**Integrated Modelling Technology workshop**

June 8-10, 2011

Cadarache, France

The ITER Integrated Modelling Analysis Suite (IMAS) is currently being defined by a consortium including CEA, CRPP, Chalmers and Areva, under a Contract with the ITER Physics and Operation Department. The consortium has performed an initial capture of the requirements and is now seeking input on potential technologies to help realize the ITER Integrated Modelling Analysis Suite.

The IMAS will be developed and in use over an extended period of time. Hence, extensibility and sustainability of the proposed solutions will be of particular interests as well as production level hardening of the technologies.

The aim of the workshop is to provide a broad review and discussion of suitable existing or emerging technologies and to gain knowledge insights in potential candidate technologies for the IMAS. In addition, the initial IMAS requirement capture done by the Consortium may be reviewed / extended from the discussions.

This workshop is organized jointly by ITER Organization and CEA/IRFM.

Agenda

**Version 6 – 20 May 2011**

**Wednesday 8 June morning: Scope and Status**

9h-10h20

* Introduction, W. Houlberg 10 min.
* Use Cases and Outline of the Requirements, F. Imbeaux 40 min
* Discussion: Comments on the use cases and requirements by participants 30 min

10h20-10h40 : coffee break

**Wednesday 8 June morning: Frameworks and Workflow technologies (1/2)**

10h40-12h30

* Introduction: IMAS requirements towards Frameworks and Workflows, B. Guillerminet (20 + 20)
* SWIM Framework, W. ElWasif (ORNL) (20 + 10)
* SOAF Framework, N. Hayashi (JAEA) (20 + 10)

12h20 – 13h40 : lunch

**Wednesday 8 June afternoon: Frameworks and Workflow technologies (2/2)**

13h40-15h40

* Climate modeling Framework, S. Denvil (CNRS) (20 + 10)
* Kepler, I. Altintas (20 + 10)
* Taverna, S. Soiland-Reyes (20 + 10)
* Strategies for collaborative Design and Validation, J. Courquet (CS) (20 + 10)

15h40-16h00 : coffee break

16h00-18h00

* Comparison of scientific workflow engines, reported by B. Guillerminet (CEA) (20+10)
* EU ITM-TF experience with Kepler, G. Falchetto (CEA) (20+10)
* Experience with Simulink, Scicos and Kepler, S. Mannori (ENEA) (20+10)
* Discussion (30)

**Thursday 9 June morning: Data Structures, Data Descriptions, & Code/Component Interfaces**

9h-10h40

* Introduction: IMAS requirements towards Data Structures, Data Descriptions & Code/Component Interfaces, F. Imbeaux (20+20)
* Data structures and Code Interfaces of BPSD, A. Fukuyama (20+10)
* Data coupling in the SWIM Framework: Plasma State, D. Batchelor (20+10)

10h40-11h00 : coffee break

11h00-12h30

* Coupling CAD data to Simulations, J. Courquet (CS) (10 + 10)
* EU ITM-TF experience with CPOs, D. Coster (20+10)
* Discussion (30)

12h30-14h00 : Lunch

**Thursday 9 June Afternoon: Multi-scale physics and integration of large scale computing**

14h-15h40

* Introduction: IMAS requirements towards Multi-scale physics and integration of large scale computing, P. Strand (20+20)
* Computational efficiently and simulation architecture, J. Courquet (CS) (20 + 10)
* The Mapper project, E. Lorenz (20+10)

15h40-15h50 : Coffee break

15h50-18h00

* Some examples of software solutions for solving multiphysics and/or multiscales problems, M. Poujol (SOPRA Group) (25+15)
* Edge and Scrape-off Layer integration, N. Bisai (20+10)
* CPES, D. Batchelor (20+10)
* Discussion (30)

**Friday 10 June Morning: Automated Plasma Reconstruction**

9h-10h40:

* Introduction: IMAS requirements towards Automated Plasma Reconstruction, O. Sauter (20+20)
* Automated Plasma Reconstruction at JET, D. McDonald (20+10)
* Automated Plasma Reconstruction at ASDEX Upgrade, C. Fuchs (20+10)

10h40-11h : coffee break

11h-12h30:

* Automated Reconstruction and Experimental Integrated Modeling and Data Analysis in DIII-D, L. Lao (20+10)
* Automated Plasma Reconstruction at LHD, M.Yokoyama (NIFS) (20+10)
* Discussion (30)

**Friday 10 June Afternoon: Plant system integration (Plasma Control System and Tokamak Simulator)**

14h00-16h10:

* Introduction: IMAS requirements towards Plant system integration, O. Sauter (20+20)
* PCS integration with Simulink, Scicos & Kepler, S. Mannori (20+10)
* Lessons learned from DINA-CH simulator, J. Lister (reported by B. Duval) (10+5)
* Prototype IMAS-PCS coupling demo, O. Sauter/P. Huynh (20+10)
* Discussion (30)

16h25-16h45: coffee break

16h45-18h00: Final discussions and summary

**18h00: End of the workshop**