General Information

The Database Workshop with test cases from academy and industry will be open to delegates worldwide. Special efforts will be made to ensure a balanced representation from major areas of Finnish Industries and Bio Engineering & Medical Applications, Academia and Governmental Laboratories.

Potential contributions to simulation/optimization test cases computations will not be required to attend the launch of the Database Workshop.

Everybody is welcome!

The Database Workshop on Computational Multiphysics Simulation and Design Optimization is organized jointly by the University of Jyväskylä, the University of Houston, College of Technology, Stanford / MIT Consortium for Multidisciplinary System Design in association with VTT and CSC.

Secretariat

Contact for Europe
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Database Workshop: DBW@jyu.fi

Contact for North America
Ms. Sharon Lahey, University of Houston, USA

Database Workshop: slahey@uh.edu

Logistic and Scientific Secretariat
- M.-L. Rantalainen, JYU, Finland
- T. Tuovinen, JYU, Finland
- K. Valpe, JYU, Finland
- Wang Hong, JYU, Finland

Important Dates

Release of test cases	May 30, 2009
Test cases definition booklet	July 1, 2009
Registration	November 15, 2009
Data installed from computations	November 15, 2009
Preparatory Database Workshop	December 3-4, 2009

Detailed information will be available from the events website in September 2009:
http://www.mit.jyu.fi/scoma/DBW

Registration Fees
Please register for the Preparatory Database Workshop at the events website: **http://www.mit.jyu.fi/scoma/DBW.** Registration fee is 200€.

Accommodation
For hotel accommodation please check the website:
http://www.mit.jyu.fi/scoma/DBW

Parallel Event
The Preparatory Database Workshop in December will be run in conjunction with 10th Finnish Mechanics Days Conference. More information is available on the events website:
http://www.mit.jyu.fi/scoma/Mekaniikkapaivat2009/

Integrated Multiphysics Simulation & Design Optimization:

Database Workshop for multiphysics optimization software validation

Presentation of the
Academic Test Case Results
Agora, Jyväskylä, December 3–4, 2009

www.kuvaaja.fi © Markku Könkkölä

This is a parallel event with
10th Finnish Mechanics Days.

Organized by **the SCOMA Center, University of Jyväskylä,** in association with **CSC, VTT, Stanford / MIT Consortium for Multidisciplinary System Design and University of Houston, College of Technology**

Sponsored by TEKES FIDIPRO PROGRAM

Website: http://www.mit.jyu.fi/scoma/DBW

Database Workshops

The Integrated Multiphysics Design Database was launched last March 2009 to provide a computational tool for the general evaluation of uncertainties and a reference with useful validation guidelines for future products in the area of multidisciplinary design optimization. The database makes possible the evaluation of both the efficiency and the robustness of innovative software via comparison of existing computational and experimental data. The database will incorporate optimization test cases from a variety of areas including telecommunications, aerospace, energy, environmental engineering, biomechanics and medicine, and computational science. The database is hosted by the University of Jyväskylä in Finland with a mirror site at the University of Houston.

Two events, one upstream and other more downstream, are scheduled on to engage and involve the worldwide scientific and technological community. The Preparatory Database Workshop held on December 3rd and 4th, 2009, in Jyväskylä, Finland will be concerned with the presentation and analysis of academic optimization test cases. The second event which also will be held at the University of Jyväskylä is entitled the Industrial and Academic Database Workshop. This Workshop, held on March 10th–12th, 2010, will be concerned with the presentation and analysis of industrial as well as academic test cases.

The Preparatory Database Workshop will be run in conjunction with 10th Finnish Mechanics Days Conference. Industrial and Academic test cases will be presented during the spring of 2010 in conjunction with a Tekes DESIGN event entitled "Database Workshop for Multiphysics Software Validation".

Objectives of the Database Workshop

The objectives of the Database Workshop are threefold:

- Introduce the scientific/industrial community involved in design and control to the optimization test case problems for the purpose of multiphysics software validation;
- To convene a national/international forum of experts involved in the evaluation and validation of advanced multidisciplinary optimization software;
- Identify collaborative areas requiring additional research and development in multidisciplinary and/or multi cale design optimization.

The announcement introducing the two Database Workshops which includes a description of optimization test cases that are now available on the website:

http://jucri.jyu.fi

Test Cases

Below the academic test cases are marked with TA and industrial test cases are marked TI.

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

Chairman: 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

TA3 Numerical investigation of two dimensional flow over Darrieus-type wind turbine

Chairman: Matti Nurmia, matti.j.nurmia@jyu.fi
Organization: University of Jyväskylä

TA4 Optimization of beam profile in fluid-structure interaction

Chairman: Peter Råback, raback@csc.fi
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

TI1* MDO of Mobile Phone: Antenna, SAR, HAC and Temperature

Chairman: Jari Jekkonen, jari.jekkonen@nokia.com
Organization: Nokia Corporation

TI2* Patria AST Test Case 2.1–2.3

Chairman: Petri Hepola, petri.hepola@patria.fi
Organization: Patria Aerostructures Oy

* Please take into consideration that only academic test cases (TA) will be presented in December 2009.

Contributing to the Database

The Design Test Case Database is available at http://jucri.jyu.fi. A series of MDO test case descriptions provided by industrial and academic experts can be found on that site. The definitions are prepared in such a way that interested parties can test their own 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 with further details shortly, including specific details on requested data formats for the computational results as determined by the test case chairmen.

Invited Speakers
- 1
- 2
- 3

Database Test Case Committee
- J. Forsman, JYU, Finland
- P. Hepola, Patria, Finland
- J. Jekkonen, Nokia, Finland
- J. Leskinen, JYU, Finland
- Ning Qin, Univ. Sheffield, UK
- P. Råback, CSC, Finland
- T. Tuovinen, JYU, Finland
- S. Turek, Univ. Dortmund, Germany
- T. Varis, JYU, Finland
- Wang Hong, JYU, Finland

International Scientific & Technical Organizing Committee
- J. Alonso, Stanford, USA
- W. Fitzgibbon, Univ. of Houston, USA
- J. Järvinen, CSC, Finland
- M. Korkiakoski, Tekes, Finland
- I. Kroo, Stanford, USA
- P. Neittaanmäki, JYU, Finland
- J. Periaux, JYU, Finland
- J. Rahola, Nokia, Finland
- O. Ventä, VTT, Finland
- K. Willcox, MIT, USA