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newsletter

EUROPEAN FUSION DEVELOPEMENT AGREEMENT

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News

EU Enlargement: New Partnerships in Fusion

1 May 2004: day one for the enlarged European Union! Ten more countries have joined the EU: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic, and Slovenia. Bulgaria and Romania hope to do so in 2007. After earlier expansions from 6 to 15 members, we are now experiencing the largest enlargement in the history of European integration. The population of the EU has increased by about 70 million - including many highly qualified scientists and talented researchers.

Several of the new Member States (MS) were already associated to EURATOM prior to 1 May, and had established substantial fusion activities under FP5/6-EURATOM: Contracts of Association were established with the Czech Republic, Hungary, Latvia and Romania. All of the Associations in the new MS and candidate countries are also members of EFDA.

Bulgaria, Slovakia and Slovenia participated through Cost-Sharing Actions. Collaborations among laboratories in the 'new' and 'old' MS formed an important aspect of these activities and were supported by the Agreement on Staff Mobility and EURATOM fellowships. The level of activity in fusion research varies among the new MS, and it is a challenge to the whole fusion community to enhance their participation in the fully integrated European fusion programme. In order to facilitate a rapid integration of fusion activities in the new and future MS, a kick-off workshop was held on 24 and 25 May in Garching (see also page 3) bringing together senior representatives from the new partners, EFDA and the existing Associations. A second meeting is planned later to enhance the impact and to follow up on the initiatives being developed.

More on the new MS and their involvement in the fusion PI activities on page 2

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<http://www.efda.org>



EU Enlargement:
New Partnerships in Fusion
(continued)



Czech Republic

Association EURATOM-IPP-CZ
Institute of Plasma Physics
Academy of Sciences of the
Czech Republic, Prague
<http://www.ipp.cas.cz>

Estonia

University of Tartu
Institute of Physics, Tartu
<http://www.ut.ee/english/>

Hungary

Association EURATOM-HAS
KFKI-Research Institute for
Particle and Nuclear Physics,
Budapest
<http://www.mta.hu/>

Latvia

**Association EURATOM/
University of Latvia**
Institute of Solid State Physics,
Riga
<http://www.cfi.lu.lv/>

Poland

**Institute of Plasma Physics
and Laser Microfusion,**
Warsaw
<http://www.ifpilm.waw.pl/>

Slovak Republic

**Research Institute for
Nuclear Power Plants, Trnava**

Slovenia

Jozef Stefan Institute,
Ljubljana
<http://www.ijs.si/ijs.html>

**Cyprus, Lithuania and
Malta are about to organise
their Plasma Physics
Programmes.**

Public Information (PI) on fusion in the new EU Member States

Surveys such as the Eurobarometer study on the perception of Science & Technology issued in January 2003 (http://europa.eu.int/comm/public_opinion/index_en.htm) have shown that the general public in the new MS does not feel well informed about science. The PI activities of the fusion community therefore have an important role to play in fostering a general understanding of the relevance of fusion research and the value of EU level support and co-ordination. To achieve this goal it is crucial to address both the general public and decision makers. In order to attract a wide audience, it is essential to present fusion research within the general context of energy research and to explain societal aspects of energy supply and use. The fusion community also needs to extend its range of contacts, building on existing links in fusion R&D, National Contact Points, Information Centres, local science communication associations, etc.

Active involvement of fusion researchers in the new MS in the existing fusion PI infrastructure is being fostered through the Committee on Public Information (CPI), which oversees and co-ordinates the PI activities of the EU fusion community. This co-ordination work is supported by the Public Information Group (PIG) and the Public Information Network (PIN). The Commission services assist the PI efforts of national contacts in fusion R&D by providing PI material, such as presentations on fusion R&D, for potential partners and educational events, information sheets on Associations, brochures and by supporting the Fusion Expo events.

