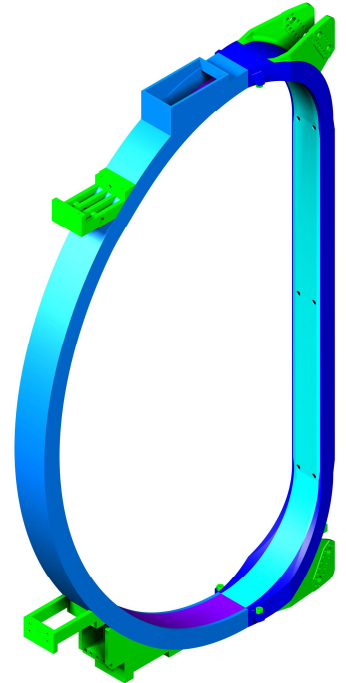


Headline

Toroidal field coil casing contract awarded



Kick-off meeting



3D view of TFC casing

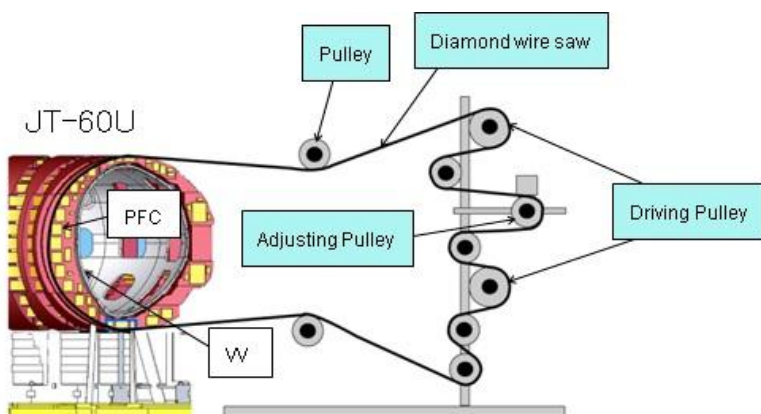
The contract for manufacture of the JT-60SA toroidal field coil (TFC) casings was awarded, by ENEA, to the Walter Tosto Company, on 22 June, 2012. Walter Tosto is a leading company in the field of heavy industrial equipment, oil and gas, petrochemical, power and energy. They are already heavily involved in the fusion community, contributing to the manufacture of the ITER vacuum vessel, and now to the TFC casings for JT-60SA.

On 12 July, the kick-off meeting for the contract took place at the ENEA premises in Frascati, Rome, with representatives of F4E, Walter Tosto and ENEA present. During the meeting Walter Tosto representatives gave an overview of the manufacturing schedule, the management of quality which will be implemented, and described the technological solutions they will use for some critical points of manufacture.

Prior to the signature of the contract and the kick-off meeting, F4E and ENEA collaborated closely to define the technical specification and requirements of the component, in order to accelerate the initial production phases by having already viable technical solutions for the construction of the casings.

