24th 7th week(11/07/22 - 11/11/22) schedule for LHD experiment

Weekly report : H.Takahashi

Date	Day of the week	Bt direction	Schedule of the day: Morning (～ 12:15) / Afternoon (12:15 ～ 18:45)	Wall	Gas	Experiment implementation system	Remark
11/7	Mo.			Sat: D2 GD Sun: None Mon: None			
11/8	Tu.	CW	[multi-ion](09:45 ～ 18:45)ECH, NBI, ICH Measurement of edge plasma parameters profiles using the fast scanning Langmuir probes, Asymmetric Distributions of ECH-driven Toroidal Rotation in LHD, Isotope effect on the impurity hole phenomenon, Deformation of velocity distribution by ICRF heating, Mode conversion wave absorption from fast wave in multi-ion plasmas #, Opt., Pol., Rax, Bax, gamma, Bq, SC 1, , CW, 3.75, 2.64, 1.2538, 100.0, 2, , CW, 3.6, 2.75, 1.2538, 100.0, 3, , CW, 3.6, 2.73, 1.2538, 100.0, 4, , CW, 3.6, 2.65, 1.2538, 100.0, 5, , CW, 3.6, 2.6, 1.2538, 100.0,	None Div Cryo	H2, D2, Ar	【Responsible person】S.Masuzaki / Y.Takemura 【ECH】Y.Yoshimura 【NBI】H.Nakano 【central ctrl./data proc.】Ohsuna, Ogawa / Ohsuna, Yasui 【radiation】M.Kobayashi 【EXP LAN】Inoue/Nakamura 【TGL】N.Tamura/M.Kobayashi 【SubTGL】H.Kasahara/G.Motojima	(multi-ion)Fast scanning Langmuir probe co-ECCD, on/off-axis (0.0, 0.3, 0.6), 1.25Hz modulation with 4-gyr or 3-gyr CXS Ti, toroidal/polodal rotation profiles C pellet (1mm dia X 1mm height), HIBP CXS(Vp, H), DNPA, CNPA(H), FIDA, ECE ICRF, on-axis resonance, X-point resonance (id:676) Impurity pellet/TESPEL (id:677) Impurity gas puff (id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required (id:720) Probe: Edge plasma
11/9	We.	CCW	[multi-ion](09:45 ～ 18:45)ECH, NBI, ICH Measurement of edge plasma parameters profiles using the fast scanning Langmuir probes, Deuterium retention in damaged tungsten, Asymmetric Distributions of ECH-driven Toroidal Rotation in LHD, ICRF-accelerated impurity exhaust in LHD, Investigation of He density profile in mixture plasmas, Mixture induced phase transition in multi-ion transport #, Opt., Pol., Rax, Bax, gamma, Bq, SC 1, , CCW, 3.75, 2.64, 1.2538, 100.0, 2, , CCW, 3.6, 2.75, 1.2538, 100.0, 3, , CCW, 3.6, 2.65, 1.2538, 100.0, 4, , CCW, 3.6, 2.75, 1.2538, 100.0, 5, , CCW, 3.9, 2.5385, 1.2538, 100.0, 6, ✓, CCW, 3.55, 2.7887, 1.2538, 100.0,	None Div Cryo	H2, D2, He, Ar	【Responsible person】K.Tanaka / M.Kobayashi 【ECH】R.Yanai 【NBI】Y.Kawamoto 【central ctrl./data proc.】Ohsuna, Yokota / Ohsuna, Yasui 【radiation】T.Kobuchi 【EXP LAN】Watanabe/Inoue 【TGL】N.Tamura/M.Kobayashi 【SubTGL】H.Kasahara/G.Motojima	(multi-ion)Fast scanning Langmuir probe co-ECCD, on/off-axis (0.0, 0.3, 0.6), 1.25Hz modulation CXS Ti, toroidal/polodal rotation profiles CXS(H, He, D, F), DNPA, CNPA(H), FIDA, ECE ICRF (id:676) Impurity pellet/TESPEL (id:677) Impurity gas puff (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:721) Insertion of sample, etc:
11/10	Th.	CW	[turbulence](09:30 ～ 18:45)ECH, NBI, ICH 2D profile of EGAM, Investigation of ne-ITB, Turbulence transition in H/D NB plasma, Stabilization of turbulence by Fast Ions #, Opt., Pol., Rax, Bax, gamma, Bq, SC 1, , CW, 3.75, 1.375, 1.2538, 100.0, 2, , CW, 3.55, 2.7887, 1.2538, 100.0, 3, , CW, 3.6, 2.75, 1.2538, 100.0, 4, ✓, CW, 3.6, 1.375, 1.2538, 100.0, 5, ✓, CW, 3.575, 2.7692, 1.2538, 100.0,	None Div Cryo	H2, D2, Ar	【Responsible person】K.Ida / N.Tamura 【ECH】N.Kenmochi 【NBI】K.Ikeda 【central ctrl./data proc.】Ohsuna, Yokota / Ohsuna, Yasui 【radiation】H.Miyake 【EXP LAN】Nakamura/Inoue 【TGL】T.Tokuzawa 【SubTGL】A.Shimizu/T.Kobayashi/M.Nishiura/M.Nakata	(turbulence)NBI modulation, LID, PCI, CXS, MSE, Superimposed Thomson laser injection (9:30-15:30), Thomson (15:30-18:45), HIBP, FIDA, neutron, ICE, ECE, H/(H+D) ratio, Wdia, interferometer, Mirnov coils (id:681) Mag. Conf.: 3.55 m =< Rax < 3.6 m (id:685) Mag. Conf.: Using LID coil (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
11/11	Fr.	CW	[instability](09:45 ～ 18:45)ECH, NBI, ICH Study on fast-ion #, 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, 3.75, 1.0, 1.2538, 100.0, 4, , CW, 3.9, 1.0, 1.2538, 100.0, 5, , CW, 3.6, 2.75, 1.2538, 100.0, 6, , CW, 3.75, 2.64, 1.2538, 100.0, 7, ✓, CW, 3.6, 0.6, 1.2538, 100.0, 8, ✓, CW, 3.6, 0.75, 1.2538, 100.0, #, Opt., Pol., Rax, Bax, gamma, Bq, SC 9, ✓, CW, 3.75, 1.375, 1.2538, 100.0,	Div Cryo	H2, D2, Ar	【Responsible person】M.Osakabe / K.Nagaoka 【ECH】Y.Yoshimura 【NBI】K.Tsumori / K.Nagaoka 【central ctrl./data proc.】Ohsuna, Maeno / Ohsuna, Yasui 【radiation】M.Tanaka 【EXP LAN】Watanabe/Nakamura 【TGL】K.Nagaoka/Y.Takemura 【SubTGL】R.Seki/N.Kenmochi	(instability) Heating: NB source A or B, p-NB scan, ECH 56GHz, ICH power scan Diagnostics: FIDA, BES, CXRS, H/D ratio, Bulk-CXRS, PCI, DBS, BS, HIBP (id:677) Impurity gas puff (id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required (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

