

## 23rd 2nd week(10/18/21 - 10/22/21) schedule for LHD experiment

Weekly report : H.Takahashi

| Date  | Day of the week | Bt direction | Wall condition (mor) | Schedule of the day                                                                                                                                                                                                                                                           |  |  |  |  |  |                                                                                                                                                                                                                                                                                                   |  |  |  |  |  | Wall conditioning (night)                                                                                                                                                                                                                                                                                         | Gas | Experiment implementation system | Remark |  |  |                                                                                                                                                                        |                    |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |          |            |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |
|-------|-----------------|--------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------|--------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                 |              |                      | Morning (~ 12:15)                                                                                                                                                                                                                                                             |  |  |  |  |  | Afternoon (12:15 ~ 18:45)                                                                                                                                                                                                                                                                         |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                   |     |                                  |        |  |  |                                                                                                                                                                        |                    |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |          |            |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |
| 10/18 | Mo.             |              |                      |                                                                                                                                                                                                                                                                               |  |  |  |  |  |                                                                                                                                                                                                                                                                                                   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                   |     |                                  |        |  |  |                                                                                                                                                                        |                    |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |          |            |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |
| 10/19 | Tu.             | CW           |                      | [multi-ion](09:30 ~ 12:15)ECH, NBI, ICH<br>Commissioning (ECH, ICH, NBI)<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 2.75 1.2538 100.0                                                                                                                                     |  |  |  |  |  | [spectroscopy](12:15 ~ 16:30)ECH, NBI<br>Highly-charged tungsten ions spectroscopy, highly-charged rare earth ions spectroscopy<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 2.75 1.2538 100.0                                                                                                  |  |  |  |  |  | [multi-ion](16:30 ~ 18:45)ECH, NBI<br>Toroidal and poloidal anisotropy of radiation, Wall recycling control<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.9 2.5384 1.2538 100.0                                                                                                                                    |     |                                  |        |  |  | None                                                                                                                                                                   | H2, He, Ne, Ar, N2 | [Responsible person] R.Sakamoto / T.Tokuzawa<br>[ECH] Yoshimura<br>[NBI] Ikeda<br>[central ctrl./data proc.] Ogawa/Maeno, Ohsuna<br>[radiation] Saze<br>[EXP LAN] Nakamura/Yamamoto<br>[TGL] N.Tamura/M.Kobayashi, M. Goto<br>[SubTGL] H.Kasahara/G.Motojima, M.Yoshinuma/T.Oishi/T.Kawate                                           | (spectroscopy)Impurity pellet(W, C, Fe, Ni), TESPEL injection(Ce, La, Ho), and impurity gas puffing(He, Ar, Ne, N).<br>(id:612) Impurity pellet/ TESPEL<br>(id:613) impurity gas puff<br>(id:614) Impurity powder dropper<br>(id:620) ECH: Low absorption condition<br>(id:626) Mag. Conf.: Using LID coil<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH                                                                                                                          |  |  |          |            |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |
| 10/20 | We.             | CW           |                      | [multi-ion](09:30 ~ 11:00)ECH, NBI, ICH<br>Commissioning (ECH, ICH, NBII)<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 1.375 1.2538 100.0                                                                                                                                   |  |  |  |  |  | [turbulence](11:00 ~ 16:30)ECH, NBI<br>Core and edge turbulence in modulated ECH, Potential and density fluctuation measurement in e-ITB to study isotope effect<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 1.375 1.2538 100.0<br>2 CW 3.75 1.375 1.2538 100.0<br>3 CW 3.9 1.375 1.2538 100.0 |  |  |  |  |  | [multi-ion](16:30 ~ 17:30)ECH, NBI, ICH<br>Commissioning (ECH, ICH, NBII)<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 2.75 1.2538 100.0                                                                                                                                                                        |     |                                  |        |  |  | [turbulence](17:30 ~ 18:45)ECH, NBI, ICH<br>Investigating ECH beam broadening by density fluctuations<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 2.75 1.2538 100.0 |                    |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  | Div Cryo | H2, D2, He | [Responsible person] M.Isobe / M. Goto<br>[ECH] Tsujimura<br>[NBI] Kamio<br>[central ctrl./data proc.] Ogawa/Maeno, Ohsuna<br>[radiation] Kobayashi<br>[EXP LAN] Inoue/Nakamura<br>[TGL] N.Tamura/M.Kobayashi, T.Tokuzawa<br>[SubTGL] H.Kasahara/G.Motojima, T.Kobayashi/T.Tsujimura/M.Nakata | (multi-ion)2-I Div. cryo is not used (turbulence)HIBP, TS, ECE<br>(multi-ion)2-I Div. cryo is not used (turbulence)DBS, PCI, BES, (fast TS)<br>(id:620) ECH: Low absorption condition<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH |
| 10/21 | Th.             | CW           |                      | [multi-ion](10:00 ~ 12:15)ECH, NBI, ICH<br>Commissioning (NBI, ECH, ICH)<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 2.75 1.2538 100.0                                                                                                                                     |  |  |  |  |  | [spectroscopy](12:15 ~ 15:30)ECH, NBI<br>Carbon impurity erosion and transport analyses, divertor configuration and impurity transport, atomic database of L-shell transitions<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.6 2.75 1.2538 100.0<br>2 CW 3.6 1.375 1.2538 100.0                    |  |  |  |  |  | [instability](15:30 ~ 18:45)ECH, NBI<br>MHD instability suppression by RMP field, Sawtooth-like oscillation in high aspect ratio configuration of LHD<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CW 3.75 1.375 1.2538 100.0<br>2 CW 3.6 0.75 1.129 100.0<br>3 ✓ CW 3.6 0.9 1.129 100.0<br>4 ✓ CW 3.6 0.6 1.129 100.0 |     |                                  |        |  |  | Div Cryo                                                                                                                                                               | He, H2, N2, Ne, Ar | [Responsible person] S.Masuzaki / Y.Takemura<br>[ECH] Kenmochi<br>[NBI] Nakano<br>[central ctrl./data proc.] Ogawa/Maeno, Ohsuna<br>[radiation] Hayashi<br>[EXP LAN] Watanabe/Inoue<br>[TGL] N.Tamura/M.Kobayashi, M. Goto, K.Nagaoka/Y.Takemura<br>[SubTGL] H.Kasahara/G.Motojima, M.Yoshinuma/T.Oishi/T.Kawate, S.Kamio/N.Kenmochi | (spectroscopy)High heating power is a higher priority for the ECH(less than 2sec) operation during discharges of Ni injection, rather than the longer pulses.<br>(instability)CXS, BES, LID(<1920A)<br>(id:612) Impurity pellet/ TESPEL<br>(id:613) impurity gas puff<br>(id:620) ECH: Low absorption condition<br>(id:626) Mag. Conf.: Using LID coil<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:640) low gamma exp.<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH<br>(id:668) NB injection for low field discharges |  |  |          |            |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |
| 10/22 | Fr.             | CCW          |                      | [spectroscopy](09:15 ~ 11:45)ECH, NBI<br>Study on Ion Distribution toward low magnetic-field operations<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CCW 3.6 0.458 1.2538 100.0<br>2 CCW 3.6 0.6875 1.2538 100.0<br>3 ✓ CCW 3.6 1.0 1.2538 100.0<br>4 ✓ CCW 3.6 1.375 1.2538 100.0 |  |  |  |  |  | [multi-ion](11:45 ~ 18:45)ECH, NBI, ICH<br>Ion Distribution toward low magnetic-field operations, Impurity transport, Exposure of material (W-alloys) samples<br># Opt. Pol. Rax Bax gamma Bq SC<br>1 CCW 3.6 2.75 1.2538 100.0                                                                   |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                   |     |                                  |        |  |  | Div Cryo                                                                                                                                                               | H2, He             | [Responsible person] K.Tanaka / K.Nagaoka<br>[ECH] Yanai<br>[NBI] Nuga<br>[central ctrl./data proc.] Ogawa/Maeno, Ohsuna<br>[radiation] Kobuchi<br>[EXP LAN] Nakamura/Watanabe<br>[TGL] M. Goto, N.Tamura/M.Kobayashi<br>[SubTGL] M.Yoshinuma/T.Oishi/T.Kawate, H.Kasahara/G.Motojima                                                | (spectroscopy)56GHz ECH used for low magnetic field.<br>(id:612) Impurity pellet/ TESPEL<br>(id:620) ECH: Low absorption condition<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH<br>(id:664) Exposure of W-alloy samples to divertor plasma<br>(id:668) NB injection for low field discharges                                                                                                                                                                                     |  |  |          |            |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |

## Daily Schedule

Prepared by

N.Tamura

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| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Experimental Subject                                                                                                                                                                             |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| 2021/10/19(Tue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Commissioning (ECH, ICH, NBI)<br>Highly-charged tungsten ions spectroscopy, highly-charged rare earth ions spectroscopy<br>Toroidal and poloidal anisotropy of radiation, Wall recycling control |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| Exp. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Topical Group                                                                                                                                                                                    |          |             |        |        | TGL                                                  |           |    |             |    | Sub-TGL                                                                          |        |    |    |          |  |  |
| 1218                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | multi-ion/spectroscopy                                                                                                                                                                           |          |             |        |        | N.Tamura/M.Kobayashi<br>M. Goto<br>[2337/2169, 2290] |           |    |             |    | H.Kasahara/G.Motojima<br>M.Yoshinuma/T.Oishi/T.Kawate<br>[2065/2142, 2172/2022/] |        |    |    |          |  |  |
| Time Table                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8                                                                                                                                                                                                | 9        | 10          | 11     | 12     | 13                                                   | 14        | 15 | 16          | 17 | 18                                                                               | 19     | 20 | 21 | 22       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                  | U<br>P   | [multi-ion] |        |        | [spectroscopy]                                       |           |    | [multi-ion] |    |                                                                                  | D<br>N |    |    |          |  |  |
| Details and Experimental Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    | Gas      |  |  |
| [multi-ion](09:30 ~ 12:15)ECH, NBI, ICH<br>Checking the incident direction and the heating position of ECH (R. Yanai)<br>Injection trials and impedance matching to Plasma for ICH (R. Seki)<br>NBI conditioning (K. Ikeda)<br>Maximum number of discharges : 60<br>Sequence:3min                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    | H2,He    |  |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Option                                                                                                                                                                                           | Polarity | Rax(m)      | Bax(T) | gamma  | Bq(%)                                                | Subcooled |    |             |    |                                                                                  |        |    |    |          |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  | CW       | 3.6         | 2.75   | 1.2538 | 100.0                                                |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| [spectroscopy](12:15 ~ 16:30)ECH, NBI<br>- Simultaneous multi-wavelength spectroscopies for validation on atomic data and spectroscopic modelings for highly-charged ions(Murakami)<br>- Observation of visible forbidden lines from tungsten highly charged ions(Kato)<br>- Spectroscopy of highly charged rare-earth ions(Koike, Suzuki)<br>Maximum number of discharges : 90<br>Sequence:3min                                                                                                                                         |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    | H2,Ne,Ar |  |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Option                                                                                                                                                                                           | Polarity | Rax(m)      | Bax(T) | gamma  | Bq(%)                                                | Subcooled |    |             |    |                                                                                  |        |    |    |          |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  | CW       | 3.6         | 2.75   | 1.2538 | 100.0                                                |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| [multi-ion](16:30 ~ 18:45)ECH, NBI<br>-Study of poloidal and toroidal asymmetries during impurity seeding in LHD (B.J. Peterson)<br>-The radiation enhancement and triggering the island divertor detachment by direct supply of BN powders into the magnetic island in the LHD peripheral plasma using the IPD (M. Shoji).<br><br>Maximum number of discharges : 50<br>Sequence:3min                                                                                                                                                    |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    | H2,N2,Ne |  |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Option                                                                                                                                                                                           | Polarity | Rax(m)      | Bax(T) | gamma  | Bq(%)                                                | Subcooled |    |             |    |                                                                                  |        |    |    |          |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  | CW       | 3.9         | 2.5384 | 1.2538 | 100.0                                                |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| Wall Conditioning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| GD(Before Exp.): No , Cryopump(During Exp.): No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    |          |  |  |
| (spectroscopy)Impurity pellet(W, C, Fe, Ni), TESPEL injection(Ce, La, Ho), and impurity gas puffing(He, Ar, Ne, N).<br>【Precautions for today's LHD experiments】<br>(id:612) Impurity pellet/TESPEL<br>(id:613) impurity gas puff<br>(id:614) Impurity powder dropper<br>(id:620) ECH: Low absorption condition<br>(id:626) Mag. Conf.: Using LID coil<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH |                                                                                                                                                                                                  |          |             |        |        |                                                      |           |    |             |    |                                                                                  |        |    |    |          |  |  |

