

## Kick-off-meeting for the WEST divertor coils power supplies

SWIP (SouthWestern Institute of Physics in Chengdu, Sichuan) selected the NERCC company (National Engineering Research Center of Converters) to provide the two WEST divertor coils power supplies. The Kick off meeting was held in NERCC premises, located in Zhuzhou (Hunan, China), the 8<sup>th</sup> and 9<sup>th</sup> of April in presence of NERCC, SWIP and CEA project teams.

SWIP, as a WEST partner, provides the two power supplies for WEST divertor coils. These power supplies will be twelve pulses converters, rated  $\pm 300$  V and +13 kA during 1000s every one hour (up to +20 kA during 10s every 20 minutes).

Following specifications established jointly in 2013, SWIP organized a call for tender between three Chinese companies in the beginning of 2014 and the contract was granted to NERCC (National Engineering Research Center of Converters), a subsidiary of CSR (China South Locomotive & Rolling Stock Corporation Limited).

The Kick-Off-Meeting was held in Zhuzhou (Province of Hunan, China), the cradle of Chinese electric locomotive, on the 8th and 9th of April, in presence of NERCC, SWIP and CEA project teams.



During the meeting, the company was presented, including an impressive visit of the different assembly lines where AC/DC Power Converters will be produced for ITER as well. The technical specifications were reviewed and input data to start the activity were given. Discussions between the teams were fruitful and things got off to a good start. The WEST power supplies are scheduled to be delivered in Cadarache in May 2015 to be operational in September 2015.

## 1<sup>st</sup> WEST INTERNATIONAL WORKSHOP

The web site dedicated to the 1<sup>st</sup> WEST international workshop is available at <http://west.cea.fr/Workshop2014/>. You will find information on the technical agenda, the list of participants or the meeting venue.

The 1<sup>st</sup> WEST international workshop is organized in Aix-en-Provence from June 30<sup>th</sup> to July 2<sup>nd</sup> by the Institute of Research on Magnetic Fusion (IRFM) of CEA and the Aix Marseille University, with the objective for the participants to contribute to building the WEST scientific program. In addition to the CEA scientists, more than 60 international experts from leading fusion institutions worldwide (Europe, Japan, USA, China, Korea, ITER domestic agencies and ITER Organization) have already registered.

If you need any further information, do not hesitate to contact us at [westworkshop@cea.fr](mailto:westworkshop@cea.fr).

## The WEST project approved by the two competitive clusters: Capenergies and Optitec

Capenergies, the national competitive cluster dedicated to the "energy generation with no greenhouse gases" and Optitec, the national competitive cluster in the optics-photonics sector, have awarded their label to the WEST project. This certification procedure eases the path towards obtaining public sector financing.

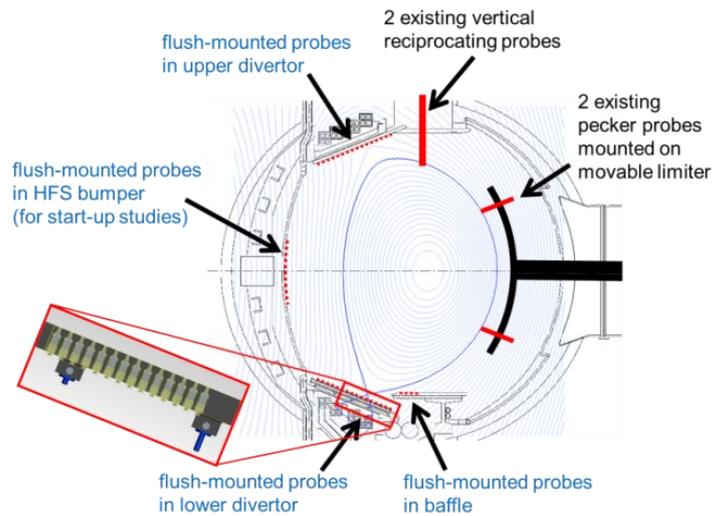
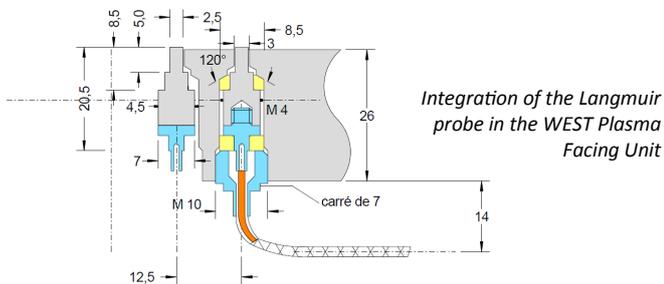


## New Langmuir probes to be installed on the WEST divertor targets

After many years of close partnership with the Institute of Plasma Physics (IPP) of Prague on a great variety of scientific topics, the Czech scientists join the WEST project and will provide arrays of Langmuir probes to be installed in the WEST divertor targets. The Langmuir probe concept was developed by CEA/IRFM and IPP-Prague where another tokamak, COMPASS, is presently in operation.

Langmuir probes are essential to the WEST project. In fusion devices, hot plasma is in direct contact with solid targets designed to withstand intense power flux similar to that which encounters a spacecraft upon reentry into Earth's atmosphere. Erosion of the target by impacting energetic particles can damage it and lead to contamination of the confined plasma. So it is important to be able to measure the plasma flux at the interaction zone at any instant. One way to accomplish this is to embed a small electrostatic probe in the target surface. Such Langmuir probes, as they are called in honor of their inventor, Irving Langmuir, act in much the same way as a common multimeter, providing measurements of plasma density, voltage, and temperature. In order to avoid perturbing the very plasma they are supposed to measure, the probes are flush-mounted into the target with a precision of 0.05 mm.

The design of these measuring tools is challenging because they are subjected to the same harsh environment as the target in which they are embedded. They must be electrically isolated from the target, but at the same time have good thermal contact with it to avoid overheating.



Arrays of Langmuir probes will be installed in the WEST divertor targets. The measurements they make will provide input to plasma-wall interaction studies, but they will also be used for real-time feedback control of the plasma. Using Langmuir probes in closed control loop is a unique application that was developed for the ergodic divertor in Tore Supra. For example, if the probes detect that the plasma at the strike zone is too hot, they can trigger gas injection through a fast valve to cool the plasma down, thus protecting the divertor target.

## Contracts for magnetic measurements, vacuum vessel protection panels and lower casks awarded



BAC Bobinage Company (16130 Gente) was selected for the manufacturing of the WEST magnetic sensors (480 sensors) while their supporting structures will be manufactured by SDMS Company (38160 Saint Romans). These components will be the first to be installed into the vacuum vessel next autumn.

The vacuum vessel protection panels (48 stainless steel panels) which will then cover the outer part of the vessel will be manufactured by DATE Company (38770 La Motte d'Aveillans). The contract for the 12 lower casks that will interface the divertor legs and the vacuum was signed with DIMEO Company (83140 Six Fours).