State of art will be analyzed in this Panel in order to go a step further in determining future and emerging IT technologies which will enable the maximum efficiency of established and future large scale simulation software. This innovative software will be will suited to supercomputing grids, clusters, Graphical visualization, and also to emerging GPU technology to be applied to areas (1) to (3) problems.

Forum Organization and Programme

The Forum day is being run over March 12, 2010 so that participants can attend to see specific roadmaps for new software they are interested and to discuss their new requirements with developers.

Examples showing the benefits of future software associated to multiphysics modelling and simulation including high performance computing on parallel environments will be demonstrated by expert panelists belonging to European Industries, Governmental Institutions and Universities.

Due to the tight schedule 8:45 a.m. – 5:00 p.m. requested by the development of the Innovative Software Horizons Forum on March 12, 2010 it is highly recommended to arrive on March 11 in Jyväskylä. Welcome dinner is offered to participants to the Innovative Software Forum after registration.

More information at the Forum website: **http://www.mit.jyu.fi/scoma/Forum2010** and by email: **scoma-dbw@jyu.fi**

International Scientific & Technical Organizing Committee

- J. Alonso, Univ. Stanford, USA
- F.-K. Chang, Univ. Stanford, USA
- W. Fitzgibbon, Univ. Houston, USA
- J. Järvinen, CSC, Finland
- M. Korkiakoski, Tekes, Finland
- I. Kroo, Univ. Stanford, USA
- P. Neittaanmäki, Univ. Jyväskylä, Finland (Forum and Database Workshop Co-Chairman)
- J. Periaux, Univ. Jyväskylä, Finland (Forum and Database Workshop Co-Chairman)
- A. Ptchelintsev, Nokia, Finland
- J. Rahola, Optenni Ltd., Finland
- O. Ventä, VTT, Finland
- K. Willcox, MIT, USA

Tentative Panelists

- Mika Aalto, Tekes, FiDiPro Programme, Finland
- Amir Averbuch, Tel Aviv Univ., Israel / Univ. Jyväskylä, Finland
- Olaf Brodersen, DLR, Germany
- William Fitzgibbon, College of Technology, Univ. Houston, USA
- Blas Galván, Univ. Las Palmas de Gran Canaria, CEANI, Spain
- Teuvo Heikkilä, EMFIT, Finland
- Charles Hirsch, NUMECA International, Belgium
- Jouni Hämäläinen, VTT, Finland
- Janne Ignatius, CSC, Finland
- Jari Järvinen, CSC, Finland
- Jyrki Kullaa, Aalto University School of Science and Technology, Finland
- Tommi Kärkkäinen, Univ. Jyväskylä, Finland
- Sakari Lukkarinen, Comsol, Finland
- Toan Nguyen, INRIA Rhône-Alpes, France
- Antti Niemistö, Numerola, Finland
- Carlo Poloni, Univ. Trieste & ESTECO srl, Italy
- Tuomo Rossi, Univ. Jyväskylä, Finland
- Jean-Pierre Théret, Dassault Systems, France
- Mariano Vasquez, Mare Nostrum, BSC/Univ. Politec. Catalona, Spain
- Olli Ventä, VTT, Finland

Open Innovative Software Horizons Forum

March 12, 2010
University of Jyväskylä / Agora

This Forum is set up specifically for Software Enterprises
www.mit.jyu.fi/scoma/Forum2010

REGISTRATION FREE

Hosted by SCOMA Center and University of Jyväskylä, Finland
in association with CSC and VTT
A Tekes FiDiPro Program

UNIVERSITY OF JYVÄSKYLÄ SCOMA CENTER CSC Tekes VTT

Open Innovative Software Horizons Forum

The Open Innovative Software Horizons Forum will feature keynote speakers and decision makers from academy, large and small (SMEs) industries and Governmental Institutions who will share their perspectives on the new societal challenges of greener transport, safety & security, environmental problems and high performances parallel computing & large sets of data.

A series of debates on future software needed to master new greener technologies will be organized on specific topics like transport & aeronautics, structural health monitoring (SHM), renewable energy and large scale simulation & optimization.

The Open Innovative Software Horizons Forum will consist also of panel discussions in which leaders from industry, government, and academia will address current issues and trends in R&D greener technologies to establish an efficiency software roadmap for the design of innovative products constrained by economical and societal imperatives for the design of products.