## Daily Schedule

Prepared by

T.Tokuzawa

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| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        | Experimental Subject                                                                                                                                                                                                                                                                                                                                                                                                       |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| 2021/10/20(Wed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        | Commissioning (ECH, ICH, NBII)<br>Core and edge turbulence in modulated ECH, Potential and density fluctuation measurement in e-ITB to study isotope effect<br>Commissioning (ECH, ICH, NBII)<br>Investigating ECH beam broadening by density fluctuations                                                                                                                                                                 |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| Exp. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        | Topical Group                                                                                                                                                                                                                                                                                                                                                                                                              |        |                 |              |       |           | TGL                                                     |    |                 |                  |        | Sub-TGL                                                                                  |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| 1219                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        | multi-ion/turbulence                                                                                                                                                                                                                                                                                                                                                                                                       |        |                 |              |       |           | N.Tamura/M.Kobayashi<br>T.Tokuzawa<br>[2337/2169, 2217] |    |                 |                  |        | H.Kasahara/G.Motojima<br>T.Kobayashi/T.Tsujimura/M.Nakata<br>[2065/2142, 2231/2023/2276] |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| Time Table                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |        | 8                                                                                                                                                                                                                                                                                                                                                                                                                          | 9      | 10              | 11           | 12    | 13        | 14                                                      | 15 | 16              | 17               | 18     | 19                                                                                       | 20 | 21  | 22     |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        |                                                                                                                                                                                                                                                                                                                                                                                                                            | U<br>P | [multi-<br>ion] | [turbulence] |       |           |                                                         |    | [multi-<br>ion] | [turbul<br>ence] | D<br>N |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        |                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| Details and Experimental Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    | Gas |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| [multi-ion](09:30 ~ 11:00)ECH, NBI, ICH<br>ECH: polarization and alignment<br>ICH : conditioning<br>Maximum number of discharges : 40<br>Sequence:3min<br><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></table>                                                                                                                                                                                                                                                                                                             |        |                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    | #   | Option | Polarity | Rax(m) | Bax(T) | gamma | Bq(%) | Subcooled | 1 |  | CW | 3.6 | 1.375 | 1.2538 | 100.0 |  | H2       |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Option | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                   | Rax(m) | Bax(T)          | gamma        | Bq(%) | Subcooled |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        | CW                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6    | 1.375           | 1.2538       | 100.0 |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| [turbulence](11:00 ~ 16:30)ECH, NBI<br>Core and edge turbulence in modulated ECH (M. Nishiura)<br>Potential and density fluctuation measurement in e-ITB to study isotope effect(A. Shimizu)<br>Maximum number of discharges : 120<br>Sequence:3min<br><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>3.75</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>3.9</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 | 3.6 | 1.375 | 1.2538 | 100.0 |  | 2        |  | CW | 3.75 | 1.375 | 1.2538 | 100.0 |  | 3 |  | CW | 3.9 | 1.375 | 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                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.75   | 1.375           | 1.2538       | 100.0 |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        | CW                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.9    | 1.375           | 1.2538       | 100.0 |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| [multi-ion](16:30 ~ 17:30)ECH, NBI, ICH<br>ECH: polarization and alignment<br>ICH : conditioning<br>Maximum number of discharges : 40<br>Sequence:3min<br><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>2.75</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 | 2.75  | 1.2538 | 100.0 |  | H2,D2,He |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Option | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                   | Rax(m) | Bax(T)          | gamma        | Bq(%) | Subcooled |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        | CW                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6    | 2.75            | 1.2538       | 100.0 |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| [turbulence](17:30 ~ 18:45)ECH, NBI, ICH<br>Investigating ECH beam broadening by density fluctuations (R.Yanai)<br>Maximum number of discharges : 30<br>Sequence:3min<br><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>2.75</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 | 2.75  | 1.2538 | 100.0 |  | H2,D2    |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Option | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                   | Rax(m) | Bax(T)          | gamma        | Bq(%) | Subcooled |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        | CW                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.6    | 2.75            | 1.2538       | 100.0 |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| Wall Conditioning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| GD(Before Exp.): No , Cryopump(During Exp.): Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | (multi-ion)2-I Div. cryo is not used<br>(turbulence)HIBP, TS, ECE<br>(multi-ion)2-I Div. cryo is not used<br>(turbulence)DBS, PCI, BES, (fast TS)<br>【Precautions for today's LHD experiments】<br>(id:620) ECH: Low absorption condition<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH |        |                 |              |       |           |                                                         |    |                 |                  |        |                                                                                          |    |     |        |          |        |        |       |       |           |   |  |    |     |       |        |       |  |          |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |    |  |