The Fusion Expo has proved to be a very powerful tool in developing the participation of the new MS in the general PI activities in fusion – in several cases it has been the trigger to a much deeper involvement in this aspect of fusion research. The number of venues in the new and future MS playing host to the Fusion Expo is rising, and in 2004 Expo visits to Poland (Poznan, Krakow and Warsaw), Latvia (Riga) and Bulgaria (Sofia) are planned, while Slovenia (Ljubljana) is already pencilled in for 2005.

Several of the new MS are already playing an active role in PI activities:

- The Association EURATOM/IPP-CR (Czech Republic) has a new department “Scientific information and popularisation”, and one of their staff members has been filling a position in Public Relations at EFDA JET, Culham (UK) since March 2003.
- The Association EURATOM/HAS (Hungary) hosted the Fusion Expo at the Millenaris Park in Budapest in October 2003. Over 3200 visitors saw the Expo, including 2100 school students. A strong media coverage further boosted public exposure, reaching a much wider audience and resulting in a highly effective PI event. The Association is now considering the possibility of contributing to the EIROforum education activities.
- In Poland, Gdansk hosted the Fusion Expo in September 2003, for the opening of the Hewelianum Science Centre and generated significant media coverage (press, radio, TV). A total of 3200 visitors, including 126 school groups, saw the Expo. The exhibitions held this April in Poznan (University of Poznan) and Krakow (University of Mining and Metallurgy) were also very successful, and during May the exhibition has moved on to the Warsaw University Faculty of Physics.

These few examples illustrate the enthusiasm with which our colleagues in the new MS are promoting a better understanding of fusion research in their countries. Their activities will benefit the entire fusion community and it is therefore essential that the ‘old’ and the ‘new’ communities of EU fusion researchers work closely together in expanding our effectiveness in communicating the inherent benefits of fusion energy to the wider public and in awakening a new generation of talented scientists and engineers to the excitement of our research.



EU Enlargement - Voices

Integration of New and Recent Partners to the EURATOM Fusion Programme

Bulgaria (L. Popova, I. Zhelyazkov)

"We intend to participate for example in Monte Carlo calculations for particle collisions in the core, SOL and with plasma facing surfaces on specific time scales, and development of manufacture methods for metal and ceramic components."

IPP Czech Republic (P. Chraska, P. Pavlo, J. Stockel, M. Zmitko)*

"Probably the only real change brought in by May 1, 2004 is, that the 'technicalities' connected with the international cooperation within the EU should be easier. There is no need for special visas, declarations for the exchange of instruments, etc. As for the main topics of research for the future we don't expect any large changes."

Estonia (M. Laan, A. Lushchik, Ü. Ugaste)

"Joining EFDA gives to the Estonian community of physicists a great chance to participate in fusion studies. Besides integration within the European structures the event gives a new look to the studies carried out up to now. The new situation forces us to concentrate our studies in directions important from the point of view of the Fusion Programme. We foresee our future prospects in the tight collaboration with the leading European centres of fusion research."

Hungary (A. Aszodi, S. Szego, S. Tokesi, S. Zoletnik)*

"There is an increasing interest in fusion research in Hungary and we have a considerable number of enthusiastic students. We hope this will give a strong basis for strengthening our participation in the fusion physics programme and finally will wake up the interest of industry as well."

Latvia (J. Freibergs, I. Tale, J. Tiliks, A. Vitins)**

"Our participation in the Fusion Programme gives new opportunities and application of our knowledge in magnetohydrodynamics, material and radiation science, spectroscopy and theoretical physics. Association 'EURATOM - University of Latvia' foresees good results in development and investigation of liquid metal limiter and other liquid metal technologies for ITER and IFMIF projects. These perspectives and collaboration with other EURATOM Associations attracts as well new Latvian students to physics."

Lithuania (A. Adomavicius, L. Pranevicius, E. Uspuras)

"The materials of this kick-off meeting will be distributed among all interested institutions in Lithuania and potential new ideas are highly probable. Our young researchers would like to participate in physics experiments in the EU."

