6 3D Shock Control Bump Optimisation

Chairmen: Simon C. McIntosh  
Ning QIN, n.qin@sheffield.ac.uk  
Organization: University of Sheffield

### TA10 Reconstruction of BINACA0012 geometry using discrete and continuous optimization

Chairmen: Jyri Leskinen, jyri.leskinen@mit.jyu.fi  
Hong WANG, hong.m.wang@jyu.fi  
Organization: University of Jyväskylä

### TI3 Inverse or optimization problems for multi-element airfoil configuration

Chairman: Jyri Leskinen, jyri.leskinen@mit.jyu.fi  
Organization: University of Jyväskylä

### TI4 Numerical investigation of 3D flow over Horizontal Axis Wind Turbine NREL Phase VI

Chairman: Charles Hirsch, charles.hirsch@numeca.be (presented by Ms. Hong WANG, University of Jyväskylä)  
Organization: NUMECA International S.A

### TI5 Optimal flow divider

Chairman: Jari Hämäläinen, Jari.Hamalainen@lut.fi (presented by Pekka Neittaanmäki)  
Organization: Lappeenranta University of Technology

### TI6 Structural Optimization of Paper Machine Parts done at the JYU Design Lab

Chairman: Tuomo Varis, tuomo.j.varis@jyu.fi  
Organization: University of Jyväskylä

The announcement introducing Database Workshop with the definition of optimization test cases is available on the website:

<http://jucri.jyu.fi>

## Contributing to the Database

The Design Test Case Database is available at <http://jucri.jyu.fi>. A series of SO and MDO test case descriptions provided by industrial and academic experts can be found on the site mentioned above. The definitions are prepared in such a way that interested parties can test their own optimization tools and methods in solving these test cases.

If you are a researcher or a professional in the field of multidisciplinary optimization and interested in becoming a contributor to the database, please go to the website and follow the instructions. Your application will be processed by the administrators and you will be contacted shortly with further details, including specific details on requested data formats for the computational results as determined by the test case chairmen.

## Invited Lecturers to the Express Course

- Carlos Fonseca, University of Coimbra, Portugal
- David Greiner, CEANI/ULPGC, Spain
- Frédéric Hecht, UPMC-LJLL, France
- Kaisa Miettinen, University of Jyväskylä, Finland and KTH Royal Institute of Technology, Sweden
- Jacques Periaux, University of Jyväskylä, Finland & CIMNE, Spain
- Olivier Pironneau, UPMC, France
- Domenico Quagliarella, CIRA, Italy

## Database Test Case Committee

- H. Carmona, ULPGC, Spain
- R. Cline, Univ. Houston, USA
- C. Hirsch, NUMECA International S.A., Belgium
- J. Hämäläinen, LUT, Finland
- DongSeop C. Lee, CIMNE, Spain
- J. Leskinen, Univ. Jyväskylä, Finland
- J. Periaux, Univ. Jyväskylä, Finland
- N. QIN and S. C. McIntosh, Univ. Sheffield, UK
- P. Råback, CSC, Finland
- S. Turek and M. Razzaq, Univ. Dortmund, Germany
- T. Varis, Univ. Jyväskylä, Finland
- H. WANG, Univ. Jyväskylä, Finland

## International Scientific & Technical Organizing Committee

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