## Daily Schedule

Prepared by

N.Tamura  
Y.Takemura

| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Experimental Subject                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------|----------------|-----------------------------------------------------------------------------------------|----|---------------|----|----|-------------------------------------------------------------------------------------------------------------------|----|----|-------------|--------|----------|--------|--------|-------|-------|-----------|---|--|----|------|-------|--------|-------|--|---|--|----|-----|-------|--------|-------|--|---|---|----|-----|-----|-------|-------|--|---|---|----|-----|-----|-------|-------|--|--|--|
| 2021/10/21(Thu)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Commissioning (NBI, ECH, ICH)<br>Carbon impurity erosion and transport analyses, diverter configuration and impurity transport, atomic database of L-shell transitions<br>MHD instability suppression by RMP field, Sawtooth-like oscillation in high aspect ratio configuration of LHD |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| Exp. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Topical Group                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                | TGL                                                                                     |    |               |    |    | Sub-TGL                                                                                                           |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 1220                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | multi-ion/spectroscopy/instability                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                | N.Tamura/M.Kobayashi<br>M. Goto<br>K.Nagaoka/Y.Takemura<br>[2337/2169, 2290, 2177/2167] |    |               |    |    | H.Kasahara/G.Motojima<br>M.Yoshinuma/T.Oishi/T.Kawate<br>S.Kamio/N.Kenmochi<br>[2065/2142, 2172/2022/, 2194/2208] |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| Time Table                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8                                                                                                                                                                                                                                                                                       | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10          | 11     | 12     | 13             | 14                                                                                      | 15 | 16            | 17 | 18 | 19                                                                                                                | 20 | 21 | 22          |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                         | U<br>P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | [multi-ion] |        |        | [spectroscopy] |                                                                                         |    | [instability] |    |    | D<br>N                                                                                                            |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| Details and Experimental Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    | Gas         |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| [multi-ion](10:00 ~ 12:15)ECH, NBI, ICH<br>Commissioning of heating devices (NBI, ECH, ICH)<br>Maximum number of discharges : 60<br>Sequence:3min                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    | He          |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| <table><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><tr><td>1</td><td></td><td>CW</td><td>3.6</td><td>2.75</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  | 2.75  | 1.2538 | 100.0 |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Option                                                                                                                                                                                                                                                                                  | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rax(m)      | Bax(T) | gamma  | Bq(%)          | Subcooled                                                                               |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.6         | 2.75   | 1.2538 | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| [spectroscopy](12:15 ~ 15:30)ECH, NBI<br>- Analyzing carbon impurity erosion and transport and comparing with ERO2.0 modelling (Romazanov, Shoji)<br>- Examining the impact of divertor configuration on inward impurity transport (Ding, Oishi)<br>- Establishing atomic database of L-shell transitions of the Fe-peak elements (Yamaguchi, Murakami)<br>Maximum number of discharges : 70<br>Sequence:3min                                                                                                                                                         |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    | H2,N2,Ne,Ar |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| <table><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><tr><td>1</td><td></td><td>CW</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>CW</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 |  | CW | 3.6  | 2.75  | 1.2538 | 100.0 |  | 2 |  | CW | 3.6 | 1.375 | 1.2538 | 100.0 |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Option                                                                                                                                                                                                                                                                                  | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rax(m)      | Bax(T) | gamma  | Bq(%)          | Subcooled                                                                               |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.6         | 2.75   | 1.2538 | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.6         | 1.375  | 1.2538 | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| [instability](15:30 ~ 18:45)ECH, NBI<br>The effect of the external RMP on the MHD instability is investigated. (S. Ito)<br>The characteristics of the sawtooth-like oscillation observed in the high aspect ratio configuration is investigated. (Y. Takemura)<br>Maximum number of discharges : 70<br>Sequence:3min                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    | H2,Ne       |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| <table><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><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><tr><td>2</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>3</td><td>✓</td><td>CW</td><td>3.6</td><td>0.9</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>0.6</td><td>1.129</td><td>100.0</td><td></td></tr></table> |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    | #           | Option | Polarity | Rax(m) | Bax(T) | gamma | Bq(%) | Subcooled | 1 |  | CW | 3.75 | 1.375 | 1.2538 | 100.0 |  | 2 |  | CW | 3.6 | 0.75  | 1.129  | 100.0 |  | 3 | ✓ | CW | 3.6 | 0.9 | 1.129 | 100.0 |  | 4 | ✓ | CW | 3.6 | 0.6 | 1.129 | 100.0 |  |  |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Option                                                                                                                                                                                                                                                                                  | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rax(m)      | Bax(T) | gamma  | Bq(%)          | Subcooled                                                                               |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.75        | 1.375  | 1.2538 | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.6         | 0.75   | 1.129  | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓                                                                                                                                                                                                                                                                                       | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.6         | 0.9    | 1.129  | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓                                                                                                                                                                                                                                                                                       | CW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.6         | 0.6    | 1.129  | 100.0          |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| Wall Conditioning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                         | GD(Before Exp.): No , Cryopump(During Exp.): Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                         | (spectroscopy)High heating power is a higher priority for the ECH(less than 2sec) operation during discharges of Ni injection, rather than the longer pulses.<br>(instability)CXs, BES, LID(<1920A)<br>【Precautions for today's LHD experiments】<br>(id:612) Impurity pellet/TESPEL<br>(id:613) impurity gas puff<br>(id:620) ECH: Low absorption condition<br>(id:626) Mag. Conf.: Using LID coil<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:640) low gamma exp.<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH<br>(id:668) NB injection for low field discharges |             |        |        |                |                                                                                         |    |               |    |    |                                                                                                                   |    |    |             |        |          |        |        |       |       |           |   |  |    |      |       |        |       |  |   |  |    |     |       |        |       |  |   |   |    |     |     |       |       |  |   |   |    |     |     |       |       |  |  |  |

