

24th 12th week(12/12/22 - 12/16/22) schedule for LHD experiment

Weekly report : H.Takahashi

Date	Day of the week	Bt direction	Schedule of the day												Wall	Gas	Experiment implementation system	Remark						
			Morning (～ 12:15)						Afternoon (12:15 ～ 18:45)															
12/12	Mo.														Sat: H2 GD Sun: None Mon: None									
12/13	Tu.	CW	[multi-ion](09:45 ～ 12:15)ECH, NBI Isotope mass effects on sustainment of e-ITB plasma # Opt. Pol. Rax Bax gamma Bq SC 1 CW 3.6 2.75 1.2538 100.0						[turbulence](12:15 ～ 15:45)ECH, NBI Effects of multi-ion and the magnetic field structure on non-local transport, Effect of magnetic islands on the bootstrap current in LHD/Study of the effect of the inversion of the magnetic shear on the e-ITB performance in stellarators with controlling the rotational transform by ECCD and NBCD # Opt. Pol. Rax Bax gamma Bq SC 1 CW 3.6 2.75 1.2538 100.0						[multi-ion](15:45 ～ 18:45)ECH, NBI Validation of established 0-dimensional wall model simulation for LHD # Opt. Pol. Rax Bax gamma Bq SC 1 CW 3.6 2.75 1.2538 100.0						None Div Cryo	H2, Ar	[Responsible person]M.Isobe / N.Tamura [ECH]H.Igami [NBI]K.Ikeda [central ctrl./data proc.]Ohsuna, Yasui / Ohsuna, Maeno [radiation]H.Hayashi [EXP LAN]Inoue/Nakamura [TGL]N.Tamura/M.Kobayashi, T.Tokuzawa [SubTGL]H.Kasahara/G.Motojima, A.Shimizu/T.Kobayashi/M.Nishiura /M.Nakata [id:677] Impurity gas puff [id:685] Mag. Conf.: Using LID coil [id:704] ECH: EC wave injection for	[multi-ion]FITS, fast CXS, BS (position scan), HIBP, MSE, PCI (turbulence)FITS, fast CXS, BS (position scan), PCI, MSE, HIBP, all profile diagnostics, off-axis ECH, LID coil 3300A (multi-ion)Manipulator, 40sec ECH
12/14	We.	CCW	[instability](09:45 ～ 11:45)ECH, NBI Ablation of solid hydrogen pellet and particle fueling # Opt. Pol. Rax Bax gamma Bq SC 1 CCW 3.6 1.375 1.2538 100.0						[multi-ion](11:45 ～ 18:45)ECH, NBI, ICH He density profile in mixture plasmas, Impurity control in 3D devices, Z-Dependence transport study, Mixture induced phase transition # Opt. Pol. Rax Bax gamma Bq SC 1 CCW 3.6 1.375 1.2538 100.0 2 CCW 3.6 2.75 1.2538 100.0 3 CCW 3.9 2.5385 1.2538 100.0						None Div Cryo						H2, Ar, He	[Responsible person]M.Osakabe / M.Kobayashi [ECH]R.Yanai [NBI]Y.Kawamoto [central ctrl./data proc.]Ohsuna, Yasui / Ohsuna, Maeno [radiation]T.Kobuchi [EXP LAN]Nakamura/Watanabe [TGL]K.Nagaoka/Y.Takemura, N.Tamura/M.Kobayashi [SubTGL]R.Seki/N.Kenmochi, H.Kasahara/G.Motojima [id:676] Impurity pellet/TESPEL [id:677] Impurity gas puff [id:687] High plasma current exp. (100 kA <= Ip < 150kA) (Combined) [id:705] ECH: off-axis injection (Combined) [id:706] ICH: Antennae insertion for plasma heating by ICH : Subcool	[instability]H pellet injection is indispensable. (multi-ion)ECCD, ECH off-axis, H Pellet injection, CXRS (Ion temp, Er, H/D/He/Ar ion density measurement CXSn, CXS8 should be with NBI#5)), ECE, PCI, ICE, TESPEL(Ti & TBD), SOXMOS, EUV/VUV spectrometers [id:676] Impurity pellet/TESPEL [id:677] Impurity gas puff [id:687] High plasma current exp. (100 kA <= Ip < 150kA) (Combined) [id:705] ECH: off-axis injection (Combined) [id:706] ICH: Antennae insertion for plasma heating by ICH : Subcool	