News

Cutting of JT-60U vacuum vessel successfully completed



Schematic diagram of cutting of VV

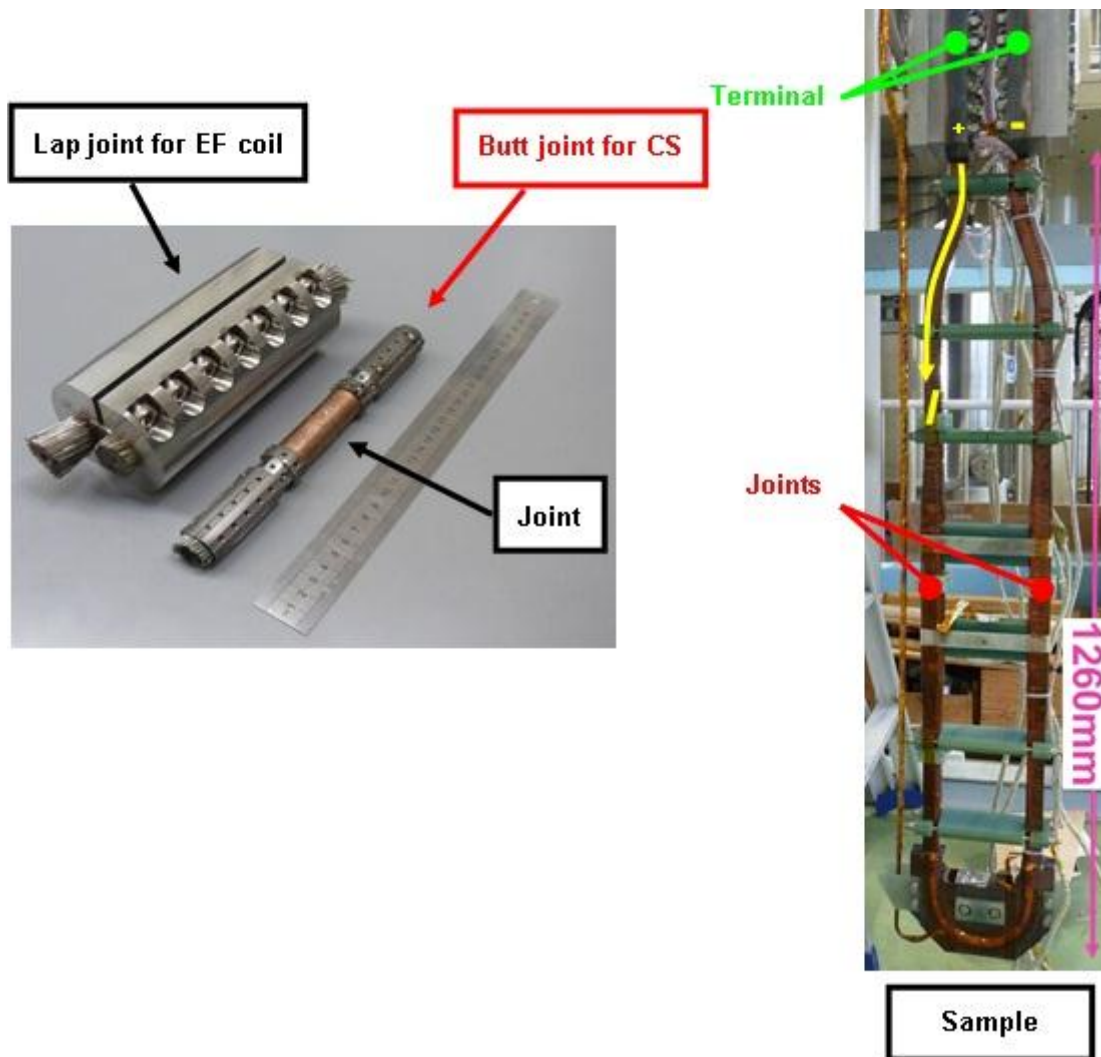


Cut away photo of PFC

As part of the disassembly of JT-60U to make room for the new components of JT-60SA, cutting of the vacuum vessel (VV) in half, together with the poloidal field coil (PFC), was performed using a precision diamond saw and took 2 weeks to complete. After the cutting, the VV halves were moved from the torus hall to the assembly hall and enclosure plates were installed over the cut sections by welding to avoid any spread of hydrogen isotopes. The VV halves will be stored in the storage building in August. Disassembly of the scaffolds, cooling pipes, and coil feeders is progressing well towards completion of the disassembly of JT-60U in October.

News

Confirmation of low resistance value for central solenoid conductor joints



A conductor joint (butt joint) and a sample of the joints between the CS pancakes

The contact resistance measurement for the joint (butt joint method), which was developed for making the conductor joint of the central solenoid (CS) compact, was recently made at the National Institute for Fusion Science (NIFS). The value measured was less than 5 nΩ under the normal operating condition of the CS, which was limit specified in the PA.

For the equilibrium field (EF) coil manufacturing in the superconducting coil winding building at Naka, after qualification of the winding for the EF No.5 coil using dummy conductors and the validation test of the heat treatment for the resin coating, the actual manufacturing with the real machine was started, with expected completion in November 2013. Furthermore, the stainless steel plate for the support structure of the EF coil was delivered by Outokumpu. After passing the inspection, it was supplied to the support structure manufacturer. The complete support structure of the EF4 coil is expected to be delivered in October. The EF4 coil is planned to be completed by next January.

