

## 1<sup>st</sup> WEST Governing Board

**During the first Governing Board, members from world leading fusion institutions have confirmed their interest for the WEST project and discussed a common work plan for the coming years.**

The first WEST Governing Board, chaired by G. Fioni, director of the Physical Sciences Division of CEA, took place at Cadarache on the 16<sup>th</sup> of January 2014. More than 30 international experts attended the meeting, some of whom by video conference.

Members of the Governing Board (CEA – France, Fédération de Recherche sur la Fusion par Confinement Magnétique - France, Fusion for Energy (F4E) – EU, Southwestern Institute of Physics–China, Institute of Plasma Physics, Chinese Academy of Science – China, Institute of Plasma Research – India, Institute of Plasma Physics and Laser Microfusion – Poland) as well as observers interested in the project (Japan Atomic Energy Agency/Japanese Domestic Agency – Japan, Ulsan National Institute of Science and Technology – Korea, Department of Energy - USA, EUROfusion - EU, European Commission - EU), together with experts from Iter Organization were informed on the progress of the project on the CEA side as well as on the partners side and started elaborating a common work plan for the coming years. The main lines of the scientific programme were also presented. The duties of the Governing Board were agreed, and the next meeting scheduled for early next year.

The meeting was closed by Bernard Bigot, General Administrator of CEA, who expressed his satisfaction to see ITER partners committed in this highly collaborative project.



*During the meeting*



*Participants to the first WEST Governing Board – 16 January 2014*

## Collaboration with India takes shape with the first two IPR researchers at Cadarache

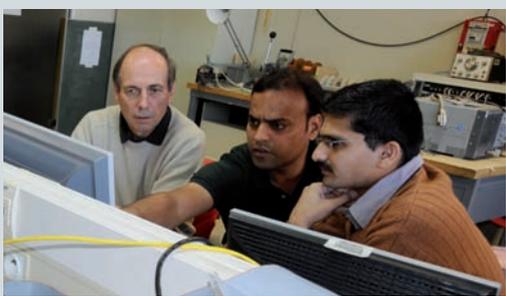
Two researchers from the Institute for Plasma Research (IPR, India), Jasraj Dhongde and Harish Masand, arrived on the 20<sup>th</sup> of January to participate in the WEST project, in the framework of the agreement signed between the CEA and the Indian Department of Atomic Energy in July 2013.

Indeed, the IPR will provide the required hardware for the new control system of WEST and important human resources for its integration into the current control architecture.

J. Dhongde will work on the improvement of the graphical user interface of the Pulse Schedule Editor, while H. Masand will work on the implementation of the real time communication network. They will work with the IRFM team in charge of the WEST CODAC (Control Data Access and Communication) and with the plasma operations group.

These two researchers will stay about 9 months in France for this task. They will be joined by another colleague in March and others in April and September. From January 2014 to December 2015, around ten people from IPR will be involved in the Plasma Control System and the Data Handling work packages.

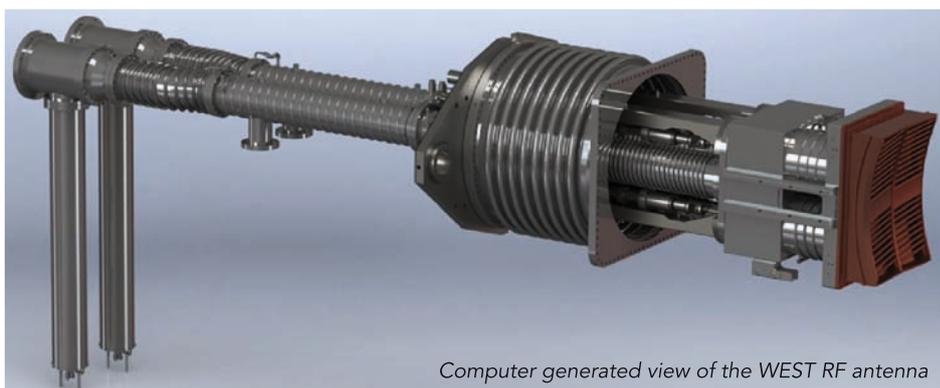
*From left to right:  
Bernard  
Guillermine  
(CEA)  
Harish Masand  
(IPR) and  
Jasraj Dhongde  
(IPR)*



## An international team completed the design of the WEST RF antenna

An international team of four European and one Chinese laboratories have completed the design of the new Radio-Frequency plasma heating antenna for the WEST project. This high-power antenna (up to 3 MW) has been conceived to allow for long pulse durations (up to 1000 s) and for sustaining large plasma variations (the so-called "ELMs").

The WEST plasma will be mainly heated by high-power Radio-Frequency (RF) waves in the Mega Hertz frequency range (around 55 MHz, the same range as for Amateur Radio broadcasting). Since the RF waves launched in the plasma heat some targeted ion species via the cyclotron resonance processes, this plasma heating method is called Ion Cyclotron Resonance Heating (ICRH). Facing the plasma, the antenna must incur the edge plasma variations which appear in high confinement regime (the so-called H-mode). It was therefore necessary to develop plasma variation resilient antennas, an antenna concept previously tested with success on JET. But in contrast with the JET antenna usable only on short pulses, WEST antennas, as those of ITER, will have to provide



Computer generated view of the WEST RF antenna

RF power over long durations (up to 1000 s), a challenge which requires active water cooling of all the elements of the antennas.

An international collaboration including CEA/IRFM, Politecnico di Torino (Italy), Royal Military Academy (Belgium), Max-Planck-Institut für Plasmaphysik (Germany) and Chinese Academy of Sciences Institute of Plasma Physics (ASIPP) has just finalized the design in December 2013. The manufacturing of three antennas has now begun. In the frame of the agreement signed in July 2013, ASIPP will manufacture the antenna parts which will be assembled in Cadarache in 2015 to be ready for plasma operation in 2016.

## Come and join the WEST scientific programme !

As announced during the first WEST Governing Board, the first international WEST workshop will be organized from June 30 until July 2, 2014, in Aix en Provence, France.

The objective of the workshop is to gather all the WEST partners and build together the WEST research plan. International fusion experts will chair the discussion along four topical headlines (see list below), together with experts from ITER Organization and domestic agencies in charge of procuring the ITER divertor.

The first day will be dedicated to plenary sessions, presenting the high level objectives of WEST in the light of ITER R&D needs and putting the project in the international context. Technical sessions will follow, describing the WEST platform and its operational domain. The second day will include working sessions, where lively discussions on the topical headlines as well as proposals for experiments from participants are expected. The third day will summarize the exchanges of view of the working sessions, and discuss the next steps forward. The output of the meeting will be used as a basis to produce the WEST research plan by end 2014.

We are pleased to invite you to participate in the  
**1<sup>st</sup> WEST international workshop**  
June 30 - July 2, 2014 - Aix en Provence, France



A provisional agenda will be soon available on [west.cea.fr](http://west.cea.fr) (for any further information, please contact the WEST project scientist E. Tsitrone, [emmanuelle.tsitrone@cea.fr](mailto:emmanuelle.tsitrone@cea.fr)).

### Topical headlines for the 1<sup>st</sup> WEST international workshop:

- Testing ITER tungsten Plasma Facing Components,
- Towards long pulse H mode operation ,
- Exploring high particle fluence plasma wall interactions,
- Preparing advanced tokamak modes.