Panel 1: Greener Transport & Aeronautics

Moderator

- W. Fitzgibbon, College of Technology, Univ. Houston, USA

Tentative Lecturers

- O. Brodersen, DLR, Germany
- C. Poloni, University of Trieste & ESTECO srl, Italy
- J. P. Théret, Dassault Systems, France

This Panel discussion is green environmental thinking oriented an its economic imperative to develop advanced innovative software discussed. It will focus on the reduction of emissions technologies on Transport and Aeronautics.

State of the art will be discussed in terms of physical modelling and software to be used as eco-efficiency drivers in order to determine future and emerging technologies which enable significant reduction of greenhouse gas, pollutant emissions (NO_x, CO_2) decreased by environmentally friendly biofuels, reduction of drag technologies, reduction of noise technologies (dBs) coming from aircraft (greener skies), ships and car engines (clean electric cars), reduction of weight and environmental footprint of recyclable materials on aircraft and car after their lifespan (green materials).

Prospectives on new software to be used as eco-efficiency drivers to cope with emerging technologies which enable lower pollution effects on societal environments and better aerodynamic designs will be discussed from a technical and economical point of view.

Panel 2: Safety & Security

Moderator

- O. Ventä, VTT, Finland

Tentative Lecturers

- A. Averbuch, Tel Aviv Univ., Israel / JYU, Finland
- B. Galván, ULPGC, Spain
- J. Kullaa, Aalto University, Finland

A growing trend in industry is to perform active condition monitoring of delivered devices, machines, or systems, over the entire life-time. The task has been in the interest of the end-user but ever more it is outsourced to vendors, contractors, or third parties specialized in such an industrial service business.

Structural Health Monitoring (SHM) is an emerging technology dealing with implementation of techniques and systems where monitoring, inspection and damage detection become an integral part of structures and a matter of automation.

A discussion on the multidisciplinary aspects of SHM systems and their technologies relevance in aeronautical, civil engineering and electricity dispatching complex societal applications will be central to this panel. Prospectives on innovative software to maximize performance of SHM systems for a given sensor network will be discussed.

Panel 3: Renewable Energy

Moderator

- J. Järvinen, CSC, Finland

Tentative Lecturers

- M. Aalto, Tekes, Finland
- J. Hämäläinen, VTT, Finland
- J. P. Théret, Dassault Systems, France

Human societies are dependent on and maintained by a continuous flow of energy, arguably the most fundamental and basic resource. As such, energy is an issue that affects all human activities and cuts across all policies.

The world and Europe in particular has entered into a new energy era. Europe's energy economy is currently on a path that is not sustainable and urgent action is needed. Sustainable, affordable and secure energy has to become one of the basic pillars of daily life.

A significant impact of innovative software in computational modeling, simulation and optimization is expected in the following area: how to improve energy efficiency throughout the energy system; how to accelerate the penetration of renewable energy sources; decarbonise power generation and, in the longer term, substantially decarbonise transport, reduce greenhouse gas emissions.

From State of the Art presentations on Renewable energies the discussion of this Forum will be focused on how. New advanced software can better contribute to accelerating the development of cost-effective technologies for a more sustainable energy economy in Finland (and also in Europe) in wind and biomass, geothermal, thermal solar, ocean; power plants for decentralized electricity, etc…

A wide-ranging R&D software effort is also required to increase the efficiency, flexibility, safety, reliability and quality of the Finnish and European electricity and gas systems and networks.

Panel 4: Large Scale Simulations with HPC on Parallel Environments

Moderator

- T. Kärkkäinen, Univ. Jyväskylä, Finland

Tentative Lecturers

- J. Ignatius, CSC, Finland
- T. Nguyen, INRIA Rhône-Alpes, France
- M. Vasquez, Mare Nostrum, BSC/ Univ. Politec. Catalona, Spain

High Performance Computing is established as an efficient tool for large scale simulation and optimization for multiphysics societal and industrial applications. The panel will focus on the available and future IT technologies and software which will facilitate and speed up the development of new technologies for Greener Transport (1), Security & safety (2), Renewable energy (3) among other areas. Innovative software will cope with new distributed supercomputing facilities where time-to-market of new greener products could be reduced significantly and will require large sets of data to be exploited.