News

Manufacturing of cryostat vessel body plate completed



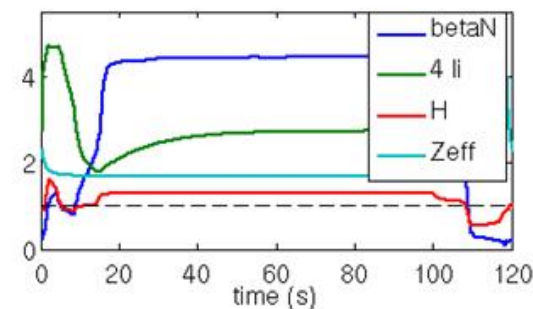
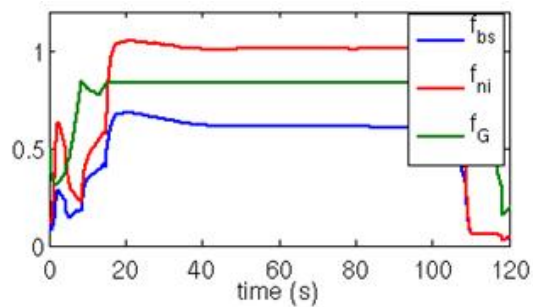
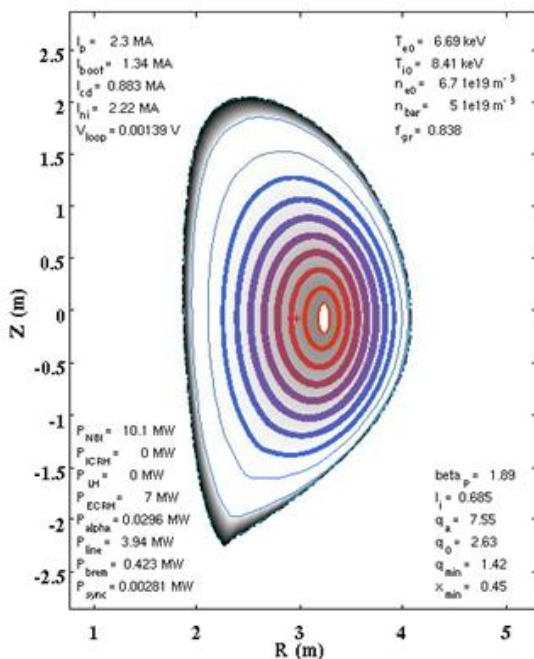
A plate of the cryostat vessel body

The stainless steel plate of the cryostat vessel body, purchased by JAEA and supplied to F4E/CIEMAT, was completely manufactured at the factory of Outokumpu Company and forwarded to a factory in Spain.

For the cryostat base (CB), manufactured in Spain, machining of the lower structures (divided into three sectors) was started. The CB will be shipped from the machining factory in November and is expected to arrive at the Hitachi port, Japan in December. The F4E contract with Fagioli for the transport of the CB to Japan was signed on 23 July.

Meetings

39th European Physical Society Conference on Plasma Physics



The 39th European Physical Society Conference on Plasma Physics, combined with the 16th International Congress on Plasma Physics, was held in Stockholm, Sweden, from 2 to 6 July 2012. During this Conference, 4 posters on subjects related to JT-60SA were presented by European scientists.

Emilia Barbato, from ENEA/Frascati presented a poster on "Transport and confinement in JT-60SA". This work results from a large collaboration, including scientists from CCFE/Culham, IPP/Garching, CEA/Cadarache, JAEA and NIFS. The poster presented a discussion of the general transport and confinement issues in [the JT-60SA Research Plan](#), together with first integrated modelling simulations of the JT-60SA scenario #2, performed by means of the ASTRA and JINTRAC codes.

Tommaso Bolzonella, from RFX/Padua presented a poster on "Recent studies in support to MHD stability and control on JT-60SA", on behalf of a collaboration including 8 EU and 2 Japanese Institutes. Several MHD subjects were treated, including neoclassical tearing modes, resistive wall modes, sawteeth and disruption control techniques.

