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## **FEMaS – networked research on fusion power plants**

*EU development project headed by IPP / consortium of 27 research partners*

The prelude to the Fusion Energy Materials Science (FEMaS) project will be on 8 October 2008: More than 50 scientists from all over Europe will meet at Garching to discuss the work programme of the new project, the objective being to promote the development of new materials for fusion power plants. This coordination action of the European Union, headed by Max Planck Institute for Plasma Physics (IPP), is to bring together 27 research institutions and universities from 17 European countries. Besides IPP, Germany is represented by Jülich and Karlsruhe Research Centres, Berlin's BESSY electron storage ring, and the Technical University of Munich.

The objective of fusion research is to develop a power plant operating on the same principle as the sun, i.e. deriving energy from fusion of light atomic nuclei. This requires that the fuel – a hot ionised hydrogen gas, called plasma – be confined in magnetic fields and heated to temperatures of over 100 million degrees. The attractive ecological and economic properties expected from such a power plant (see PI 2/2006) call for the development of new heavy-duty materials that are of low activation, are heat resistant, thermally conductive, and resistant to physical and chemical erosion.

In order to widen the sphere for this materials research and bring together a wide range of experts and facilities, FEMaS is to create a powerful European network. It will link up scientists doing computer simulations of materials damage with experts from radiation facilities, e.g. synchrotron radiation or neutron sources, and specialists for modern analysis and testing procedures. One of the objectives is to gain a more fundamental knowledge of the adverse effects of plasma on optimised fusion materials – special types of steel, tungsten alloys and special coatings as protection against corrosion – so as to make for better calculations.

The FEMaS project is keen to integrate such institutions as have hitherto not or just marginally been involved in fusion research. The project, to run for over three years in a strict organisation framework, is an integral constituent of the European Fusion Programme and will have a budget of about 3.25 million euros, 65 per cent of this to be met by the European Union.