INTEGRATED SCENARIO MODELLING

ISM working session June 3-7 2013: agenda and working groups

I. VOITSEKHOVITCH and J. GARCIA

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

EFDA CSU Contact Person: D. Kalupin

Agenda

Monday 3 June Building 506, Salle de Maquettes		
10.00 - 10.10	Welcome, local information	J. Garcia
10.10 - 10.20	Agenda, work programme	I. Voitsekhovitch
10.20 – 10.50	Status of WEST modelling	C. Bourdelle
10.50 – 11.10	Coffee break	
11.10 - 11.40	Impact of W on current ramp-up phase in JET and ITER	D. Hogeweij
11.40 - 12.10	Real-time reconstruction, control and optimization of plasma profiles using the RAPTOR code	F. Felici
12.10 – 12.30	Numerical optimization of the actuator trajectories in ITER hybrid scenario	J. van Dongen
12h30-13h30	Lunch	
13h30-18h00	Working session. ETS_A training for ACT1 team. Coffee break at 15.30	

Agenda

Tuesday 4 June Building 506, Salle de Maquettes		
9.00 - 12.30	Working session (coffee break at 10h30)	
12.30 - 13.30	Lunch	
13.30 - 18.00	Working session (coffee break at 15h 30)	

Group lunch on Tuesday?

Wednesday 5 June Building 506, Salle de Maquettes		
9.00 - 12.30	Working session (coffee break at 10h30)	
12.30 – 13.30	Lunch	
13.30 - 18.00	Working session session (coffee break at 15h30)	

ISM WS June 3-7, CEA-Cadarache: agenda

Thursday 6 June Building 506, Salle de Maquettes		
9.00 – 12.00	Working session. Coffee break at 10.30	
12.00 – 13.00	Lunch	
14.00 – 16.05	Joint ISM – IO meeting. Topics: - *density simulations and density effects on plasma performance* *- impurity simulations* *- plasma control*	
16.05 – 16.25	Coffee break	
16.25 – 18.00	Working session	

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14. 00 – 14.05	Introduction	I. Voitsekhovitch, J. Garcia
14.05 – 14.30	ITER modelling needs	A. Loarte
	ISM talks (physics model, numerical tool, main results)	
14.30 – 14.40	Particle transport with theory-based models	J. Garcia
14.40 – 14.50	Pellet fuelling for ITER	L. Garzotti
14.50 – 15.00	Core-SOL modelling of ELM mitigations (JET)	F. Köchl
15.00 – 15.10	Core-SOL ITER H-mode modelling including impurity	I. Voitsekhovitch
15.10 – 15.20	Current ramp up in ITER: density & impurity effects (tbc)	D. Hogeweij
15.20 – 15.30	RAPTOR capabilities for plasma control for ITER (tbc)	F. Felici
	Status of integrated modelling tools	
15.30 – 15.45	Status of IO modelling tools	S. Pinches
15.45 – 15.55	Status of ETS	D. Kalupin
15.55 – 16.05	Discussion of ISM actions for ITER modelling	All

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Friday 7 June, 9.00-13.00: reports from ISM working session Building 506, Salle de Maquettes	
ACT1: Modelling of JET Hybrid scenarios with the European Transport Solver (EPS 2013 contribution)	A. Figueiredo, D. Kalupin
ACT1: Effect of NTM on transport and confinement in Hybrid Scenarios	S. Nowak, V. Basiuk, O. Sauter, A. Merle, P. Huynh
ACT1: Status of impurity modelling with ETS	Yu. Baranov, I. Ivanova - Stanik, D. Kalupin, R. Stankiewicz
ACT1: Modelling of ITER scenarios with ETS WFs, based on the existing scenario developed with CRONOS, JETTO and ASTRA	V. Basiuk, X. Litaudon, P. Huynh
ACT2: Modelling of JT-60U and JET plasmas in typical operational domains. Role of fast ions in hybrid scenarios	J. Garcia
ACT2: Turbulent transport analysis with TGLF, QualiKiz, GLF23 for JET hybrids (EPS 2013 contribution)	B. Baiocchi
Coffee break	

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Friday 7 June, 9.00-13.00: reports from ISM working session **Building 506, Salle de Maquettes**	
ACT2: Simulations of density profiles in JET hybrid discharges	**L. Garzotti**
ACT2: Integrated core+edge+MHD modelling of ELM mitigation at JET (EPS 2013 contribution)	**F. Köchl**
ACT2: JET current ramp up/down modelling	**D. Hogeweij**
ACT3: Optimization of the ITER ramp-up phase with RAPTOR	J. van Dongen
ACT3: Model-based real-time profile reconstruction, demonstration for ITER scenario	F. Felici
ACT 3: Integrated core-SOL simulations of ITER H-mode scenario: effect of pedestal density (14th PET workshop)	I. Ivanova-Stanik, F. Köchl, R. Stankiewicz, I. Voitsekhovitch
ACT 3: ITER scenario modelling with METIS including the real time control of the fusion burn	X. Litaudon
ACT3: Progress in DEMO simulations with Kepler WF?	C. Reux
ACT3: Progress in JT-60SA modelling	J. Garcia
ACT3: Progress in four-field simulations for ITER HS	I. Voitsekhovitch
Closing Working session	**I. Voitsekhovitch, J. Garcia**