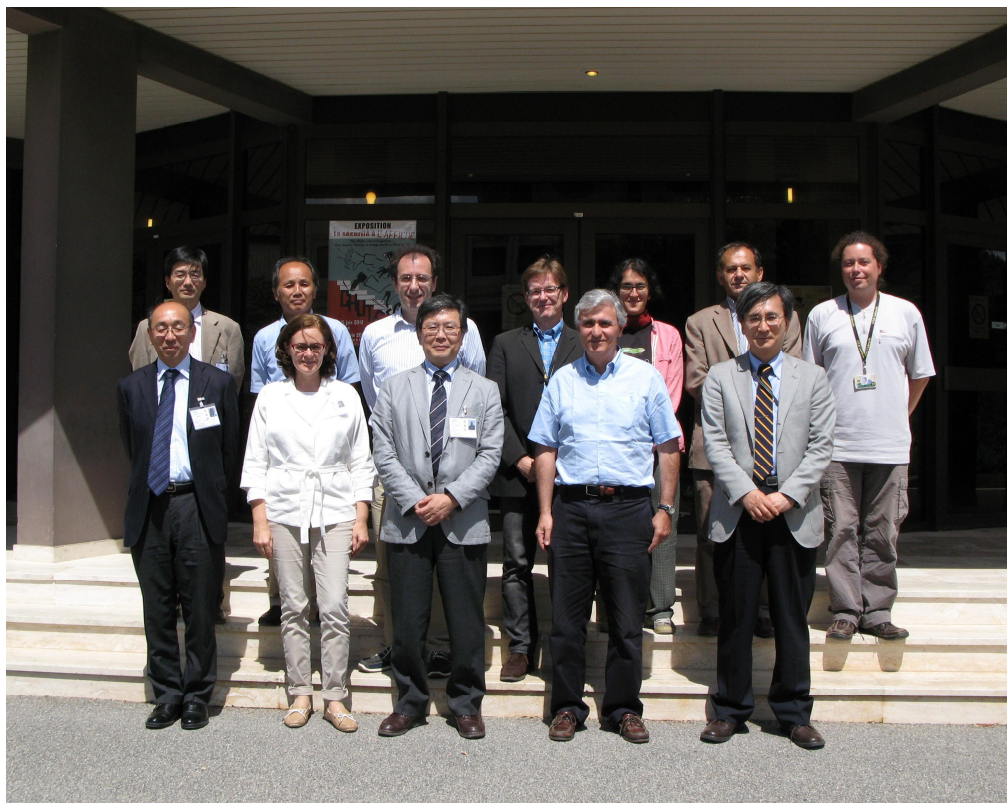
Jeronimo Garcia, from CEA/Cadarache, presented a "Comparative transport analysis of JET and JT-60U discharges", performed in collaboration with JAEA, with the aim of establishing a basis for future JT-60SA scenario simulations, by means of model validation on selected JT-60U and JET discharges. Integrated modelling simulations, carried out with both the CRONOS and the TOPICS codes, were presented, using various transport models.

Gerardo Giruzzi, from CEA/Cadarache, presented a poster on "Integrated modelling of JT-60SA scenarios with the METIS code", with a systematic study of 8 JT-60SA reference scenarios performed by means of the 0.5-D integrated modelling code METIS. An example of the computed equilibrium and evolution of various physical quantities for the steady-state scenario 5-1 is shown in the figure.

Finally, a satellite meeting on the European Contribution to the JT60-SA Research Plan was held on 5 July. The scope of this meeting was to provide interested EU physicists with information on European activities concerning the physics of JT-60SA.

Meetings

5th meeting of REC Preparatory Working Group



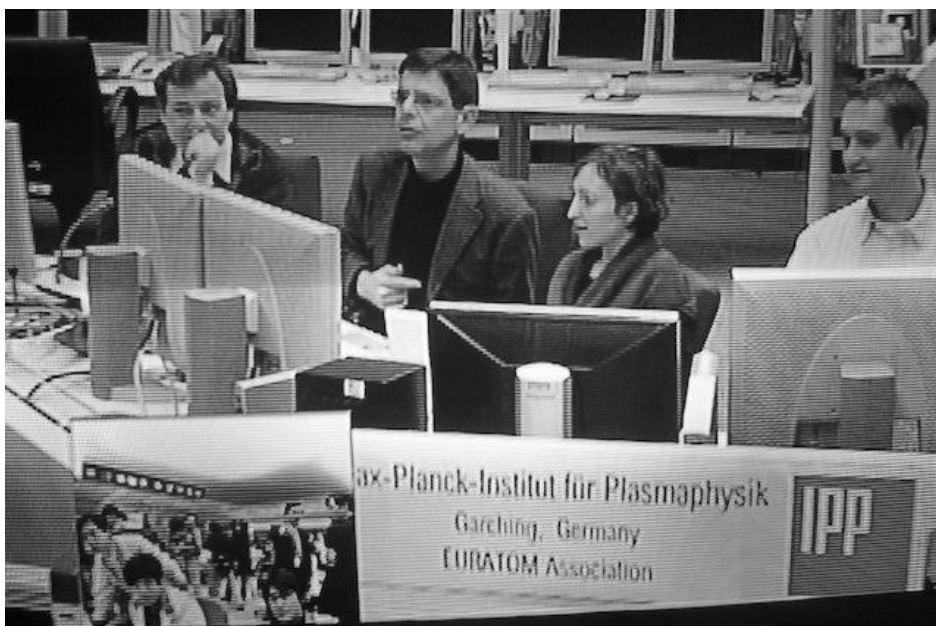
The 5th meeting of the Preparatory Working Group (PWG) on the ITER Remote Experimentation Centre (REC) in the IFERC project was held face-to-face under the chairmanship of S. Ishida, the JT-60SA Project Leader (PL), as the acting chair, on 8-9 June in Barcelona and 11-12 June in Cadarache to develop an overall plan for the REC.