Poland (A. Galkowski, J. Gierlinski, J.K. Kurzydowski, Z. Skladanowski, J. Wolowski)

"There are Polish research institutes that are keen on participating in the Physics Programme. The great potential of Poland can be invested also in the development of the technology related to fusion. For Poland, the association to the European fusion programme is also an opportunity to get access to the European fusion laboratories which will be beneficial both for Poland and for the European Fusion Programme."

Romania (C. Atanasiu, T. Ionescu Bujor, G. Ionita, G. Popa, D. Sporea, V. Zoita) *

"The contribution of our Association will be increased in the next few years. The excellent collaboration with IPP-Garching, ULB and JET in tokamak plasma theory will be continued. Our involvement in the water detritiation systems for JET and ITER will be increased and the collaboration with FZ Karlsruhe and SCK-Mol in this field will be extended. The recently developed laboratory for X-ray microtomography for NDT inspection of miniaturized samples will be used for common activities with different EURATOM Associations."

Following the enlargement of the European Union by 10 new member states on May 1, 2004, a meeting was held at the EFDA Close Support Unit / Max-Planck-Institute for Plasma Physics in Garching (Germany) on 24 and 25 May, 2004. The CCE-FU (Consultative Committee for EURATOM Specific Research and Training Programme in the Field of Nuclear Energy Fusion) had recommended the holding of such a meeting aimed to assist the integration of new and recent partners in the EURATOM fusion programme.

All the new member states (except for Cyprus and Malta) and the two states scheduled to join the EU in 2007, Bulgaria and Romania, were represented. The representatives of the countries which participated were all asked the same question "**What are the future prospects for the participation of your scientific community in the European Fusion Programme?**"

The replies are shown on this and the following pages.

* The Associations EURATOM/IPP.CR, HAS (Hungarian Academy of Sciences), and MECT (Ministry of Education, Sport and Youth, Romania) were established in 1999.

** The Association EURATOM /UL (University of Latvia) was established in 2001.



Slovakia (M. Polak , J. Skalny)

“This is an excellent occasion especially for our young PhD students and postdocs to participate in a modern and cutting edge programme. This is a chance for all our research teams to find partners for collaboration. This is the best way we can contribute to the formation of the European Research Area.”



Slovenia (M. Cercek, B. Pukl, J. Duhovnik, M. Ravnik, S. Novak)

“Although Slovenia doesn’t have its own Association in the field of fusion research, there are national activities that could be of relevance for collaboration with other European Associations, with JET or for participation in the ITER project. The most promising fields for future collaboration are: development and processing of advanced ceramic materials, plasma diagnostics and many others.”



The meeting was held in Studsvik on April 20th and 21st. It was dedicated this year to the memory of Anders Bondesson, a distinguished well known Swedish theoretician who recently passed away.

Annual meeting of the Research Union Swedish Association (RUSA)

The meeting was attended by about sixty scientists, mainly from the Swedish research institutes. Amongst these, the **Alfvén Laboratory** of the Royal Institute of Technology in Stockholm, the **Chalmers University of Technology** in Göteborg, the Association EURATOM-VR, Stockholm, Studsvik Nuclear in Studsvik. Prof. V. Smirnov, director of the Kurchatov Institute, and Dr. R. Andreani, the EFDA Associate Leader for technology, were also present and gave presentations on the Russian fusion programme in the context of ITER and on the EFDA programme in view of ITER respectively.

The two days presentations gave a broad and interesting insight into the wide spectrum of activities conducted on fusion in Sweden: theoretical studies, experimental activities on **EXTRAP** and on JET, neutronics studies and experiments, materials and waste related theoretical and experimental activities, safety analyses, with important contributions from Studsvik on waste and decommissioning.

A visit to the installations of Studsvik Nuclear followed the meeting. This private company, part of the large Studsvik AB group, with 200 employees on site, is operating in the nuclear field providing a wide range of services. With two test reactors on site and hot laboratories, the main activities are:

- irradiation and test of fuel elements and materials for the nuclear industry;
- mechanical test laboratories for studies on materials resistance to corrosion in a radioactive environment;
- production of isotopes and semiconductor doping.

