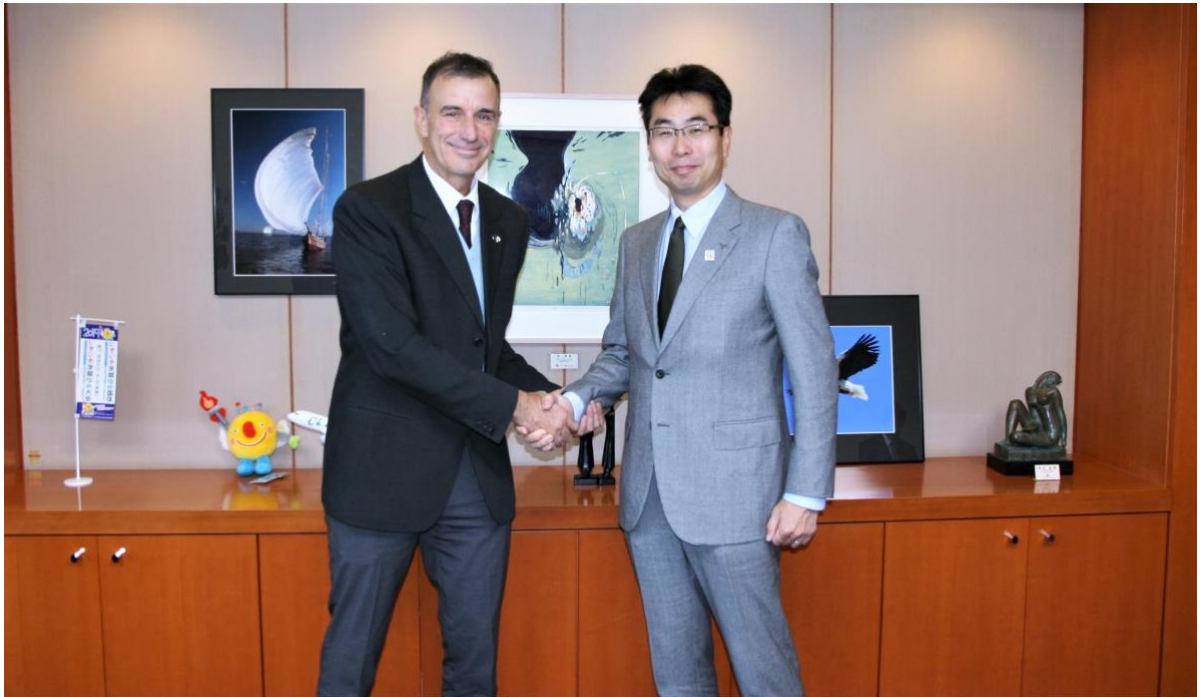


Headline

Courtesy call on Vice-Governor of Ibaraki Prefecture



From right to left: Vice-Governor of Ibaraki Prefecture Y. Uno and Head of Department at Fusion for Energy P. Barabaschi

On 22 November 2018, the Head of Department at Fusion for Energy (F4E) P. Barabaschi made a courtesy call on the Vice-Governor of Ibaraki Prefecture Y. Uno, who assumed the position on 1 July 2018.

P. Barabaschi explained the current status of the JT-60SA construction progressing steadily under the EU-Japan collaboration at the National Institutes for Quantum and Radiological Science and Technology (QST) Naka site towards the completion in 2020. He asked for the continued cooperation of the Prefecture.

