Thirtieth Meeting of the ITPA Topical Group on Diagnostics

**21st-24th June 2016**

**Budker Institute of Nuclear Physics, Russian Federation**

Draft A G E N D A ver 2.5

(meeting folder be found at　<https://portal.iter.org/departments/POP/ITPA/Diag/DIAG/default.aspx?InstanceID=33&InitialTabId=Ribbon%2ERead&VisibilityContext=WSSTabPersistence>)

**Progress Meeting of Russian Federation**

Tuesday, 21st June

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|  | ***Chair: Zvonkov*** |  |
| 09:00 | Welcoming Words (5') | Anatoly Krasilnikov |
| 09:05 | Logistics (5') | Andrey Shoshin,  Aleksandr Burdakov |
|  | ***Overview*** |  |
| 9:10 | BINP overview (25'+5') | P. Logachev,  A. Burdakov |
|  | ***Fusion Products Diagnostics*** |  |
| 09:40 | Progress of DNFM (15'+5') | Y. Kaschuck |
| 10:00 | Manufacture and preliminary tests of DNFM mockup (15'+5') | D. Gavrilenko |
| 10:20 | Progress of Vertical Neutron Camera (15'+5') | V. Amosov |
| 10:40 | ***Coffee/Tea Break*** |  |
|  | ***Chair: Vukolov*** |  |
|  | ***Neutral Particle Diagnostics*** |  |
| 11:10 | Development of NPA system: progress and present status (15'+5') | V. Afanasyev |
| 11:30 | Fuel monitoring by NPA: NBI, pellets, sawteeth and ELMs (15'+5') | M. Mironov |
|  | ***Passive Spectroscopy*** |  |
| 11:50 | Preliminary design of H-alpha and Visible Spectroscopy Diagnostic in ITER Equatorial Ports (15'+5') | A. Alekseev |
| 12:10 | Status of the Gamma-ray Spectrometer in ITER NPA system (15'+5') | D. Gin |
| 12:30 | ***Lunch*** |  |
|  | ***Chair: Burdakov*** |  |
|  | ***Active Spectroscopy*** |  |
| 13:30 | **Progress in CXRS-edge development** (15'+5') | **S. Tugarinov** |
| 13:50 | Motional Stark effect diagnostics for precise measurements of magnetic field in plasmas (15'+5') | A. Lizunov |
|  | ***Laser Aided Diagnostics*** |  |
| 14:10 | Status of DTS System (15'+5') | E. Mukhin |
|  | ***Microwave Diagnostics*** |  |
| 14:30 | High Field Side Reflectometry (15'+5') | V. Lukyanov |
|  | ***First Wall Diagnostics*** |  |
| 14:50 | In-situ diagnostics of effects of intense ELM-like heat load on tungsten (15'+5') | L. Vyacheslavov |
|  | ***Neutral Beam Technology*** |  |
| 15:10 | Diagnostic neutral beams developed by BINP (15'+5') | Igor Shikhovtsev |
| 15:40 | ***Coffee/Tea Break*** |  |
|  | ***Tour*** |  |
| 16:00 | Tour to BINP |  |
| 17:30 | ***Adjourn*** |  |