Large experience on decommissioning is available directly and through a large company of the group located in Germany.

For more information see:

Alfvén Laboratory

<http://www.alfvenlab.kth.se/index-e.html>

Chalmers University of Technology

http://www.chalmers.se/Home_E.html

EXTRAP

<http://www.fusion.kth.se/>

Associations

Symposium on Fusion Energy at Risø National Laboratory, Denmark

On 24th of March 2004 a symposium on fusion energy was organised by the Association EURATOM-Risø. The programme contained four 45 minute talks and finally a debate on fusion energy among the audience and speakers. The audience of approximately 65 persons came from industry, the ministries, newspapers, universities, the general public, and from Risø.

The first speaker was Prof. H. Bruhns from the European Commission presenting "What is fusion and why do we develop it?". In his talk Prof. Bruhns emphasised the strength of the European Fusion programme distributed in the national Associations and integrated in the EURATOM framework: this strength is shown in the scientific exploitation of JET and in the ITER design work.

The second talk "JET, Europe's world leading fusion experiment" was given by the EFDA Associate Leader for the Joint European Torus, Dr. J. Pamela. He described the development of the JET experiments, and the importance of the JET contributions to ITER, both as an operator training site and a test facility for plasma scenarios. Answering one question Dr. Pamela stated that discontinuing the JET experiment could easily increase the cost of the ITER experiment and decrease the efficiency of its exploitation.

The third talk by Dr. M. Chatelier vice director of Association EURATOM-CEA, Cadarache, France, "ITER, an essential step towards fusion energy", described the ITER project. It was emphasised that ITER is not a reactor, but an experiment for demonstrating all technologies essential to a fusion reactor in an integrated system. In particular three technologies will be tested: superconducting magnets at high field (13 T) and high current (80 kA), remote handling in a hostile environment, and plasma facing components and breeding blankets under a high heat flux (up to 15 MW/m²) and neutron wall load (≥ 0.5 MW/m²). Dr. Chatelier also recalled that ignition is not needed for ITER success, and is not even desirable for a reactor, where the alpha heating fraction will be 90-95 %.

The last talk "The fast track to fusion power" by Dr. G. Janeschitz, head of the Association EURATOM-FZK, Research Centre Karlsruhe in Germany, was a comprehensive look at which technologies are needed in order to construct a fusion power plant. According to the fast track, the two steps DEMO and PROTO reactors (respectively, an experiment showing that a full working fusion power plant can be built, and a prototype for commercial reactors) can be combined, and in this way the development time can be shortened by at least 10 years, providing commercial fusion energy by 2040. This will, however, require technological developments performed in parallel to ITER construction and operation, with some essential components such as: IFMIF (materials testing facility), a DEMO design team which guides the fusion technology R&D in a similar way as the ITER EDA team has done, a fully validated virtual tokamak (computer code) developed for ITER and validated with ITER experimental results, an accompanying programme to ITER based on the existing tokamaks including JET (until 2010 or 2012) and a new superconducting satellite tokamak in the JET class (e.g. JT60-SC or a new EU machine depending on the location of ITER), as well as an extended performance state of ITER (from 2025 onwards) with a full tritium breeding blanket and high availability to perform component tests for DEMO.

Following the inspiring talks the four speakers lined up for a panel debate with the audience. Several issues were discussed: Other means of confinement, the fast track to fusion and the perspectives for structural and first wall materials research where the ongoing developments and the planning for validation of materials were clarified. The discussion also addressed the level of uncertainty of reaching the goal of a fusion power plant. The opinion on the last subject was that based on the remarkable progress achieved over the past decades there is a very good chance of reaching the goal: today the physics is in hand to build ITER which will generate 500 MW of fusion power and all technologies have been identified which are needed for the power plant and for most of them already prototype or model solutions do exist.