LHD project

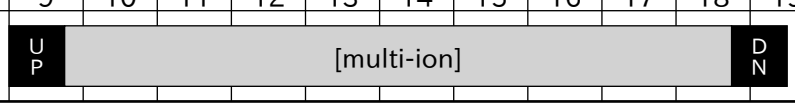
Daily Schedule

Prepared by
M.Kobayashi

Date	Experimental Subject
2022/11/8(Tue)	Measurement of edge plasma parameters profiles using the fast scanning Langmuir probes, Asymmetric Distributions of ECH-driven Toroidal Rotation in LHD, Isotope effect on the impurity hole phenomenon, Deformation of velocity distribution by ICRF heating, Mode conversion wave absorption from fast wave in multi-ion plasmas

Exp. No.	Topical Group	TGL	Sub-TGL
1299	multi-ion	N.Tamura/M.Kobayashi [2337/2169]	H.Kasahara/G.Motojima [2203/2142]

Time Table



Details and Experimental Conditions

[multi-ion Coordinator: M.Kobayashi](09:45 ～ 18:45) ECH, NBI, ICH
9:45-11:30 Measurement of edge plasma parameters profiles using the fast scanning Langmuir probes (S. Masuzaki)
11:30-13:00 Asymmetric Distributions of ECH-driven Toroidal Rotation in LHD (W.H. Ko, K. Ida)
13:00-14:45 Isotope effect on the impurity hole phenomenon (S. Satake, M. Nishiura)
14:45-18:45 Deformation of velocity distribution by ICRF heating, Mode conversion wave absorption from fast wave in multi-ion plasmas (H. Kasahara)

Maximum number of discharges : 180
Sequence:3min

#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled
1		CW	3.75	2.64	1.2538	100.0	
2		CW	3.6	2.75	1.2538	100.0	
3		CW	3.6	2.73	1.2538	100.0	
4		CW	3.6	2.65	1.2538	100.0	
5		CW	3.6	2.6	1.2538	100.0	

