

Thursday, June 14, 2012

Agora Aud 2

8:30 **Registration**

9:15 **Introduction**

Pekka Neittaanmäki (University of Jyväskylä, Finland), Yuri Kuznetsov (University of Houston, USA), William E. Fitzgibbon (University of Houston, USA), Olivier Pironneau (University Paris 6, France)

Laudatio

William E. Fitzgibbon, University of Houston, USA

Session 1: CFD 1, 9:30-10:30

**Chairman: Timo Tiihonen, Department of Mathematical Information Technology,
University of Jyväskylä, Finland**

9:30 Dietrich Knoerzer, DG Research & Innovation, European Commission
*The Research Framework Programmes of the European Union –
Towards Sustainable Innovations by the Example of Aeronautics*

10:00 Domenico Quagliarella, Department of Fluid Dynamics Italian Aerospace Research Center (CIRA), Italy
Optimization under Uncertainty: Criteria and Examples

10:30 **Coffee break at the main foyer of Agora**

Session 2: CFD 2, 11:00-12:30

**Chairman: Raino Mäkinen, Department of Mathematical Information Technology,
University of Jyväskylä, Finland**

11:00 Nobuyuki Satofuka, University of Shiga Prefecture/KIT, Japan
Local Computational Approach for Unsteady Viscous Incompressible Flows

11:30 Tatiana Kozubskaya, M. V. Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, Russia
Higher-Accuracy Edge-Based Reconstruction Schemes towards Applied Problems in Aeroacoustics

12:00 Jukka Toivanen, Department of Mathematical Information
Technology, University of Jyväskylä, Finland
Lattice Boltzmann simulations of matrix diffusion

12:30 **Lunch at Piato**

Session 3: Numerical Methods 1, 13:30-15:00

Chairman: William E. Fitzgibbon, University of Houston, USA

13:30 Gerard Meurant, CEA, France
Spectral information and GMRES convergence

14:00 Herman Deconinck, Von Karman Institute for Fluid Dynamics,
Belgium
*Contribution to adjoint based error estimation and grid adaptation for
Petrov Galerkin Finite Element and Residual Distribution methods*

14:30 Pedro Díez, Universitat Politecnica de Catalunya (UPC
BarcelonaTech), Spain
*Enhanced XFEM for multiphase flow: implementation and stability
analysis*

15:00 **Coffee break at the main foyer of Agora**

Session 4: Optimization 1 and Applications, 15:30-17:00

**Chairman: Pekka Neittaanmäki, Department of Mathematical Information
Technology, University of Jyväskylä, Finland**

15:30 Mohamed Masmoudi, Institut de Mathématiques de Toulouse,
France
The vault method

16:00 Karkenahalli Srinivas, School of Aerospace, Mechanical and
Mechatronic Engineering, University of Sydney, Australia
Optimization of Stents for Coronary and Cerebral Application

16:30 **End of day 1**

19:00 **Dinner at Ylistö**

Friday, June 15, 2012
Agora Aud 2

9:00 **Registration**

Session 5: Numerical Methods 2, 9:30-11:00

Chairman: Yuri Kuznetsov, University of Houston, USA

9:30 Roland Glowinski, University of Houston, USA
On Alternating Direction Methods of Multipliers

10:00 Boris N. Chetverushkin, M. V. Keldysh Institute of Applied
Mathematics, Russian Academy of Sciences, Russia
*Resolution limits of continuous media models and their mathematical
formulations*

10:30 Pierre Perrier, Académie Française des Technologies, French
Academy of Technologies, France
*A guide for the selection of a numerical methodology fitted to the
analysis of extreme events*

11:00 **Coffee break at the main foyer of Agora**

Session 6: Optimization 2, 11:30-13:00

Chairman: Olivier Pironneau, University Paris 6, France

11:30 Ronald H. W. Hoppe, University of Augsburg, Germany /
Department of Mathematics, University of Houston, USA
*Projection Based Model Reduction for Shape Optimization of the Stokes
System*

12:00 Jean-Antoine Désidéri, INRIA Sophia (French National Research
Institute for Computational Sciences), France
*Multiple-Gradient Descent Algorithms - Application to Domain
Partitioning*

12:30 Kaisa Miettinen, Department of Mathematical Information
Technology, University of Jyväskylä, Finland
*Some Computational Challenges of Simulation-Based Design using
Multiobjective Optimization*

13:00 **Lunch at Wilhelmiina**

Session 7: Optimization 3, 14:00-15:30

Chairman: Marko Mäkelä, University of Turku, Finland

14:00 Frédéric Hecht, UPMC, Laboratoire Jacques-Louis Lions, France
Optimisation tool in FreeFem++ software

14:30 Jyri Leskinen, Department of Mathematical Information
Technology, University of Jyväskylä, Finland
*Solving Inverse Shape Design Optimization Problems using a
"Distributed One Shot" Method*

15:00 Hong Wang, Department of Mathematical Information
Technology, University of Jyväskylä, Finland
*Active flow control of airfoil using mesh/meshless method coupled to
hierarchical genetic algorithms for drag reduction design*

15:30 **Ending words**

15:45 **End of workshop**