12/15	Th.	CW	[instability](09:30 ～ 14:45)ECH, NBI Fast-Ion Stiffness, Sawtooth # Opt. Pol. Rax Bax gamma Bq SC 1 CW 3.6 1.0 1.2538 100.0 2 CW 3.6 1.375 1.2538 100.0 3 CW 3.6 0.75 1.129 100.0 4 ✓ CW 3.6 0.75 1.2538 100.0 5 ✓ CW 3.6 0.6 1.129 100.0						[turbulence](14:45 ～ 17:00)ECH, NBI Correlation between density fluctuation and magnetic fluctuation in high-beta plasma # Opt. Pol. Rax Bax gamma Bq SC 1 CW 3.6 1.375 1.2538 100.0 2 ✓ CW 3.6 1.7 1.2538 100.0 3 ✓ CW 3.6 1.5 1.2538 100.0						[instability](17:00 ～ 18:45)ECH, NBI HIBP experiment # Opt. Pol. Rax Bax gamma Bq SC 1 CW 3.75 1.375 1.2538 100.0						H2 GD Div Cryo	H2, Ar	[Responsible person]K.Ida / T.Tokuzawa [ECH]N.Kenmochi [NBI]Y.Kawamoto [central ctrl./data proc.]Ohsuna, Yasui / Ohsuna, Maeno [radiation]T.Saze [EXP LAN]Watanabe/Inoue [TGL]K.Nagaoka/Y.Takemura, T.Tokuzawa [SubTGL]R.Seki/N.Kenmochi, A.Shimizu/T.Kobayashi/M.Nishiura /M.Nakata [id:694] Mag. Conf.: Exp. with low gamma (Combined) [id:705] ECH: off-axis injection (Combined) [id:712] NBI: Injection into the discharges with low fields [id:720] Probe: Edge plasma measurement using the fast-scanning Langmuir probes	[instability]CXRS, FIDA, LID (turbulence)CXRS, MSE, ECH off axis (instability)HIBP, long pulse NBI [id:677] Impurity gas puff [id:685] Mag. Conf.: Using LID coil [id:694] Mag. Conf.: Exp. with low gamma (Combined) [id:705] ECH: off-axis injection (Combined) [id:712] NBI: Injection into the discharges with low fields [id:720] Probe: Edge plasma measurement using the fast-scanning Langmuir probes
12/16	Fr.	CCW	[instability](09:45 ～ 18:45)ECH, NBI Effect of divertor pumping on RMP penetration, mechanism on shielding external RMP, Dependence of RMP penetration threshold, Validation of NB shine-through model # Opt. Pol. Rax Bax gamma Bq SC 1 CCW 3.6 2.75 1.2538 100.0 2 CCW 3.6 1.375 1.1739 100.0 3 CCW 3.6 1.375 1.2538 100.0 4 CCW 3.7 1.375 1.2538 100.0 5 ✓ CCW 3.75 1.2538 100.0 6 ✓ CCW 3.65 1.375 1.2538 100.0												Div Cryo						H2, Ar	[Responsible person]K.Ida / Y.Takemura [ECH]Y.Yoshimura [NBI]K.Tsumori / K.Nagaoka [central ctrl./data proc.]Ohsuna, Yasui / Ohsuna, Maeno [radiation]H.Miyake [EXP LAN]Nakamura/Watanabe [TGL]K.Nagaoka/Y.Takemura [SubTGL]R.Seki/N.Kenmochi [id:685] Mag. Conf.: Using LID coil [id:687] High plasma current exp. (100 kA <= Ip < 150kA) (Combined) [id:694] Mag. Conf.: Exp. with low gamma (Combined) [id:712] NBI: Injection into the discharges with low fields [id:720] Probe: Edge plasma measurement using the fast-scanning Langmuir probes [id:722] Insertion of sample, etc: Insertion of water-cooled tungsten divertor test piece		