## Daily Schedule

Prepared by

M.Kobayashi  
T.Oishi

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|--------|------------------------------------------------------|-----------|----|----|----|----------------------------------------------------------------------------------|----|----|----|-----|--------|----------|--------|--------|-------|-------|-----------|---|--|-----|-----|-------|--------|-------|--|-------|--|-----|-----|--------|--------|-------|--|---|---|-----|-----|-----|--------|-------|--|---|---|-----|-----|-------|--------|-------|--|----|--|
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Experimental Subject                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 2021/10/22(Fri)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Study on Ion Distribution toward low magnetic-field operations<br>Ion Distribution toward low magnetic-field operations, Impurity transport, Exposure of material (W-alloys) samples |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| Exp. No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Topical Group                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        | TGL                                                  |           |    |    |    | Sub-TGL                                                                          |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 1221                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | spectroscopy/multi-ion                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        | M. Goto<br>N.Tamura/M.Kobayashi<br>[2290, 2337/2169] |           |    |    |    | M.Yoshinuma/T.Oishi/T.Kawate<br>H.Kasahara/G.Motojima<br>[2172/2022/, 2065/2142] |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| Time Table                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 8                                                                                                                                                                                    | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10             | 11          | 12     | 13                                                   | 14        | 15 | 16 | 17 | 18                                                                               | 19 | 20 | 21 | 22  |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                      | UP                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | [spectroscopy] | [multi-ion] |        |                                                      |           |    |    |    |                                                                                  | DN |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| Details and Experimental Conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    | Gas |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| [spectroscopy](09:15 ~ 11:45)ECH, NBI<br>Study on Ion Distribution toward low magnetic-field operations<br>Maximum number of discharges : 60<br>Sequence:3min<br><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>0.458</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>0.6875</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>3</td><td>✓</td><td>CCW</td><td>3.6</td><td>1.0</td><td>1.2538</td><td>100.0</td><td></td></tr><tr><td>4</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 | 0.458 | 1.2538 | 100.0 |  | 2     |  | CCW | 3.6 | 0.6875 | 1.2538 | 100.0 |  | 3 | ✓ | CCW | 3.6 | 1.0 | 1.2538 | 100.0 |  | 4 | ✓ | CCW | 3.6 | 1.375 | 1.2538 | 100.0 |  | H2 |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Option                                                                                                                                                                               | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rax(m)         | Bax(T)      | gamma  | Bq(%)                                                | Subcooled |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                      | CCW                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.6            | 0.458       | 1.2538 | 100.0                                                |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                      | CCW                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.6            | 0.6875      | 1.2538 | 100.0                                                |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ✓                                                                                                                                                                                    | CCW                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.6            | 1.0         | 1.2538 | 100.0                                                |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ✓                                                                                                                                                                                    | CCW                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.6            | 1.375       | 1.2538 | 100.0                                                |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| [multi-ion](11:45 ~ 18:45)ECH, NBI, ICH<br>Study on Ion Distribution toward low magnetic-field operations<br>Impurity transport study for the electron-root and ion-root regimes<br>(Hydrogen) Exposure of material (W-alloys) samples into the edge plasma by means of the LHD manipulator<br>Expansion of the observable charge state range of tungsten ions (proposal in TG3[spectroscopy])<br><br>Maximum number of discharges : 150<br>Sequence:3min<br><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>2.75</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 | 2.75  | 1.2538 | 100.0 |  | H2,He |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Option                                                                                                                                                                               | Polarity                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rax(m)         | Bax(T)      | gamma  | Bq(%)                                                | Subcooled |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                      | CCW                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.6            | 2.75        | 1.2538 | 100.0                                                |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| Wall Conditioning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| GD(Before Exp.): No , Cryopump(During Exp.): Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                      | (spectroscopy)56GHz ECH used for low magnetic field.<br>【Precautions for today's LHD experiments】<br>(id:612) Impurity pellet/TESPEL<br>(id:620) ECH: Low absorption condition<br>(id:638) ECH: Commissioning (alignment, profile check)<br>(id:654) ECH: Injection from the antenna at Port 1.5Uo<br>(id:657) ICH: Antennae insertion for plasma heating by ICH<br>(id:664) Exposure of W-alloy samples to divertor plasma<br>(id:668) NB injection for low field discharges |                |             |        |                                                      |           |    |    |    |                                                                                  |    |    |    |     |        |          |        |        |       |       |           |   |  |     |     |       |        |       |  |       |  |     |     |        |        |       |  |   |   |     |     |     |        |       |  |   |   |     |     |       |        |       |  |    |  |