Gas

H2,D2,Ar

Wall Conditioning

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

Remarks

(multi-ion)Fast scanning Langmuir probe
co-ECCD, on/off-axis (0.0, 0.3, 0.6), 1.25Hz modulation with 4-gyr or 3-gyr
CXS Ti, toroidal/polodal rotation profiles
C pellet (1mm dia X 1mm height), HIBP
CXS(Vp, H), DNPA, CNPA(H), FIDA, ECE
ICRF, on-axis resonance, X-point resonance

【Precautions for today's LHD experiments】
(id:676) Impurity pellet/TESPEL
(id:677) Impurity gas puff
(id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required
(id:720) Probe: Edge plasma measurement using the fast-scanning Langmuir probes

LHD project

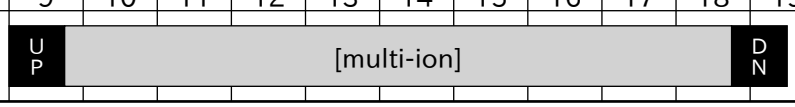
Daily Schedule

Prepared by
S.Masuzaki

Date	Experimental Subject
2022/11/9(Wed)	Measurement of edge plasma parameters profiles using the fast scanning Langmuir probes, Deuterium retention in damaged tungsten, Asymmetric Distributions of ECH-driven Toroidal Rotation in LHD, ICRF-accelerated impurity exhaust in LHD, Investigation of He density profile in mixture plasmas, Mixture induced phase transition in multi-ion transport

Exp. No.	Topical Group	TGL	Sub-TGL
1300	multi-ion	N.Tamura/M.Kobayashi [2337/2169]	H.Kasahara/G.Motojima [2203/2142]

Time Table



Details and Experimental Conditions

[multi-ion Coordinator: H.Kasahara](09:45 ～ 18:45) ECH, NBI, ICH
9:45-10:40 Measurement of edge plasma parameters profiles using the fast scanning Langmuir probes(S. Masuzaki)
11:30-12:25 Deuterium retention in damaged tungsten(S. Masuzaki)
12:25-13:50 Asymmetric Distributions of ECH-driven Toroidal Rotation in LHD(W. H. Ko)
13:50-15:50 ICRF-accelerated impurity exhaust in LHD (D. Moseev, H. Kasahara)
15:50-17:10 Investigation of He density profile in mixture plasmas (I. C. Chan, H. Yamada)
17:10-17:20 NBI calibration(3)
17:20-18:45 Mixture induced phase transition in multi-ion transport(A.Dinklage, N. Tamura)
Maximum number of discharges : 180
Sequence:3min

#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled
1		CCW	3.75	2.64	1.2538	100.0	
2		CCW	3.6	2.75	1.2538	100.0	
3		CCW	3.6	2.65	1.2538	100.0	
4		CCW	3.6	2.75	1.2538	100.0	
5		CCW	3.9	2.5385	1.2538	100.0	
6	✓	CCW	3.55	2.7887	1.2538	100.0	

Gas

H2,D2,He,Ar

Wall Conditioning

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

Remarks

(multi-ion)Fast scanning Langmuir probe
co-ECCD, on/off-axis (0.0, 0.3, 0.6), 1.25Hz modulation
CXS Ti, toroidal/polodal rotation profiles
CXS(H, He, D, F), DNPA, CNPA(H), FIDA, ECE
ICRF

【Precautions for today's LHD experiments】
(id:676) Impurity pellet/TESPEL
(id:677) Impurity gas puff
(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:721) Insertion of sample, etc: Exposure of a material sample to divertor plasma by the manipulators
(id:722) Insertion of sample, etc: Insertion of water-cooled tungsten divertor test piece

LHD project

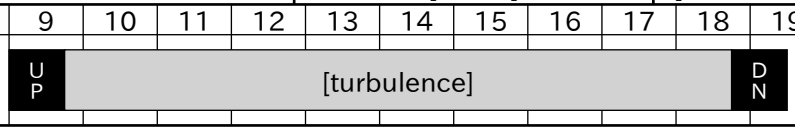
Daily Schedule

Prepared by
T.Kobayashi

Date	Experimental Subject
2022/11/10(Thu)	2D profile of EGAM, Investigation of ne-ITB, Turbulence transition in H/D NB plasma, Stabilization of turbulence by Fast Ions