The Symposium was organised by Association EURATOM-Risø National Laboratory, Denmark

(www.risoe.dk/euratom/FusionSymposium)

Information on the general activities of the Danish association can be found on the webpage

www.risoe.dk/euratom



Answering questions from the audience:
Dr. J. Pamela (left) and Dr. H. Bindlev



Speakers listening (from left to right):
Dr. M. Chatelier, Prof. H. Bruhns and Dr. J. Kjems
(Director of Risø National Laboratory)

For more information see:

www.iter.org

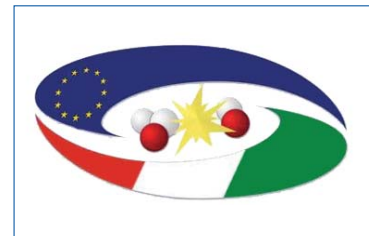
Associations

On May 1 Hungary – together with 9 other countries - joined the European Union. But in the field of fusion, Hungary has been a member of the EU since 1999. Association EURATOM-Hungarian Academy of Sciences (HAS) was formed after the agreement with EURATOM. Most of the members of the Association work at the KFKI Research Institute for Particle and Nuclear Physics. Hungary had already had a fusion programme in the 80s – based on the small tokamak MT-1M which operated at KFKI between 1979 and 1997. In the 1990s the financial support of the programme gradually decreased. This negative trend completely changed in 1999, when the country joined EURATOM. Since then the staff and the number of scientific topics have continuously increased. Now 22 researchers and engineers, 5 PhD. and 5 undergraduate students take part in the fusion project from several Hungarian research institutes and universities.

The Hungarian EURATOM Association steps into the EU

Fusion physics research

The Association takes part mostly in experimental fusion research at various European experiments. The scientific programme is centered around three topics: use of neutral particle beams for plasma diagnostics, ablation of pellets in the plasma and study of plasma turbulence. As Association-HAS does not have a fusion facility, these studies are carried out through collaborations with other Associations, and experimental work has been done on several EU fusion devices: ASDEX-UPGRADE, CASTOR, JET, TCV, TEXTOR and Wendelstein 7-AS.



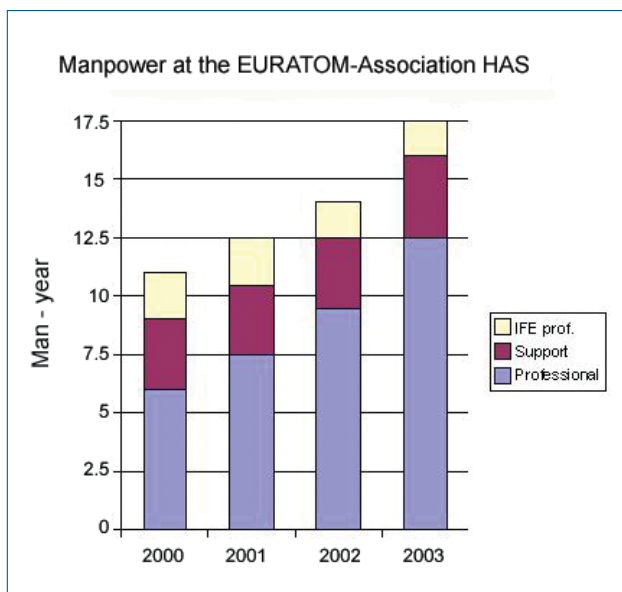
Experimental studies are complemented by numerical simulations of the expansion and radiation of dense plasma clouds surrounding pellets ablating in a plasma. Special numerical techniques are also developed for extracting important information from plasma turbulence measurements: flow velocity modulations, burst in turbulence and similar intermittent phenomena. Laser-plasma interaction studies are also part of the programme as a keep in touch activity in inertial fusion energy research. These last investigations are done in collaboration with the Max-Planck-Institut für Quantenoptik (Germany) and the University of Szeged (Hungary). Following a long experience in plasma tomography the EURATOM-Association-HAS has been studying tomographic capabilities of the ITER bolometry diagnostic as well. It is especially encouraging that enthusiastic, young students take part in all of these projects.