JT-60SA torus peripheral components installed

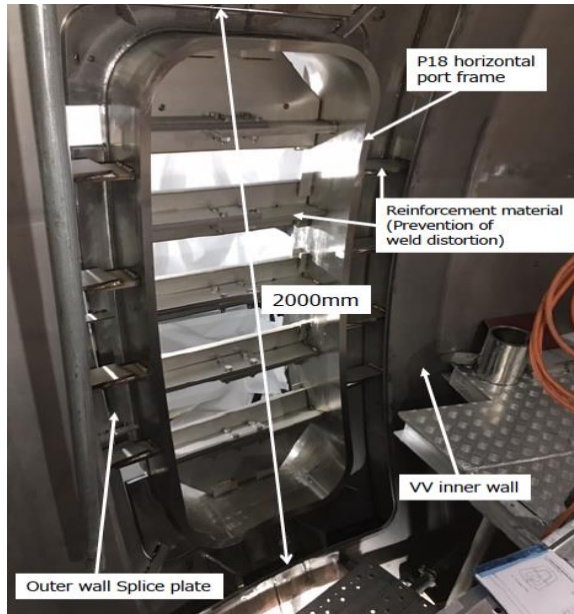


Figure 1: Outer wall splice plates of all six port frames welded

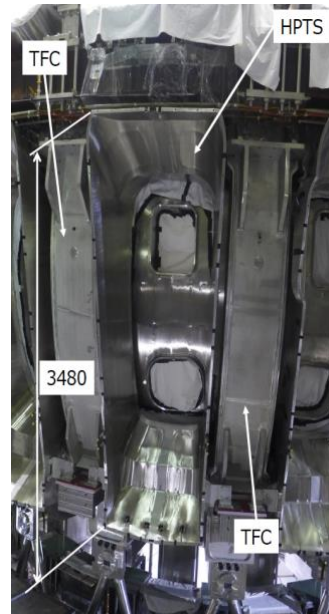


Figure 2: Six out of 18 HPTSs assembled

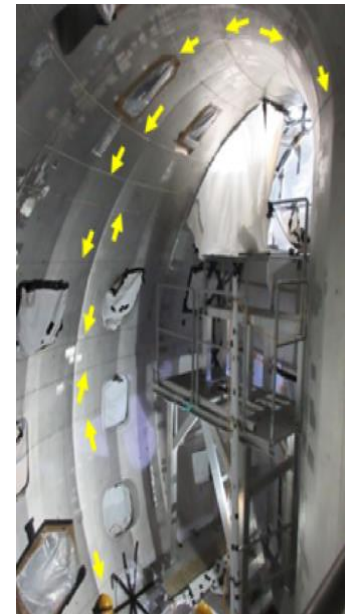


Figure 3: One-third of 19 one-turn loop coils in the toroidal direction installed

Peripheral components of the JT-60SA torus - the port frames of the vacuum vessel (VV) final sector, the horizontal port thermal shields (HPTSs), and electromagnetic sensors in the VV - are being installed simultaneously.

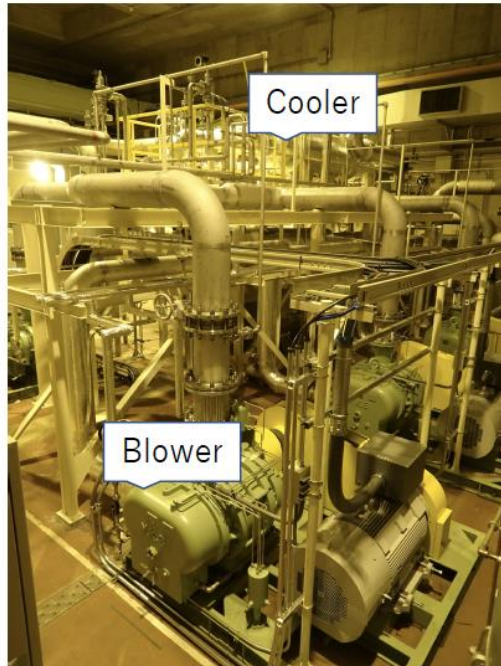
For the port frames of the VV final sector, the outer wall splice plates of all six port frames have been welded (Figure 1). To prevent weld distortion, the port frames were reinforced in advance, and aligned with the splice plates and welded to the VV onsite.

Six out of 18 HPTSs have been assembled and welded to the vacuum vessel thermal shield (VVTS) (Figure 2).

For the electromagnetic sensors in the VV, the work stage was installed, and one-turn loop coils are being installed. By March 2019, all 27 one-turn loop coils will be installed in the VV. Nineteen one-turn loop coils have to be mounted before the setup of the inner first wall, one-third of which in the toroidal direction have already been installed (Figure 3).

News

Gas circulation device of JT-60SA



The gas circulation device of JT-60SA provides nitrogen gas for vacuum vessel (VV) baking at 215°C and 0.19 MPa to the intermediate layer between the double wall of the VV.

To install the device, existing equipment installed in the underground area of the torus has been removed and the new equipment has now been installed.

At present, the operation test of the installed device is being carried out.

In 2019, the installation of the device will be completed with the connecting pipework in the torus hall.

Gas circulation device of JT-60SA

News

Cryostat top lid being manufactured



Figure 1: Nine sectors welded



Figure 2: Reinforcing ribs and stiffening rings being installed

The cryostat top lid is being manufactured at the factory in two 180° modules. They will be transported to the QST Naka site and integrated in the assembly hall.

So far, eighteen 20° sectors have been manufactured, nine of which have been installed to form one module. The welding between the nine sectors was carried out (Figure 1) and weld defects were not detected by radiation examination. At present, reinforcing ribs and stiffening rings are being installed (Figure 2).

