

24th 11th week(12/05/22 - 12/09/22) 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)												
12/5	M.O.														Sat: H2 GD						
12/6	Tu.W.	C	[multi-ion](09:45 ~ 18:45)ECH, NBI, ICH The relation between plasma confinement and neutral particle on divertor condition, Isotope effect on the impurity hole phenomenon and Study on impurity transport with internal transport barrier in plasmas, Transport studies of LBO and TESPEL injected impurities during impurity hole	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	H2 GD	H2, Ar	[Responsible person]R.Sakamoto / N.Tamura [ECH]N.Kenmochi [NBI]K.Ikeda [central ctrl./data proc.]Ohsuna, Maeno / Ohsuna, Ogawa [radiation]T.Saze [EXP LAN]Watanabe/Inoue [TGL]N.Tamura/M.Kobayashi [SubTGL]H.Kasahara/G.Motojima	(multi-ion)HIBP, CXS, TS, BES, TESPEL(Ti, Cu, Mo), C-pellet, Ti measurement with a crystal spectrometer (id:676) Impurity pellet/TESPEL (id:677) Impurity gas puff (id:704) ECH: EC wave injection for more than 10 s (Combined) (id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required		
12/7	We.W.	C	[turbulence](09:30 ~ 12:45)ECH, NBI L-H transition	[multi-ion](12:45 ~ 15:45)ECH, NBI Study on real-time boronization using the impurity powder dropper	[spectroscopy](15:45 ~ 18:45)ECH, NBI Study of non-Maxwellian distribution of electrons by using Thomson scattering	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	None	H2, Ar	[Responsible person]K.Tanaka / M. Goto [ECH]R.Yanai [NBI]Y.Kawamoto [central ctrl./data proc.]Ohsuna, Maeno / Ohsuna, Ogawa [radiation]M.Kobayashi [EXP LAN]Nakamura/Watanabe [TGL]T.Tokuzawa, N.Tamura/M.Kobayashi, M. Goto [SubTGL]A.Shimizu/T.Kobayashi/M.Nishiura/M.Nakata, H.Kasahara/G.Motojima, M.Yoshinuma/T.Oishi/T.Kawate	turbulence)56GHz(ECH) (multi-ion)CXS(B profile), 2.5U fast camera, IPD(B,Li), Manipulator(4.5L, 10.5L) [spectroscopy]CXS, Sub Cool , use Thomson Forward Scattering, Thomson 2 Laser, Fast Thomson (id:677) Impurity gas puff (id:678) Impurity powder dropper (id:681) Mag. Conf.: 3.55 m <= Rax < 3.6 m (id:691) Mag. Conf.: Subcool conditions (Combined) : Subcool (id:705) ECH: off-axis injection (Combined) (id:712) NBI: Injection into the discharges with low fields
12/8	Th.W.	C	[turbulence](09:45 ~ 18:45)ECH, NBI, ICH Isotope effect in high Ti plasmas, Turbulence stabilization by fast ions, Collective TS diagnostics, Multiscale interaction of edge fluctuations, Density limit based on edge turbulence transport	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	He GD	H2, He, N2, Ar	[Responsible person]S.Masuzaki / M. Goto [ECH]N.Kenmochi [NBI]H.Nakano [central ctrl./data proc.]Ohsuna, Maeno / Ohsuna, Ogawa [radiation]T.Kobuchi [EXP LAN]Inoue/Nakamura [TGL]T.Tokuzawa [SubTGL]A.Shimizu/T.Kobayashi/M.Nishiura/M.Nakata	turbulence)CXS (toroidal & poloidal), TS, PCI, FIR, H/H ratio, RF probe, CIS, CO2 interferometer, DBS, LID, fast CXS, fast TS (id:677) Impurity gas puff (id:681) Mag. Conf.: 3.55 m <= Rax < 3.6 m (id:685) Mag. Conf.: Using LID coil (id:702) ECH: Collective Thomson Scattering (CTS) measurement (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		
12/9	Fr.W.	C	[spectroscopy](09:45 ~ 13:00)ECH, NBI, ICH Effect of the anisotropy of the electron velocity on the excitation of the waves	[multi-ion](13:00 ~ 18:45)ECH, NBI, ICH He beam experiments	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	# Opt. Pol.	Rax	Bax	gamma	Bq	SC	Div Cryo	H2, He, Ar	[Responsible person]K.Tanaka / K.Nagaoka [ECH]Y.Yoshimura [NBI]K.Tsumori / K.Nagaoka [central ctrl./data proc.]Ohsuna, Maeno / Ohsuna, Ogawa [radiation]M.Kobayashi [EXP LAN]Inoue/Nakamura [TGL]M. Goto, N.Tamura/M.Kobayashi [SubTGL]M.Yoshinuma/T.Oishi/T.Kawate, H.Kasahara/G.Motojima	[spectroscopy]CXS, ECH modulation, Thomson forward scattering (multi-ion)He-beam #5 (id:685) Mag. Conf.: Using LID coil (id:705) ECH: off-axis injection (Combined) (id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required (id:722) Insertion of sample, etc: Insertion of water-cooled tungsten divertor test piece	