Fusion technology

In the technology, R&D tasks were awarded by EFDA for studying the effect of neutron irradiation on structural materials of future devices and electromagnetic qualification technology (eddy current type sensor) for testing superconducting coils for ITER. Irradiation studies are done in the Budapest research reactor, which has developed special irradiation rigs for fusion research. Collaboration proposals from other Associations are welcome to strengthen this field of activities.

Education and Public Information activities

Association HAS is playing an increasingly active role in university level education and public information for fusion sciences. A new Hungarian fusion web site was created. The Association organised a Fusion Expo (9 – 26 October 2003) in Budapest. 2100 students from 83 secondary school classes and 1500 other people visited the Expo. A special course on fusion is held at the Budapest University of Technology and Economics. The Association intends to create a remote teaching website in fusion sciences for training mostly eastern European university students and young researchers and organisers, in collaboration with SUM-TRAIC, the experimental fusion summer training course organised by the Czech Association.



Find more information on:
<http://www.rmki.kfki.hu/plasma/>
 and
<http://www.magfuzio.hu>

Associations

First Technical Meeting on X-ray tomography of nuclear materials at Forschungszentrum Karlsruhe (FZK)

The study of materials plays a key role in the development of a fusion reactor. These studies are also important for other sectors, such as fission reactors, nuclear waste, etc. In particular, the microstructure of the materials and its changes under neutron irradiation, especially in the presence of gas production due to nuclear reactions, are key factors in order to control material development and, correspondingly, to optimise the design of components and systems. The studies in this field have the common requirement that the investigation techniques and the laboratories have to be adapted to the handling of highly radioactive samples. Due to the recent progress in the development of instrumentation and computers and in the use of synchrotron light, X-ray tomography has become particularly attractive, since it is in principle the only non-destructive technique, which enables a full 3D characterization and the related quantitative analysis of the material microstructure features, which are needed for the development and validation of models. This technique was already presented in EFDA Newsletter (issue December 2003).

The first Technical Meeting on X-Ray Tomography of Nuclear Materials was organised by the Association-EURATOM-FZK (Germany) on January 22nd-23rd, 2004, in collaboration with the JRC and the ESRF. The aim of the workshop was to put together all experts in this new field, with the aim of presenting the first pioneering studies and of discussing technical and safety requirements for future works. Scientist from 7 European countries, 9 research centres (FZK und JRC, Germany; SCK-CEN Belgium; NRG Petten, the Netherlands; ESRF Grenoble, CEA Cadarache and SOLEIL Paris, France; NILPRP, Association EURATOM-MEC Bucharest, Romania; UMIST Manchester, UK) and 2 companies (British Nuclear Fuel Limited Berkeley, UK, and Applied Research Solutions Grenoble, France) participated in the meeting.

To introduce the meeting Mr. G. Lander (JRC-ITU) spoke about the historical development of the tomography. In the first session fusion-relevant results of the application of tomography in the experimental characterization of helium and tritium release from neutron-irradiated beryllium and of the structure of non irradiated beryllium pebble beds were presented. Beryllium pebbles are proposed as a neutron multiplier for the blanket of fusion reactors. In the second session the technical feasibility of further studies with active samples and the related safety requirements were discussed. In the third session the technical possibilities and needed developments at the synchrotron light sources ESRF, ANKA in FZK and SOLEIL and at the conventional X-ray source in NILPRP were presented. The main conclusion of the meeting was to start a coordination action among the involved experts, in order to put together common requirements and, as a consequence, to reduce development costs.



