The Association

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Photo of the Month

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ITER

iter_participants.gif

ITER is a large scale, international experiment that should demonstrate the scientific and technological feasibility of using fusion as an energy source on earth. ITER will allow the study of plasmas in conditions similar to those expected in a electricity-generating fusion power plant. It will also test a number of key technologies for fusion including the heating, control, diagnostics and remote maintenance that are expected to be needed for a real commercial fusion power station. Extensive information on ITER can be found on the homepage of the ITER-project.

ITER started in in 1985 as a collaboration between the then Soviet Union, the European Union (through EURATOM), the USA, and Japan. The current partners in the project are the European Union, Japan, the Russian Federation, China, Korea, India, and the USA, which means that more than half of the global population is represented in the project.

ITER will be a machine of the tokamak type in which the fusion plasma is confined by strong magnetic fields (see illustration). The fusion reactor itself has been designed to produce 500 MW of thermal output power for 50 MW of net injected power, a plasma power amplification factor of ten (Q=10). Scientifically, this will be the proof of principle that more power can get out of the fusion process than is used to initiate it. Note that no net electricity is produced yet, since the thermal power still has to be converted to electricity and the input power disregards the efficiency of the heating systems.

The ITER device: The man in the bottom indicates the scale.The ITER device: The man in the bottom indicates the scale.

ITERMachinecutaway.png

In June 2005, the partners in the project decided unanimously to choose the European site at Cadarache, in the South of France, as the location for the construction of ITER. The construction of ITER has already started, and the first plasma operation is expected in 2019.

ITER is a unique project, which needs very advanced technology, and will ask the utmost from materials, scientific understanding, and international cooperation. For sure, ITER is one of the most complex, challenging and innovative projects in the world today.

But it does not end there. DEMO (DEMOnstration Power Plant) is a proposed fusion power plant that is intended to build upon the expected success of the ITER. It is meant as a model for the first generation of fusion power plants.

Read more on fusion power as a source of energy.

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All Upcoming Fusion Related Events

Below you can find a list of upcoming events by Fusenet Members.

Start	Event
21/01/2019	10th ITER International School 2019
21/01/2019	Polytechnic Energy Winter School
11/02/2019	Course: regulation and its application in Nuclear Projects
06/05/2019	3rd European Conference on Plasma Diagnostics
08/07/2019	46th EPS Conference on Plasma Physics
22/07/2019	Polytechnic Energy Summer School

To add your own event to this list, send an email to admin@fusenet.eu or, in case you

are a Fusenet member, login to the Fusenet website and use the option "Add event" in the members panel on the left.

Recent blog posts

- An ending and a beginning
- Homemade cross section plotter for nuclear data
- Academic Year++
- “Go big or go home” in the world of fusion
- The Mad Scientist
- 1 year has passed; a retrospect!
- The Queen of the Sea - Report of Lisbon, 2014 Fusenet PhD event

More

FuseNet and You

Editor's Fusion News Selection

- NSTX upgraded to the world's most powerful Spherical tokamak
- On-line talk on Stellarators and the W7-X experiment
- LENR keeps drawing investors
- MIT proposes ARC reactor
- Highlights of 5 year solar observation

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