As for the other module, the welding between the sectors is progressing.

Meeting

11th DRM for SCMPS of JT-60SA



Participants in 11th DRM for SCMPS of JT-60SA

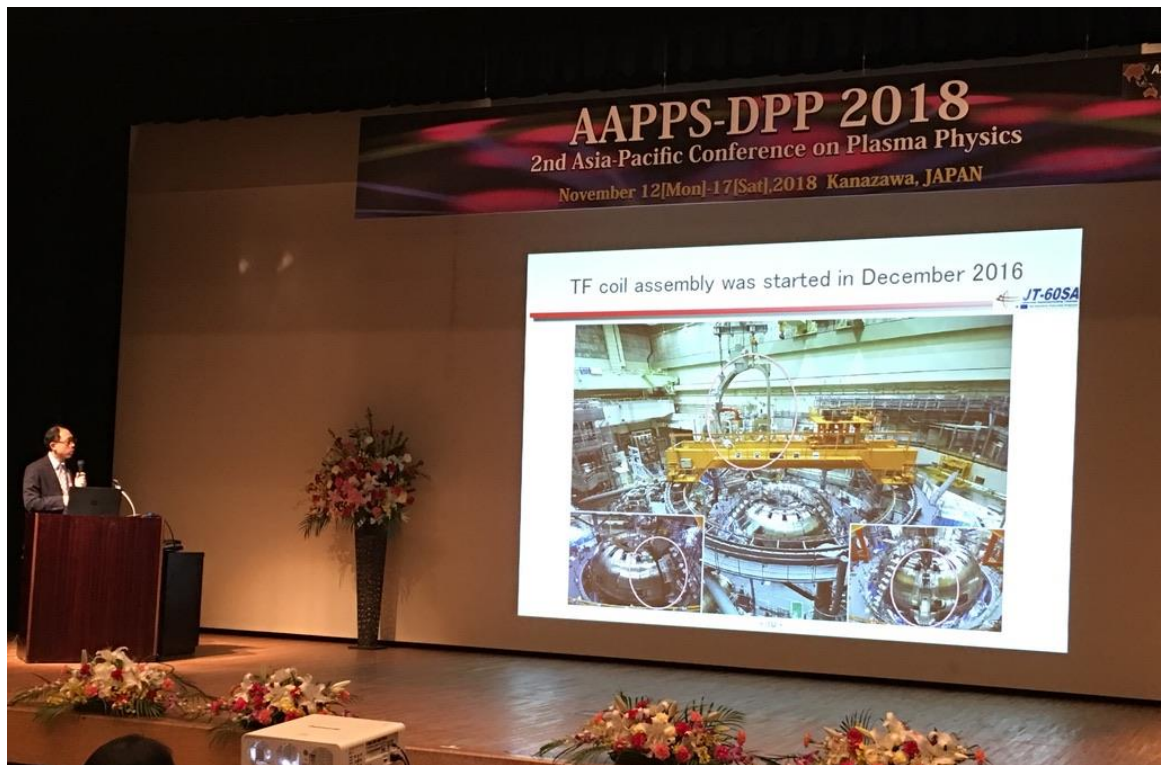
The CEA contribution to the procurement of the superconducting magnet power supplies (SCMPSs) of JT-60SA, begun in November 2010 with the signature of the Agreement of Collaboration between CEA and F4E, is approaching its successful completion eight years later, with the review and acceptance of the final documentation.

The contract for the procurement of five AC/DC converters supplied for the equilibrium field (EF) 2, EF3, EF4, EF5 and toroidal field (TF) coils was entrusted by CEA to the Spanish supplier JEMA in March 2013.

From that time more than 430 documents, totalling about 3.5 Gbytes of data, have been prepared by JEMA during the procurement activities, recording the different phases of the project, from the design to the final acceptance tests, passing through the manufacturing, factory test, transportation to Japan, on-site installation and commissioning.

All the documentation, along with the maintenance and operation manuals, has been carefully checked by CEA, F4E and QST experts during the different phases of the project, and the final version was commented during the Design Review Meeting (DRM) held on 15 November 2018.

The participants in the meeting appreciated the dedication by JEMA and CEA teams to the whole project and to the preparation of the final documentation, and warmly thanked the people involved (in particular the team leaders O. Baulaigue from CEA and A. Dorronsoro from JEMA). Only minor comments were raised, and the acceptance of the final revision of the documents is expected soon, representing the completion of the CEA contribution to the procurement of the power supply system of JT-60SA.



