

# IFERC Newsletter



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International Fusion Energy Research Centre, Rokkasho, Aomori 039-3212, Japan

## Meeting

### 18<sup>th</sup> IFERC Project Committee (IFERC PC-18) meeting

The 18<sup>th</sup> International Fusion Energy Research Centre (IFERC) Project Committee (IFERC PC-18) meeting was held at Tohoku University on 15<sup>th</sup> -16<sup>th</sup> March, in conjunction with the 4<sup>th</sup> CSC Review Meeting. Twenty nine participants attended the IFERC PC-18 in person or via videoconference (VC). Among these were 6 committee members, including the PC chair, David Maisonnier, 9 project team members, including the Project Leader, Noriyoshi Nakajima, one secretary, 2 JA invited experts, 13 experts from the EU and JA Implementing Agencies (seven EU experts via VC).

The DEMO Design Activities (DDA) work of the Phase Two-C: Pre-conceptual design phase, started from January 2015. The main areas of advance in 2015 are 1) scoping of DEMO design points, physics basis and scenario modelling, 2) studies on key design issues (namely, power exhaust and divertor design, blanket and first wall designs, remote maintenance, and superconducting magnet and design target of the TF ripple) and their assessment in the integrated conceptual design, 3) DEMO plant system design and 4) consolidation of structural material database.

Regarding power exhaust and divertor design, plasma simulation and divertor design studies have been progressed. Plasma simulation with different divertor sizes is being carried out to reduce the peak heat load on the divertor target with high radiation fraction with Ar impurity seeding. Heat transport analysis of the target consisting of tungsten (W)-monoblock and Cu-alloy pipe with pressurized cooling water of 200°C indicated that the target concept is applicable for the heat load of 10 MW/m<sup>2</sup> level.

Based on the common interest of both IAs towards DEMO, DEMO R&D activities have been carried out successfully in accordance with the original and amended Work Programme 2015 and PAs, for the continued 5 task areas: T1) SiC<sub>f</sub>/SiC Composites, T2) tritium technology, T3) materials engineering for DEMO blanket, T4) advanced neutron multiplier for DEMO blanket, and T5) advanced tritium breeders for DEMO blanket. As to EU/JA joint collaboration, dust particles sampled after the carbon wall and ILW phases of JET were transported to Rokkasho. The first analyses of surface morphologies of ILW-JET carbon dust particles started. Many tungsten dust particles with acute angles

were observed. Typical diameter of dust particles was less than 100 µm. Beryllium deposited layer on tungsten film was observed. A specific activity of 0.1 GBq/g of the dust from the inner divertor was measured at IFERC by liquid scintillation counting (LSC) with high accuracy.

The CSC activity was performed by the IAs in coordination with the Standing Committee (StC) regarding allocation of computer resources to selected projects. The Integrated Project Team (IPT) of CSC including HPC team continuously and dedicatedly supports users and stably operates Helios with a high availability ratio and a high utilization rate, leading to the fact that 512 peer-reviewed papers (accumulated number, 352 for EU and 160 for JA) are accepted or published in scientific journals like Physics of Plasmas (93 papers) and Nuclear Fusion (77 papers) and also Physical Review Letters (16 papers) as of February 2016.

As to REC activities, development of the software for remote participation has successfully continued in collaboration with the Satellite Tokamak Programme. Development of the software on plasma simulations by both JA and EU, installation of REC network and environmental preparation of REC room by JA started based on the PAs amended or concluded in 2015. A part of installation of REC network and interior works of REC room was completed in March 2016.



(IFERC Project Leader: Noriyoshi Nakajima)