*Welcome Party 18:00~*

**30th Meeting of ITPA Diagnostics TG**

Wednesday, 22nd June

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|  | ***Chair: Kawano*** |  |
| 09:00 | *Welcoming Words (5')* | Yasunori Kawano |
| 09:05 | *Logistics (5')* | George Vayakis,  Maarten De Bock |
|  | ***Topical Group Activities: Part 1*** |  |
| 09:10 | Update of Topical Group Activities: Part 1 (25'+5') | Yasunori Kawano |
| 09:40 | Review of Action Items: Part 1 (25'+5') | David Brower |
| 10:10 | ***Coffee/Tea Break*** |  |
|  | ***Progress in ITER Organization*** |  |
| 10:25 | ITER diagnostic design progress (50'+5') | George Vayakis,  Maarten De Bock |
|  | ***Chair: Brower*** |  |
|  | **HP: *Determination of the life time of plasma facing mirrors used in optical systems (combined with FM SWG)*** |  |
| 11:20 | FM SWG Report (25'+5') | Andrey Litnovsky,  Vladimir Voitsenya |
| 11:50 | JEX DIAG-2 (15'+5') | Andrey Litnovsky |
| 12:10 | First results of comparative study of single crystal (SC) Rh and Mo mirrors under eroding plasma conditions (15'+5') | Andrey Litnovsky |
| 12:30 | ***Lunch and Photo*** |  |
| 13:40 | Thermal tests of sandwich Mo mirrors for H-alpha spectroscopy (15'+5') | I. Orlovskiy |
| 14:00 | Status of Shutters and Actuators Design for DTS System (5'+5') | D. Samsonov |
| 14:10 | Study SC-Mo mirrors degradation in DC plasma cleaning conditions (15'+5') | A. Rogov |
| 14:30 | Integration DC/PDC plasma cleaning systems into H-alpha diagnostic first mirrors units (15'+5') | Y. Kapustin |
| 14:50 | Status of mirror cleaning regime definition for ITER (10’+5’) | Maarten De Bock |
| 15:05 | RF mirror cleaning – matching and cooling (5'+5') | Frank Leipold - remote |
| 15:15 | Integration of Mirror Cleaning Components: status of work in progress (10'+5') | Mikhail Kochergin - remote |
| 15:30 | Discussions and Actions (20') | All |
| 15:50 | ***Coffee/Tea Break*** |  |
|  | ***Chair: Zvonkov*** |  |
|  | **HP: *The assessment of impacts of in-vessel wall reflections on diagnostics***  ***to be changed as***  ***The assessment of impacts of microwaves on diagnostics*** |  |
| 16:05 | Status of wall reflection study in visible / IR range (10'+5') | Shin Kajita - remote |
| 16:20 | JEX DIAG-8: Benchmark of wall reflections (5') | Maarten De Bock |
| 16:25 | JEX DIAG-7: Distributed monitoring of microwave power density (10'+5') | Hans Oosterbeek,  Antoine Sirinelli |
| 16:40 | JEX DIAG-10: Minimizing microwave absorption in vacuum windows (5'+5') | Hans Oosterbeek,  George Vayakis |
| 16:50 | Discussions and Actions (10') | All |
| 17:00 | ***Adjourn*** |  |

***Tour of the city 17:00~***

**30th Meeting of ITPA Diagnostics TG**

Thursday, 23rd June

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|  | ***Chair: Zoletnik*** |  |
|  | **HP: *Development of methods of measuring the energy and density distribution of escaping alpha’s (combined with Fusion Product SWG)*** |  |
| 09:00 | JEX DIAG-5 (5'+5') | András Fenyvesi  (pres. Zoletnik) |
| 09:10 | FICX (Fast Ion Charge eXchange) on escaping alpha’s using the ITER Heating Neutral Beam (HNB) & Information of ITER Workshop on escaping alpha diagnostics (15'+5) | Evgeny Veshchev,  Manfred von Hellermann,  Maarten De Bock |
| 09:30 | Preparation status of the neutron diagnostics for the LHD deuterium experiment (20'+5') | Takeo Nishitani |
| 09:55 | First results of gamma ray diagnostics in EAST Tokamak (15'+5') | ZHOU, Ruijie |
| 10:15 | Discussions and Actions (20') | All |
| 10:35 | ***Coffee/Tea Break*** |  |
|  | ***Chair: Kawano*** |  |
|  | **HP: *Plasma Control System measurement Requirements (combined with Real Time Diagnostics SWG)*** |  |
| 10:55 | Progress on Action Items (5'+5') | D. Mazon, R. Imazawa,  G. Vayakis, D. Brower,  Y. Kawano |
| 11:05 | First experiences with the overview camera system of W7-X (20'+5') | S. Zoletnik |
| 11:30 | Divertor Neutron Flux Monitor Synthetic Diagnostic Modeling for Plasma Control System Feedback Loop (15'+5') | D. Portnov |
| 11:50 | Optical galvanic isolation in high speed measuring channels of ITER diagnostics (15'+5') | Igor Semenov |
| 12:10 | Discussions and Actions (20’) | All |
| 12:30 | ***Lunch*** |  |
|  | ***Progress Reports from Specialist Working Groups: Part 1*** |  |
|  | ***Chair: Fan*** |  |
|  | ***Radiation Effects*** |  |
| 13:40 | RE SWG Report (25’+5’) | Andrei Goussarov,  Masaki Nishiura |
| 14:10 | Irradiation tests of waveguide samples for HFRS (15'+5’) | Konstantin Vukolov |
| 14:30 | Results of the irradiation test on the diagnostics/control electronics (15'+5’) | Takeo Nishitani |
|  | ***First Wall*** |  |
| 14:50 | FW SWG Report (15'+5') | Shin Kajita,  S.H. Hong - remote |
|  | ***Chair: S.G. Lee*** |  |
|  | ***Microwave Diagnostics*** |  |
| 15:10 | MW SWG Report (25’+5’) | Garrard Conway  Max Austin, - remote |
| 15:40 | ***Coffee/Tea Break*** |  |
| 16:00 | Ion cyclotron harmonic emissions from the edge of H-mode plasma (15'+5') | YUN, Gunsu  (pres. LEE, Kwan Chul) |
|  | ***Laser-Aided diagnostics*** |  |
| 16:20 | Polarimeter-Interferometer Development in US & China (15'+5') | David Brower |
| 16:40 | Development of vibration isolation system on KSTAR interferometer (15'+5') | LEE, Kwan Chul |
|  | ***Chair: Kawano*** |  |
|  | ***Report from RF*** |  |
| 17:00 | Overview of SPbPU research in the field of engineering analysis constructions and equipment of the ITER (15'+5') | Shagniev, Oleg |
|  | ***Discussions*** |  |
| 17:20 | Discussions for SWGs Part 1 (20’) | All |
| 18:00 | ***Adjourn*** |  |