Daily Schedule

Prepared by

S.Masuzaki
N.Tamura

[illegible]

Daily Schedule

Prepared by

N.Tamura

Date	Experimental Subject																																																
2022/12/14(Wed)	Ablation of solid hydrogen pellet and particle fueling He density profile in mixture plasmas, Impurity control in 3D devices, Z-Dependence transport study, Mixture induced phase transition																																																
Exp. No.	Topical Group					TGL					Sub-TGL																																						
1320	instability/multi-ion					K.Nagaoka/Y.Takemura N.Tamura/M.Kobayashi [2177/2167, 2337/2169]					R.Seki/N.Kenmochi H.Kasahara/G.Motojima [2201/2208, 2203/2142]																																						
Time Table	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																																		
		U P	[instability]			[multi-ion]							D N																																				
Details and Experimental Conditions															Gas																																		
[instability Coordinator: NaokiKenmochi](09:45 ~ 11:45) ECH, NBI 09:45-11:45 Study on ablation of solid hydrogen pellet and particle fueling (X. Dai, R. Sakamoto) Maximum number of discharges : 70 Sequence:3min <table><tr><td>#</td><td>Option</td><td>Polarity</td><td>Rax(m)</td><td>Bax(T)</td><td>gamma</td><td>Bq(%)</td><td>Subcooled</td></tr><tr><td>1</td><td></td><td>CCW</td><td>3.6</td><td>1.375</td><td>1.2538</td><td>100.0</td><td></td></tr></table>															#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CCW	3.6	1.375	1.2538	100.0		H2,Ar																		
#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled																																										
1		CCW	3.6	1.375	1.2538	100.0																																											
[multi-ion Coordinator: M.Kobayashi](11:45 ~ 18:45) ECH, NBI, ICH 11:45-13:45 He density profile in mixture plasmas (I.C. Chan, H. Yamada) 13:45-15:30 Impurity control in 3D devices by sawtooth instability (D. Moseev, Kasahara) 15:30-17:15 Z-dependence of Impurity transport in turbulent-reduced plasmas (D.M. Roque, Tamura) 17:15-17:30 Mag config change 17:30-18:45 Multi-ion induced phase transition (A. Dinklage, Tamura) Maximum number of discharges : 150 Sequence:3min <table><tr><td>#</td><td>Option</td><td>Polarity</td><td>Rax(m)</td><td>Bax(T)</td><td>gamma</td><td>Bq(%)</td><td>Subcooled</td></tr><tr><td>1</td><td></td><td>CCW</td><td>3.6</td><td>1.375</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>2</td><td></td><td>CCW</td><td>3.6</td><td>2.75</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>3</td><td></td><td>CCW</td><td>3.9</td><td>2.5385</td><td>1.2538</td><td>100.0</td><td></td></tr></table>															#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CCW	3.6	1.375	1.2538	100.0		2		CCW	3.6	2.75	1.2538	100.0		3		CCW	3.9	2.5385	1.2538	100.0		H2,He,Ar		
#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled																																										
1		CCW	3.6	1.375	1.2538	100.0																																											
2		CCW	3.6	2.75	1.2538	100.0																																											
3		CCW	3.9	2.5385	1.2538	100.0																																											
Wall Conditioning		GD(Before Exp.): None , GD(After Exp.): None , Cryopump(During Exp.): on																																															
Remarks		(instability)H pellet injection is indispenasble. (multi-ion)ECCD, ECH off-axis, H Pellet injection, CXRS (Ion temp, Er, H/D/He/Ar ion density measurement [CXSn, CXS8 should be with NBI#5]), ECE, PCI, ICE, TESPEL(Ti & TBD), SOXMOS, EUV/VUV spectrometers [Precautions for today's LHD experiments] (id:676) Impurity pellet/TESPEL (id:677) Impurity gas puff (id:687) High plasma current exp. (100 kA =< Ip < 150kA) (Combined) (id:705) ECH: off-axis injection (Combined) (id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required (id:720) Probe: Edge plasma measurement using the fast-scanning Langmuir probes (id:722) Insertion of sample, etc: Insertion of water-cooled tungsten divertor test piece																																															