LHD project

Daily Schedule

Prepared by

N.Tamura

LHD project

Daily Schedule

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Date	Experimental Subject													
Exp. No.	Topical Group				TGL				Sub-TGL					
2022/12/7(Wed)	L-H transition Study on real-time boronization using the impurity powder dropper Study of non-Maxwellian distribution of electrons by using Thomson scattering				T.Tokuzawa N.Tamura/M.Kobayashi M. Goto [2217, 2337/2169, 2290]				A.Shimizu/T.Kobayashi/M.Nishiura/M.Nakata H.Kasahara/G.Motojima M.Yoshinuma/T.Oishi/T.Kawate [2454/2231/2184/2276, 2203/2142, 2172/2022/2256]					
1316	turbulence/multi-ion/spectroscopy				8 9 10 11 12 13 14 15 16 17 18 19 20 21 22				U P [turbulence] [multi-ion] [spectroscopy] D N					
Time Table														

Details and Experimental Conditions

Gas

[turbulence Coordinator: T.Tokuzawa](09:30 ~ 12:45) ECH, NBI 9:30-12:45 Measurement of harmonic plasma density fluctuations with L-H mode transition using beam emission spectroscopy systems (W. Hu)	H2,Ar																																
Maximum number of discharges : 80 Sequence:3min																																	
<table border="1"> <thead> <tr> <th>#</th> <th>Option</th> <th>Polarity</th> <th>Rax(m)</th> <th>Bax(T)</th> <th>gamma</th> <th>Bq(%)</th> <th>Subcooled</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>CW</td> <td>3.55</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>3.75</td> <td>1.0</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>1.0</td> <td>1.2538</td> <td>100.0</td> <td></td> </tr> </tbody> </table>	#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CW	3.55	1.0	1.2538	100.0		2		CW	3.75	1.0	1.2538	100.0		3	✓	CW	3.6	1.0	1.2538	100.0		
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3	✓	CW	3.6	1.0	1.2538	100.0																											
[multi-ion Coordinator: H.Kasahara](12:45 ~ 15:45) ECH, NBI 12:45-13:15 Change in the magnetic config. 13:15-15:45 The evaluation of the toroidal uniformity of the boron deposition on the divertor plates for the real-time boronization using the impurity powder dropper (Shohji)	H2,Ar																																
Maximum number of discharges : 60 Sequence:3min																																	
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[spectroscopy Coordinator: M.Yoshinuma](15:45 ~ 18:45) ECH, NBI 15:45-17:00 Experimental study of the electron temperature anisotropy by using the LHD Thomson scattering system(I.Yamada) Experimental study of the non-Maxwellian distribution of electrons by using the LHD Thomson scattering system(I.Yamada) 17:00-18:45 Diagnostics of relativistic electrons by Thomson scattering in high electron temperature plasmas(H.Funaba)	H2,Ar																																
Maximum number of discharges : 70 Sequence:3min																																	
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2		CW	3.6	2.85	1.2538	100.0	✓																										