***Banquet 18:00~***

**30th Meeting of ITPA Diagnostics TG**

Friday, 24th June

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|  | ***Progress Reports from Specialist Working Groups: Part 2*** |  |
|  | ***Chair: Litnovsky*** |  |
|  | ***Active Spectroscopy*** |  |
| 09:00 | JEX DIAG-9: Spectral MSE (MSE-LS) experiments as design driver for ITER MSE (15'+5') | Maarten De Bock |
|  | ***Passive Spectroscopy*** |  |
| 09:20 | PS SWG Report (25’+5’) | Sanjeev Varshney,  C.R. Seon - remote |
| 09:50 | JEX DIAG-6 activity (15'+5') | Sang Gon Lee |
| 10:10 | Extreme ultraviolet spectrometers for measurement of tungsten spectra on EAST (15'+5') | L. Zhang |
| 10:30 | ***Coffee/Tea Break*** |  |
|  | ***Party Reports on ITER Relevant Diagnostic Developments*** |  |
|  | ***Chair: Nishiura*** |  |
|  | ***Developments in KO*** |  |
| 10:50 | KO progress report (25'+5') | Changrae Seon - remote |
|  | ***Developments in IN*** |  |
| 11:20 | IN progress report (25'+5') | Sanjeev, Hitesh & Siddharth - remote |
|  | ***Developments in US*** |  |
| 11:50 | US progress report (25'+5') | David Brower |
| 12:20 | ***Lunch*** |  |
|  | ***Chair: K.C. Lee*** |  |
|  | ***Developments in JA*** |  |
| 13:30 | Progress in the Univ. Tokyo (10'+5') | Masaki Nishiura |
| 13:45 | Neutron calibration in LHD (5’) | Takeo Nishitani |
| 13:50 | Progress in ITER Diagnostics Development in Japan (5'+5') | Yasunori Kawano |
|  | ***Developments in CN*** |  |
| 14:00 | CN progress report (25'+5') | Tieshuan Fan |
|  | ***Developments in EU*** |  |
| 14:30 | EU progress report (25'+5') | Sandor Zoletnik |
| 15:00 | ***Coffee/Tea Break*** |  |
|  | ***Chair: Kawano*** |  |
|  | ***Topical Group Activities: Part 2*** |  |
| 15:20 | Overall Discussions (30’) | Yasunori Kawano, All |
| 15:50 | Update of Topical Group Activities: Part 2 (25'+5') | Yasunori Kawano, All |
| 16:20 | Review of Action Items: Part 2 (25'+5') | David Brower, All |
|  | ***Closing*** |  |
| 16:50 | Closing (10') | Yasunori Kawano, All |
| 18:00 | ***Meeting End*** |  |