At the first half of the meeting in Barcelona, the discussion focused on the schedule, functions and technical specifications including technical options. The second half of the meeting in Cadarache addressed the technical discussions with participants from the ITER Organization (IO) and Tore Supra, where 6 experts from the IO and 3 from Tore Supra joined. There was a valuable exchange of information among the participants, including the development schedule of the ITER CODAC, which is closely related to that of the REC. Experiences of remote experimentation and related technology were also presented by JT-60 and Tore Supra, including a remote experiment demonstrated for JT-60 between JAEA Naka and IPP Garching in 2007 (see the article in this newsletter). All the participants welcomed their collaboration on the REC. At the end, the meeting was successfully ended with essential agreements forming a basis for the overall plan.

During the meeting in Cadarache, the PWG members visited the ITER construction site. They were very impressed at its progress and scale, and they now have a better idea of how future remote participation in experimentation from Rokkasho in Japan will function.

History

Remote experimentation is not a dream



In December 2007, in collaboration between JAEA and IPP, remote experimentation on JT-60 at the Naka Fusion Institute in Japan (Naka, Ibaraki) was successfully carried out from the Max Planck Institute for Plasma Physics in Germany 10,000 km away. It was demonstrated for the first time in the world that, using a remote experimentation system with advanced security and high-speed data transmission, researchers in remote places could participate in the experiment through the internet in a similar environment to that for on-site researchers. This event was a key step forward for the technology applicable for remote experimentation in ITER and JT-60SA under construction in Europe and Japan, respectively.

On the day of the remote experiment, the JT-60 control room was opened to the press and they could observe the whole experimental process, including scientific exchanges between European and Japanese researchers. Furthermore, about 20 local high school students visited to experience this exciting scene as part of their practical English education. This successful remote experiment was also announced at the press conference in Germany and was on the TV news as it attracted considerable attention both inside and outside the respective countries.



Now, 5 years after the experiment, within the IFERC project as part of the Broader Approach activities, an overall plan is being prepared for constructing the ITER Remote Experimentation Centre in Rokkasho, Aomori prefecture in Japan (see the article in this Newsletter). In nuclear fusion, remote experimentation is not a dream, but an essential tool to integrate the wisdom of the world to realise fusion energy. The achievement, demonstrated by Europe and Japan, is increasingly of importance for the future.

Calendar

July 30-August 3, 2012

20th International Conference Nuclear Engineering/ASME 2012 Power Conference
Anaheim, USA

September 19-20, 2012

15th Technical Coordination Meeting (TCM-15)
Padua, Italy

September 24-28, 2012

27th Symposium on Fusion Technology (SOFT 2012)
Liege, Belgium

October 7-12, 2012

Applied Superconductivity Conference (ASC 2012)
Portland, USA

October 8-13, 2012

24th IAEA Fusion Energy Conference (IAEA FEC 2012)
San Diego, USA

October 16, 2012

11th Meeting of the STP Project Committee (PC-11)
Naka, Japan

Contact Us

The JT-60SA Newsletter is released monthly by the JT-60SA Project Team.
Suggestions and comments are welcome and can be sent to masayasu.sato@jt60sa.org.

For more information please visit the website: <http://www.jt60sa.org/>