Wall Conditioning

GD(Before Exp.): H2 , GD(After Exp.): None , Cryopump(During Exp.): on

Remarks

(turbulence)56GHz(ECH)
(multi-ion)CXS(B profile), 2.5U fast camera, IPD(B,Li), Manipulator(4.5L, 10.5L)
(spectroscopy)CXS, Sub Cool , use Thomson Forward Scattering, Thomson 2 Laser, Fast Thomson

[Precautions for today's LHD experiments]

- (id:677) Impurity gas puff
- (id:678) Impurity powder dropper
- (id:681) Mag. Conf.: 3.55 m =< Rax < 3.6 m
- (id:691) Mag. Conf.: Subcool conditions (Combined) : Subcool required
- (id:705) ECH: off-axis injection (Combined)
- (id:712) NBI: Injection into the discharges with low fields
- (id:719) Insertion of sample, etc.: Insertion of samples using manipulator
- (id:721) Insertion of sample, etc: Exposure of a material sample to divertor plasma by the manipulators

LHD project

Daily Schedule

Prepared by

N.Tamura

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Date	Experimental Subject																																																	
Exp. No.	Topical Group				TGL				Sub-TGL																																									
2022/12/9(Fri)	Effect of the anisotropy of the electron velocity on the excitation of the waves He beam experiments				M. Goto N.Tamura/M.Kobayashi [2290, 2337/2169]				M.Yoshinuma/T.Oishi/T.Kawate H.Kasahara/G.Motojima [2172/2022/2256, 2203/2142]																																									
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Time Table	U P	[spectroscopy]				[multi-ion]				D N																																								
	Details and Experimental Conditions													Gas																																				
<p>[spectroscopy Coordinator: TomokoKawate](09:45 ~ 13:00) ECH, NBI, ICH 9:45-11:00 Experimental study of the electron temperature anisotropy by using the LHD Thomson scattering system (I. Yamada) 11:00-13:00 Quasioptical wave absorptions with anisotropic and fully relativistic electron dynamics in high Te and low ne plasma (K. Yanagihara, R. Yanai) 13:00-13:10 NBI calibration</p> <p>Maximum number of discharges : 70 Sequence:3min</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>#</th> <th>Option</th> <th>Polarity</th> <th>Rax(m)</th> <th>Bax(T)</th> <th>gamma</th> <th>Bq(%)</th> <th>Subcooled</th> </tr> </thead> <tbody> <tr> <td>1</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> </tbody> </table> <p>[multi-ion Coordinator: GenMotojima](13:00 ~ 18:45) ECH, NBI, ICH 13:10-14:10 Search for optimal conditions of He beam injection into H-NBI heated plasmas (Tamura) 14:10-15:10 Observation of ultra higher harmonic ICEs during He beam injection (Igami) 15:10-15:30 Rax/Bax change 15:30-16:30 He exhaust property in helical divertor #1(S. Sereda, Kobayashi) 16:30-17:30 Helium removal in helium beam experiments(Motojima, Hanada) 17:30-17:45 Rax/Bax change 17:45-18:45 He exhaust property in helical divertor #2(S. Sereda, Kobayashi)</p> <p>Maximum number of discharges : 130 Sequence:3min</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>#</th> <th>Option</th> <th>Polarity</th> <th>Rax(m)</th> <th>Bax(T)</th> <th>gamma</th> <th>Bq(%)</th> <th>Subcooled</th> </tr> </thead> <tbody> <tr> <td>1</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>2</td> <td></td> <td>CCW</td> <td>3.75</td> <td>2.64</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>2.5384</td> <td>1.2538</td> <td>100.0</td> <td></td> </tr> </tbody> </table>	#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CCW	3.6	2.75	1.2538	100.0		#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled	1		CCW	3.6	2.75	1.2538	100.0		2		CCW	3.75	2.64	1.2538	100.0		3		CCW	3.9	2.5384	1.2538	100.0		H2,He	
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