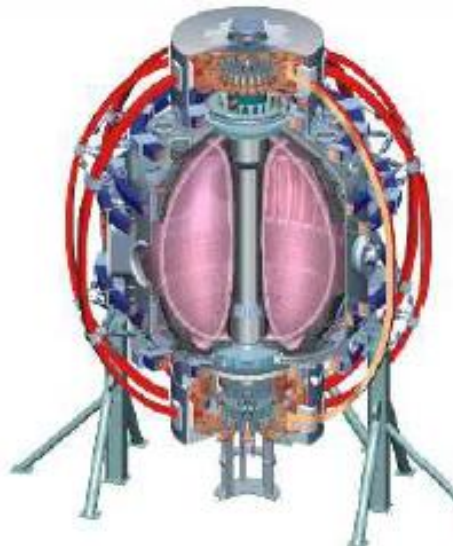


Transport and Turbulence TSG

Howard Yuh, TSG Leader
Stan Kaye, TSG Deputy Leader
Taik-Soo Hahm, Theory & Modeling

FY10 Research Forum
Dec 1-3, 2009

College W&M
 Colorado Sch Mines
 Columbia U
 Comp-X
 General Atomics
 INL
 Johns Hopkins U
 LANL
 LLNL
 Lodestar
 MIT
 Nova Photonics
 New York U
 Old Dominion U
 ORNL
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 PSI
 Princeton U
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 UC Davis
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 U Wisconsin



Culham Sci Ctr
U St. Andrews
York U
Chubu U
Fukui U
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Hyogo U
Kyoto U
Kyushu U
Kyushu Tokai U
NIFS
Niigata U
U Tokyo
JAEA
Hebrew U
Ioffe Inst
RRC Kurchatov Inst
TRINITY
KBSI
KAIST
POSTECH
ASIPP
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep
U Quebec

Transport and Turbulence priorities for FY2010

- Investigate the mechanisms governing electron transport
- L-H transition physics
- Study relationship between particle/impurity transport and momentum pinch
- Beta scaling of confinement using dimensionless parameter scans in ELMy/ELM-free discharges
- Aspect ratio dependence of confinement scaling (DIII-D similarity, ITPA)

Research Milestone R(11-1): Study turbulence regimes responsible for ion and electron energy transport

- *High-k (more availability)*
- *Low-k (BES)*
- *Magnetic fluctuations*
- *ITG, CTEM, micro-tearing, GAM, and ETG*
- *k spectrum will be measured as function of plasma parameters and correlated with energy diffusivities*
- *Reduce uncertainty of extrapolation to next-step ST*

ITPA Participation

- TC-1 Confinement scaling in ELMy H-modes: beta degradation
- TC-2 Power ratio - hysteresis and access to H-mode with H~1
- TC-3 Scaling of the Low-Density Limit of the H-mode Threshold
- TC-4 H-mode transition and confinement dependence on ionic species
- TC-9 Scaling of intrinsic plasma rotation with no external momentum input
- TC-10 Experimental identification of ITG, TEM and ETG turbulence and comparison with codes
- TC-12 H-mode transport and confinement at low aspect ratio
- TC-15 Dependence of momentum and particle pinch on collisionality

T&T Breakout Session B-252 Wed 8:30-12:30

- 24 Proposals submitted requesting **21-36** run days
- T&T is allocated 5.5 1st priority and 1.5 2nd priority days
- Oversubscribed by 3-5x
- Prioritization will be crucial and probably unpleasant

Draft agenda, 5 minute presentations

Time	Speaker	Title	Request
8:30	Howard Yuh	Introduction, run days guidance, priorities and FY2010 capabilities	-
8:35	Stan Kaye	ITPA tasks	-
8:40	S. Kaye	Impact of rotation on turbulence and energy and momentum transport	1-2
8:45	S. Kaye	Density dependence of L-H threshold	0.5
8:50	D. Battaglia	L-H power threshold for D and He plasmas using RF current drive with symmetric phasing	1
9:55	D. Battaglia	L-H power threshold versus lithium deposition and LLD temperature	0.5-1
10:00	D. Smith	Investigation of ETG turbulence isotropy	1
10:05	D. Smith	Investigation of low-k fluctuations as a source of anomalous momentum transport	1-2
10:10	D. Smith	Investigation of multi-scale turbulence	1-2
10:15	D. Smith	Survey of low-k fluctuations in NSTX	1-2
10:20	K. Tritz	Investigation of *AE induced electron transport	1-2
10:25	K.C. Lee	Reynolds Number Measurement on H-mode Transition	0.5-1
10:30	S. Kubota	Survey of Low-, Intermediate-, and High-kr Microturbulence, Simultaenously and Everywhere	1-2
10:35	S. Kubota	Ohmic H-Mode	0.5
10:40	S. Zweben	Ultra-high Speed GPI Measurements of the L-H transition with RF Heating	0.25-0.5
10:45	Y. Ren	Study of the Parametric Dependence of High-k Turbulence	2-3
10:50	E. Mazzucato	The spectrum of short scale turbulent fluctuations in NSTX	1-2
10:55	R. Maingi	Dependence of PLH on Radius_ triangularity of the X-point	0.5-1
11:00	H. Yuh	Sustained ITBs and H-Mode ITBs	1-2
11:05	H. Yuh	Electron transport under high positive magnetic shear	PB
11:10	R. Fonck	Investigation of ZMF and GAM zonal flows	1
11:15	R. Bell	Joint NSTX DIII-D poloidal rotation experiment	0.5-1
11:20	D. Stutman	Edgeimpurity transport dynamics using high resolutiojn ME-SXR	1
11:25	C. Petty	Aspect Ratio Scaling of Transport Between NSTX and DIII-D	0.5-1
11:30	G. McKee	Role of Edge & SOL Flows and Magnetic Geometry in the L-H Transition	1
11:35	W. Solomon	Characterization of intrinsic torque using torque transients	1-2
11:40	W. Solomon	Determination of NTV offset rotation on NSTX	1-2
		Total requested run days	20.75-
		(Guidance for T&T is 5.5 1 st priority + 1.5 2 nd priority)	35.5