ISM WS June 3-7, CEA-Cadarache: participants

CEA:
Jeronimo Garcia
Xavier Litaudon
Benedetta Baiocchi
Vincent Basiuk
Philippe Huynh
Jean-Francois Artaud

CCFE:
Irina Voitsekhovitch,
Yuri Baranov
Luca Garzotti

DIFFER:
Dick Hogeweij
Jeroen van Dongen
Federico Felici

ENEA:
Silvana Nowak (5-7 June)

IPPLM:
Irena Ivanova-Stanik
Roman Stankiewicz

IST:
Antonio Figueiredo

ÖAW:
Florian Köchl

Swiss Confederation:
Olivier Sauter
Antoine Merle

EFDA-Garching:
Denis Kalupin

IO:
Alexei Polevoi
Sun Hee Kim
Joint ISM – IO meeting June 6:
Alberto Loarte, Joe Snipes, Simon
Pinches, Masanari Hosokawa

Act-1: ETS validation and application of ITM workflows to physics studies

a. Modelling of ITER scenarios with ETS workflows, based on the existing scenario developed with CRONOS, JETTO and ASTRA

V. Basiuk, J. Garcia, Ph. Huynh, X. Litaudon

b. Effect of NTM on transport and confinement in Hybrid Scenarios (JET, AUG, ITER)

S. Nowak, V. Basiuk, O. Sauter, A. Merle, Ph. Huynh

c. Core impurity transport and radiation in JET (C & ILW) and ASDEX-Upgrade (W wall)

Yu. Baranov, I. Ivanova-Stanik, D.Kalupin

d. Self-consistent (Te, Ti, ne, j) predictive modelling for JET plasmas with the ETS – contribution to EPS 2013

A. Figueiredo, J. Ferreira (remotely), D. Kalupin, V. Basiuk, Ph. Huynh

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➢ **Data processing & transfer to the ITM of four ASDEX-Upgrade discharges - 27559, 27517, 28906 and 29828 – have been agreed (thanks to Rui, Agata, Irena)**

➢ **ICRH heating, W data available**

➢ **TRANSP runs by Giovanni Tardini for ISM modelling + data for diagnostic mapping for EDRG from AUG diagnosticians**

➢ **Any subsequent work performed in ITM with such data must follow the usual publication procedures for clearance in IPP**

Act-2: Interpretative and predictive modelling for existing experiments

1. **Turbulent transport analysis with TGLF, QualiKiz, GLF23 for JET hybrids - EPS 2013 contribution.**

   B. Baiocchi, J. Garcia, J.-F. Artaud

2. **Comparison and modelling of JT-60U and JET plasmas in typical operational domains. Role of fast ions in hybrid scenarios.**

   J. Garcia

3. **Simulations of density profiles in JET hybrid discharges, GYRO simulations**

   L. Garzotti, S. Moradi (remotely), I. Voitsekhovitch

4. **Integrated core+edge+MHD modelling of ELM mitigation at JET - EPS 2013 contribution**

   F. Köchl

5. **JET current ramp up/down modelling, effect of W accumulation during the ramp up**

   D. Hogeweij, F. Köchl

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ACT3: Modelling for future experiments (ITER, JT-60SA)

1. **Optimisation of ITER ramp up phase with RAPTOR code**
   J. van Dongen, D. Hogeweij, F. Felici

2. **Model-based real-time profile reconstruction, demonstration for a simulated ITER scenario**
   F. Felici, J. van Dongen, D. Hogeweij

3. **Integrated core-SOL simulations of ITER H-mode scenario: effect of pedestal density on fusion performance and divertor loads (contr. to 14th PET workshop)**
   I. Ivanova-Stanik, F. Köchl, R. Stankiewicz, I. Voitsekhovitch, A. Polevoi

4. **ITER scenario modelling with METIS (operational domain ...) including simulation of the real time control of the fusion burn.**
   X. Litaudon, J.-F. Artaud

5. **1D JT-60SA scenario modelling. Predictive scenario modelling with transport models validated in ISM-ACT2**
   J. Garcia, X. Litaudon

6. **DEMO modelling using ITM Kepler workflows, in coordination with EFDA PPPT Work Programme (in collaboration with IMP3-ACT1-T9]**
   C. Reux?

7. **Four-field simulations for ITER HS, estimation of rotation with validated model. I. Voitsekhovitch, ...**

Remote connection details:

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