



EFDA

EUROPEAN FUSION DEVELOPMENT AGREEMENT

Task Force
INTEGRATED TOKAMAK MODELLING

Remote meeting, 28 Sept 2011

**INTEGRATED SCENARIO MODELLING,
Introduction
meeting 28 September 2011**

**Presented by X LITAUDON & I
VOITSEKHOVITCH**

TF Leader : G. Falchetto
Deputies: R. Coelho, D. Coster

EFDA CSU Contact Person: D. Kalupin

Agenda

- 1) Introduction, general information X. Litaudon**
- 2) report from ITM general meeting and first discussion on 2012 ISM activities I. Voitsekhovitch & X. Litaudon**
- 3) Modelling of JET hybrid current ramp-down J.P Bizarro**

Remote meeting

**Regular remote meeting on Wednesday morning
10h30-12h00 CET (09h30-11h00 GMT) :**

- **07 Sept**
- **28 Sept.**
- **12 Oct.**
- **26 Oct.**
- **23 Nov.**
- **14 Dec.**

2011 ISM Working session

- **First ISM working session 07 March - 11 March**
- **Second ISM working session 04-08 July FOM**
- **Third: Culham from Monday 7 (10am) to 11 Nov (14 pm)**
 - **Local Host** irina.Voitsekhovitch@ccfe.ac.uk
 - **Tuesday 08 Nov afternoon: joint ISM-TF E1 meeting on modelling**
 - **Wed 09 or Thursday 10 Nov at 5pm : remote session from USA with Ph Snyder on EPED modelling for JET and ITER**
 - **Remote session from Japan on JET-JT-60U modelling (visit of J Garcia)**
 - **invitation letter for mobility support, could you tell us by the 17 October !**

2011 ISM Working session
Tuesday 08 Nov afternoon: joint ISM-TF E1 meeting
on modelling (draft agenda proposed E. joffrin)

- Ex-2.1.2 and Ex-2.1.4: C. Challis & P. Lomas
- Ex-2.1.3: D. Frigione
- Ex-2.1.5 and Ex-2.3.2: B. Bucalossi & F. Rimini
- Ex-2.1.7: J. Mailloux
- Ex-2.3.1 : F. Rimini
- Coffee break
- Ex-2.2.1 and Ex-2.2.2 : J. Coenen and R. Dux
- Ex-1.3.2 and Ex-2.2.3 : G. Maddison and P. Monier-Garbet
- Ex-3.2.1: C. Maggi
- Ex-2.2.5 : A. Hubber
- Summary and link with edge modelling: E. Joffrin & M. Groth
-
- Format
 - - Experiments goals and deliverables
 - - Timeline details: number of sessions, dates,
 - - Strategy for the experiment (or tentative if not yet fully discussed)
 - - Modelling activity foreseen for the preparation of the experiment
 - - Modelling activity foreseen for the interpretation of the experiment and exploiting the expected experimental results
 - - Key questions that scenario (integrated) modelling need to address
 - - Key questions (in connection with edge modelling.
 - - Modelling issues requiring code development

➤ **Visit of J. Garcia at JAEA to work with N. Hayashi on JT-6U scenario modelling with the JET-JT-60U agreement***

– 16 oct-13 nov.

* “The Proposal Document Sheet related to the Comparison and modeling of JT-60U and JET plasmas in typical operational domains”

The 21st International Toki Conference (ITC-21) will be held at Toki

- **The 21st International Toki Conference (ITC-21) will be held at Toki, Gifu, Japan from November 28 to December 1, 2011. Abstract submission can be made starting July 8, 2011 through the Conference web site (<http://itc.nifs.ac.jp/>).**
- **On Integration of Fusion Science and Technology for Steady State Operation**
- **Oral presentation by G.M.D. Hogeweij et al for ISM « Optimizing the current ramp-up phase for the hybrid ITER scenario »**

2011 ISM Publication

- **Predictive analysis of q-profile influence on transport in JET and AUG hybrid scenarios J. Citrin et al**
 - on the JET pinboard to be submitted to PPCF

- **Simulations of density profiles, pellet fuelling and density control in ITER L Garzotti et al.**
 - on the JET pinboard submitted to Nuc. Fusion
 - Positive replies from referees

- **Current ramps in tokamaks : from present experiments to ITER scenarios**
 - F Imbeaux et al to appear in Nuc. Fusion
 - Joint ITPA/ISM

- **to send out the ITM 2012 Call for Proposal by end of October !**
- **Oct 2012**
 - **Define the 2012 ISM tasks and team**
 - **Cf next presentation by Irina**
 - **Contact us urgently for comments and proposals**

2012 ISM actions

➤ **ACT-1:**

- benchmarking of NCLASS in self-consistent simulations (j , T_e , T_i) for JET Hybrid scenario
- Benchmark particle transport Bohm/gyro-Bohm model
- Comparison ETS with experimental data (including sources) & ITM tools for physics studies (edge MHD stabilities, NTM, ohmic ramp-up in MAST ...)

➤ **ACT-2:**

- modelling of current diffusion, thermal and **particle transport**, validation of transport models including TGLF for existing and new discharges
- JET- JT60U scenario modelling
- Modelling of JET- ASDEX-U similarity hybrid experiment
- Comparison of JET- ASDEX-U - DIII-D hybrid current diffusion
- Momentum transport in JET hybrid scenario
- core-edge simulations in preparation of JET experiments

➤ **ACT-3:**

- Extension of the ITER hybrid scenario operational domain ($q_0 < 1$?)
- ITER hybrid ramp-down
- ITER density effect with first principle modelling
- ITER real time profile control
- 1-D scenario JT-60SA modelling
- DEMO – 0D modelling using Kepler workflow