N. Oyama presenting plenary talk

The 2nd Association of Asia-Pacific Physical Societies—Division of Plasma Physics Conference (AAPPS-DPP2018) was held on 12–17 November 2018 in Kanazawa Japan. AAPPS-DPP2018 is a plasma physics conference under the authority of AAPPS-DPP for scientific discussions on plasma physics. This conference is intended to be physics-oriented and to encourage interdisciplinary and in-depth discussions among and in various fields of plasma physics and its application. The programme consisted of plenary, oral, evening sessions and poster presentations. Over 600 persons attended the conference.

N. Oyama presented a plenary talk on the status of the JT-60SA Project, highlighting that for the JT-60SA construction, all 18 toroidal field (TF) coils and 6 equilibrium field (EF) coils have been assembled, and that the assembly is progressing towards the first plasma planned in 2020. As for the preparation for experiments in JT-60SA, physics and engineering R&D were in progress in collaboration with Euratom. The Research Plan Version 4.0, including updated research phases, has been published. The audience listened with interest and several questions were asked.

Presentations related to the JT-60SA Project are shown as follows (only presenters and titles are shown):

1. Overview presentation (1)

1. N. Oyama, Progress in preparing research plan and construction of JT-60SA.

2. Poster presentation (1)

1. H. Kawashima, Compatibility of low separatrix density and divertor heat load at a JT-60SA H-mode operation scenario using SONIC multi-impurity Monte-Carlo model.

The next AAPPS-DPP will be held in Hefei, China in 2019.



Group photo of APPS-DPP 2018

Meeting

31st Technical Coordination Meeting in Naka

The 31st Technical Coordination Meeting (TCM-31) took place on 19–22 November 2018 at the QST Naka Fusion Institute in Japan. A total of 72 experts attended the meeting in person or via video-conference: 27 from the European (EU) Home Team, 35 from the Japanese (JA) Home Team, 6 from the Project Team, and 4 invited from Contributors/EUROfusion.

Topical sessions were held on 19 and 20 November 2018 on the pellet injection system, fast ion loss detector (FILD), edge Thomson scattering, cryopumps and power supply combination testing. The plenary session was held on 21 and 22 November 2018, and topical sessions on results from additional tests performed on the spare coils and on the remote handling concept were also held in parallel.

At the beginning of the plenary session, Y. Kamada, the Project Leader (PL), emphasised that the JT-60SA project is entering the next phase and many new Procurement Arrangements needed to be agreed during 2019. He reported on the completion of the JT-60SA Research Plan Version 4.0 and the JT-60SA contributions to the International Thermonuclear Experimental Reactor (ITER) and DEMONstration Power Station (DEMO). The EU and JA Deputy Project Managers briefly explained the achievements since the last TCM.

On the first day of the plenary session, the substantial progress in manufacturing of the central solenoid (CS), coil terminal boxes, thermal shields, cryodistribution components, cryostat top lid, in-vessel components, magnet power supplies, and pumping system was presented. The current status of EDICAM (Event Detection Intelligent Camera) was explained and the outcome of integrated commissioning topical meetings was reported.

On the second day of the plenary session, reports from topical sessions on the results of cryopant operations in October 2018, power supply combination tests and the meeting on machine protection were presented. Then the following machine enhancement items were reported and discussed: neutral beam systems, water cooling for in-vessel components, resistive wall mode (RWM) control, electron cyclotron range of frequency (ECRF) power supply, massive gas injection, pellet injector, Thomson scattering system, FILD, and cryopanel.

The new publications management procedure was explained according to the revision of the common quality management system on publications management (CQMS-07070) in July 2018. The configuration control models, Plant Integration Document (PID) updating status, and updates of the Action List were summarised.

Finally, the PL announced that the next meeting, TCM-32 would be held in Padua, Italy on 5–7 March 2019.



The group photo of the participants was taken in front of the middle cryostat thermal shields delivered to the QST Naka site.

Calendar

5–7 March 2019
32nd Technical Coordination Meeting (TCM-32)
Padua, Italy

13 March 2019
24th Meeting of the STP Project Committee (PC-24)
Naka, Japan

11 April 2019
24th Meeting of the BA Steering Committee (SC-24)
Rokkasho, Japan

2–6 June 2019
28th IEEE Symposium on Fusion Engineering (SOFE 2019)
Georgia, USA

22–27 September 2019
14th International Symposium on Fusion Nuclear Technology (ISFNT-14)
Budapest, Hungary

Contact Us

The JT-60 Newsletter is released monthly by the JT-60SA Project Team.

Suggestions and comments are welcome and can be sent to newsletter@jt60sa.org.