Daily Schedule

Prepared by

N.Tamura
T.Kobayashi
S.Masuzaki

Date	Experimental Subject																																																															
2022/12/15(Thu)	Fast-Ion Stiffness, Sawtooth Corralation between density fluctuation and magnetic fluctuation in high-beta plasma HIBP experiment																																																															
Exp. No.	Topical Group					TGL					Sub-TGL																																																					
1321	instability/turbulence					K.Nagaoka/Y.Takemura T.Tokuzawa [2177/2167, 2217]					R.Seki/N.Kenmochi A.Shimizu/T.Kobayashi/M.Nishiura/M.Nakata [2201/2208, 2454/2231/2184/2276]																																																					
Time Table	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																																																	
		U P	[instability]					[turbulence]		[instability]		D N																																																				
Details and Experimental Conditions															Gas																																																	
[instability Coordinator: Takemura](09:30 ~ 14:45) ECH, NBI 9:45-11:15 Study of Fast-Ion Stiffness in Alfven-Eigenmode at Helical Device (Kamio) 11:15-11:45 change configuration 11:45-14:45 Characteristics of sawtooth-like oscillation (Takemura) Maximum number of discharges : 110 Sequence:3min <table><tr><td>#</td><td>Option</td><td>Polarity</td><td>Rax(m)</td><td>Bax(T)</td><td>gamma</td><td>Bq(%)</td><td>Subcooled</td></tr><tr><td>1</td><td></td><td>CW</td><td>3.6</td><td>1.0</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>2</td><td></td><td>CW</td><td>3.6</td><td>1.375</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>3</td><td></td><td>CW</td><td>3.6</td><td>0.75</td><td>1.129</td><td>100.0</td><td></td></tr><tr><td>4</td><td>✓</td><td>CW</td><td>3.6</td><td>0.75</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>5</td><td>✓</td><td>CW</td><td>3.6</td><td>0.6</td><td>1.129</td><td>100.0</td><td></td></tr></table>															#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CW	3.6	1.0	1.2538	100.0		2		CW	3.6	1.375	1.2538	100.0		3		CW	3.6	0.75	1.129	100.0		4	✓	CW	3.6	0.75	1.2538	100.0		5	✓	CW	3.6	0.6	1.129	100.0		H2,Ar	
#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled																																																									
1		CW	3.6	1.0	1.2538	100.0																																																										
2		CW	3.6	1.375	1.2538	100.0																																																										
3		CW	3.6	0.75	1.129	100.0																																																										
4	✓	CW	3.6	0.75	1.2538	100.0																																																										
5	✓	CW	3.6	0.6	1.129	100.0																																																										
[turbulence Coordinator: T.Kobayashi](14:45 ~ 17:00) ECH, NBI 15:05-16:35: Corralation between density fluctuation and magnetic fluctuation in high-beta plasma (T. Kinoshita, K. Tanaka) Maximum number of discharges : 60 Sequence:3min <table><tr><td>#</td><td>Option</td><td>Polarity</td><td>Rax(m)</td><td>Bax(T)</td><td>gamma</td><td>Bq(%)</td><td>Subcooled</td></tr><tr><td>1</td><td></td><td>CW</td><td>3.6</td><td>1.375</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>2</td><td>✓</td><td>CW</td><td>3.6</td><td>1.7</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>3</td><td>✓</td><td>CW</td><td>3.6</td><td>1.5</td><td>1.2538</td><td>100.0</td><td></td></tr></table>															#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CW	3.6	1.375	1.2538	100.0		2	✓	CW	3.6	1.7	1.2538	100.0		3	✓	CW	3.6	1.5	1.2538	100.0		H2																	
#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled																																																									
1		CW	3.6	1.375	1.2538	100.0																																																										
2	✓	CW	3.6	1.7	1.2538	100.0																																																										
3	✓	CW	3.6	1.5	1.2538	100.0																																																										
[instability Coordinator: Takemura](17:00 ~ 18:45) ECH, NBI 17:00-18:45 Spatial structures of density, electric potential and density fluctuations in the core region during perpendicular NBI (Ido) Maximum number of discharges : 60 Sequence:3min <table><tr><td>#</td><td>Option</td><td>Polarity</td><td>Rax(m)</td><td>Bax(T)</td><td>gamma</td><td>Bq(%)</td><td>Subcooled</td></tr><tr><td>1</td><td></td><td>CW</td><td>3.75</td><td>1.375</td><td>1.2538</td><td>100.0</td><td></td></tr></table>															#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CW	3.75	1.375	1.2538	100.0		H2,Ar																																	
#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled																																																									
1		CW	3.75	1.375	1.2538	100.0																																																										
Wall Conditioning																																																																
GD(Before Exp.): None , GD(After Exp.): H2 , Cryopump(During Exp.): on																																																																
Remarks																																																																
(instability)CXS, FIDA, LID (turbulence)CXS, MSE, ECH off axis (instability)HIBP, long pulse NBI 【Precautions for today's LHD experiments】 (id:677) Impurity gas puff (id:685) Mag. Conf.: Using LID coil (id:694) Mag. Conf.: Exp. with low gamma (Combined) (id:705) ECH: off-axis injection (Combined) (id:712) NBI: Injection into the discharges with low fields (id:720) Probe: Edge plasma measurement using the fast-scanning Langmuir probes																																																																

