IEA Workshop 59

Shape and Aspect Ratio Optimization for High Beta, Steady-State Tokamak

SCOPE of Workshop

Steady-state operation with high beta and high bootstrap current fraction is required in future tokamak DEMO reactor. Many present tokamaks are addressing such operation for ITER and DEMO. Shape and aspect ratio is particularly important for achieving high beta and also for the optimization of edge stability and edge pedestal performance. Therefore, this workshop will address shape and aspect ratio optimization of high beta steady state tokamak including DEMO concept, stability and CD assessment of such operation, and the design of future tokamak devices addressing such experiments. The workshop will focus on tokamaks, including low aspect ratio, but will not address other steady state magnetic configurations.

LOGISTICS

- **Presentations** — 45 minutes: 30 min talk, 15 min discussion; 30 minutes: 20 min talk, 10 min discussion
- **Provide Y. Miura a PDF copy of your talk for posting on the IEA Large Tokamak Web Site**
- **Lunch today from 12:00 – 13:30 --- on your own**
- **For administrative assistance,**

  Lupe Cerda
  Rm 13 – 454
  455 – 4155

- **Agenda – on the table**
- **List of restaurants – on the table**
- **Start time tomorrow -- 08:15**
- **Please sign in**

DIII-D NATIONAL FUSION FACILITY SAN DIEGO

DRAFT AGENDA
IEA Workshop 59

Shape and Aspect Ratio Optimization for High Beta, Steady-State Tokamak
Conference Room 07/217

Time	Speaker	Topic
Mon. Feb. 14		
08:00 – 08:30		Coffee
		Session Chair – John Ferron
08:30 – 08:45	T. Taylor	Welcome and Introduction
08:45 – 09:30	K. Tobita	Concept development of compact DEMO reactor
09:30 – 10:15	F. Najmabadi D. Meade	Optimization of a Steady-State Tokamak-Based Power Plant & Implications for a Next Step Burning Plasma Experiment
10:15 – 10:30		Break
10:30 – 11:15	Y. Miura	Mission and Design Requirements on National Centralized Tokamak (NCT)
11:15 – 12:00	A. Field	MAST Spherical Tokamak Developments: towards high-beta, steady-state Tokamak operation
12:00 – 13:30		Lunch
		Session Chair – Yukitoshi Miura
13:30 – 14:15	J. Ferron	Optimized Beta Limits in DIII-D Advanced Tokamak Discharges: Global & Edge
14:15 – 15:00	F. Rimini	Advanced Tokamak regimes at JET: what are the changes when operating at high triangularity
15:00 – 15:15		Break

15:15 – 15:45	G. Kurita	Stability calculations on NCT
15:45 – 16:30	C. Petty J. Menard	Stability and Transport Implications for Shape and Aspect Ratio of Steady-State, High-Performance Tokamaks
16:30 – 17:00	X. Litaudon	Scientific rationale for the power upgrade on JET: towards SS operation at high bootstrap
17:00 – 17:30	G. Saibene	High Beta_p experiments on JET and access to type II ELMs
Tues. Feb. 15		
08:00 – 08:15		Coffee
		Session Chair – Dave Humphreys
08:15 – 09:00	M. Matsukawa	Design study of NCT and its shape and aspect ratio controllability
09:00 – 09:30	S. Sabbagh	Aspect Ratio Considerations for Active RWM Control
09:30 – 10:00	A. Hubbard	Current profile control for high performance steady state tokamaks: Considerations from C-Mod LHCD program
10:00 – 10:30	D. Moreau	Plasma shape, profile and flux control for high-bootstrap steady-state tokamaks
10:30 – 10:45		Break
		Session Chair – Xavier Litaudon
10:45 – 11:15	D. Meade	Discussion --- Design considerations for next step and demo
11:15 – 12:00	(suggestion)	Stability, Transport, and Control