Exp. No.	Topical Group	TGL	Sub-TGL
1301	turbulence	T.Tokuzawa [2217]	A.Shimizu/T.Kobayashi/M. Nishiura/M.Nakata [2454/2231/2184/2276]

Time Table



Details and Experimental Conditions

[turbulence Coordinator: T.Kobayashi](09:30 ～ 18:45) ECH, NBI, ICH
9:30-12:30 2D profile of EGAM
12:30-15:30 Investigation of ne-ITB
15:30-17:45 Turbulence transition in H/D NB plasma
17:45-18:45 Stabilization of turbulence by Fast Ions
Maximum number of discharges : 190
Sequence:3min

#	Option	Polarity	Rax(m)	Bax(T)	gamma	Bq(%)	Subcooled
1		CW	3.75	1.375	1.2538	100.0	
2		CW	3.55	2.7887	1.2538	100.0	
3		CW	3.6	2.75	1.2538	100.0	
4	✓	CW	3.6	1.375	1.2538	100.0	
5	✓	CW	3.575	2.7692	1.2538	100.0	

Gas

H2,D2,Ar

Wall Conditioning

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

Remarks

(turbulence)NBI modulation, LID, PCI, CXS, MSE, Superimposed Thomson laser injection (9:30-15:30), Thomson (15:30-18:45), HIBP, FIDA, neutron, ICE, ECE, H/(H+D) ratio, Wdia, interferometer, Mirnov coils

【Precautions for today's LHD experiments】
(id:681) Mag. Conf.: 3.55 m =< Rax < 3.6 m
(id:685) Mag. Conf.: Using LID coil
(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

LHD project

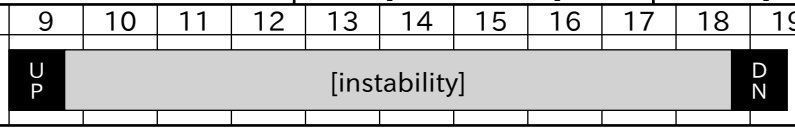
Daily Schedule

Prepared by
N.Kenmochi

Date	Experimental Subject
2022/11/11(Fri)	Study on fast-ion

Exp. No.	Topical Group	TGL	Sub-TGL
1302	instability	K.Nagaoka/Y.Takemura [2177/2167]	R.Seki/N.Kenmochi [2201/2208]

Time Table



Details and Experimental Conditions

[instability Coordinator: N.Kenmochi](09:45 ～ 18:45) ECH, NBI, ICH
09:50-11:15 Study of Fast-Ion Stiffness in Alfven-Eigenmode at Helical Device (S. Kamio, K. Nagaoka)
11:15-12:10 Study of passing and helically-trapped beam ion in NB and ICRF tail ions heated plasma using the compact neutron emission spectrometer (S. Sangaroon, K. Ogawa)
12:10-14:35 Energetic-particle anisotropy (L. Liao, M. Isobe)
14:35-15:05 Change magnetic field (1T -> 2.75 T)
15:05-15:20 Validation of high-energy NB shine-through model (S. Sumida, M. Osakabe)
15:20-15:30 3 x NBI calibration
15:30-16:30 Study of passing and helically-trapped beam ion in NB and ICRF tail ions heated plasma using the compact neutron emission spectrometer (S. Sangaroon, K. Ogawa)
16:30-17:30 Radial electric field dependence of fast-ion transport (W. Heidbrink, M. Osakabe)
17:30-17:45 Change magnetic field (3.6m -> 3.75m)
17:45-18:45 Radial electric field dependence of fast-ion transport (W. Heidbrink, M. Osakabe)
Maximum number of discharges : 180
Sequence:3min

#	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	3.75	1.0	1.2538	100.0	
4		CW	3.9	1.0	1.2538	100.0	
5		CW	3.6	2.75	1.2538	100.0	
6		CW	3.75	2.64	1.2538	100.0	
7	✓	CW	3.6	0.6	1.2538	100.0	
8	✓	CW	3.6	0.75	1.2538	100.0	
9	✓	CW	3.75	1.375	1.2538	100.0	

Gas

H2,D2,Ar

Wall Conditioning

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

Remarks

(instability)
Heating: NB source A or B, p-NB scan, ECH 56GHz, ICH power scan
Diagnostics: FIDA, BES, CXRS, H/D ratio, Bulk-CXRS, PCI, DBS, BS, HIBP

【Precautions for today's LHD experiments】
(id:677) Impurity gas puff
(id:706) ICH: Antennae insertion for plasma heating by ICH : Subcool required
(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