Daily Schedule

Prepared by

S.Masuzaki

Date	Experimental Subject															
2022/12/16(Fri)	Effect of divertor pumping on RMP penetration, mechanism on shielding external RMP, Dependence of RMP penetration threshold, Validation of NB shine-through model															
Exp. No.	Topical Group					TGL					Sub-TGL					
1322	instability					K.Nagaoka/Y.Takemura [2177/2167]					R.Seki/N.Kenmochi [2201/2208]					
Time Table	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
		U P	[instability]										D N			
Details and Experimental Conditions														Gas		
[instability Coordinator: R.Seki](09:45 ~ 18:45) ECH, NBI 9:45-11:15 Effect of divertor pumping on RMP penetration (K. Watanabe) 11:15-13:45 mechanism on shielding external RMP (Y. mori, K. Watanabe) 13:45-15:45 Dependence of RMP penetration threshold (K. Watanabe) 15:45-17:45 Validation of NB shine-through model (M. Osakabe, S. Sumida) 17:45-18:45 Effect of divertor pumping on RMP penetration (K. Watanabe) Maximum number of discharges : 190 Sequence:3min														H2,Ar		
#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled									
1		CCW	3.6	2.75	1.2538	100.0										
2		CCW	3.6	1.375	1.1739	100.0										
3		CCW	3.6	1.375	1.2538	100.0										
4		CCW	3.7	1.375	1.2538	100.0										
5	✓	CCW	3.75	1.375	1.2538	100.0										
6	✓	CCW	3.65	1.375	1.2538	100.0										
Wall Conditioning																
GD(Before Exp.): H2 , Cryopump(During Exp.): on																
Remarks																
(instability)Doppler Reflect meter, FIDA, CXS(H/D ratio), long pulse NBI(3s), BES, Divertor Cryo on (13:45), RMP ramp down/up																
【Precautions for today's LHD experiments】 (id:685) Mag. Conf.: Using LID coil (id:687) High plasma current exp. (100 kA =< Ip < 150kA) (Combined) (id:694) Mag. Conf.: Exp. with low gamma (Combined) (id:712) NBI: Injection into the discharges with low fields (id:720) Probe: Edge plasma measurement using the fast-scanning Langmuir probes (id:722) Insertion of sample, etc: Insertion of water-cooled tungsten divertor test piece																