ABBREVIATIONS:

ANKA: Angströmquelle Karlsruhe GmbH
CEA: Commissariat à l'Energie Atomique
ESRF: European Synchrotron Radiation Facility
FZK: Forschungszentrum Karlsruhe
JRC: Joint Research Centre
NILPRP: National Institute for Lasers, Plasma and Radiation Physics
NRG: Nuclear Research & consultancy Group
SCK-CEN: Studiecentrum voor Kernenergie - Centre d'étude de l'Energie Nucléaire
UMIST: University of Manchester Institute of Science and Technology

Beryllium pebbles (spheres of 1 mm diameter) are foreseen as a neutron multiplier in the Helium Cooled Pebble Bed blanket. A reliable prediction of the retention of helium and tritium generated in beryllium under neutron irradiation is needed for a fusion reactor. The ANFIBE computer code is being developed in the frame of an EFDA-Technology Task in order to meet such a need. Gas release is driven by percolation through 3D interconnected porosities at grain boundaries. Microtomography has recently enabled the imaging of the 3D structure of such porosities and to analyse them quantitatively, in order to provide the data needed for the validation of the percolation models in the ANFIBE code.

The Scientific Advisory Committee of the meeting:

J. Baruchel (ESRF),
 C. Ferrero (ESRF)
 G. Janeschitz (FZK),
 E. Rabaglio (FZK)
 G. H. Lander, T. Wiss (JRC)

Chairmen of the meeting:

C. Ronchi (JRC), G. Janeschitz (FZK), C. Ferrero (ESRF)

JET

The Swiss Secretary of State for Science and Research visits JET

On May 7th, the Swiss Secretary of Science and Research, Dr. C. Kleiber accompanied by MM. C. Fischer, member of his Cabinet, and L. Berg, Head of Science and Technology at the Swiss Embassy in London, visited the JET facility. The Swiss delegation was welcomed by the EFDA Leader, Prof. M. Q. Tran, and by the EFDA Associate Leader for JET, Dr. J. Paméla. A presentation of EFDA and its role in the European Fusion Programme was given by M.Q. Tran. The unique capabilities of JET for preparing ITER operation and the scientific impact of the results were presented by J. Paméla. The way JET is collectively used by physicists from all over Europe, in the spirit of the European Research Area, was highlighted. The presentation was followed by a tour of the facility, which allowed Dr. Kleiber and the delegation to realise the high level of technology required by fusion research.

Sir Chris Llewellyn Smith, Director of UKAEA Fusion and Chairman of the *CCE-FU, joined the discussion and presented the needs to develop new energy sources to meet mankind's need and the role of fusion in this perspective. The road-map towards the realisation of fusion ("the fast track") and the on going process leading to the decision to construct ITER were discussed between the participants. Dr. Kleiber was greatly impressed by the challenge of harnessing fusion ("a trans-generation research" as he called it) and reaffirmed his support to the research in this field.

Fusion research celebrates JET's 25th anniversary

On Thursday 20 May MM. Philippe Busquin, European Commissioner for Research, the French Ambassador and the French Minister for Research and many other personalities gathered at Culham Science Centre in Oxfordshire (UK) to celebrate JET's continuing role in the international quest for fusion power.

2004 is not only the 25th anniversary of the laying of JET's foundation stone, but also the 20th anniversary of its official opening by Her Majesty Queen Elizabeth II. Major players in the international fusion scene, ex-JET staff and representatives of the local community attending this event, looked back on JET's achievements since it started operating in 1983 and, perhaps more importantly, looked forward to its role in future fusion research. With the decision on where to build the next generation international fusion device, ITER, still pending, JET is currently the largest fusion device in the world.

M. Philippe Busquin spoke of the remarkable potential of fusion for contributing to the long-term energy supply and Europe's role at the forefront of international fusion research. He emphasised the confidence of the European Union that it could attract ITER to Europe and referred to Europe's readiness to adopt a broader approach in its fusion programme for the ITER phase, with the aim of rapid progress towards the ultimate step of a demonstration reactor.

Sir Chris Llewellyn Smith, Director of the UK's national fusion research programme, read out a message from Prime Minister Tony Blair, in which he congratulated all concerned on the achievements with JET and added: " I take very seriously the problems of climate change and security of energy supply... fusion is one of the most promising technologies that could help solve these problems... The Government's Chief Scientific Adviser David King and I are both convinced that ITER, the next step in fusion, is an essential international endeavour and we hope to see the siting issue resolved in the next few months."



One of the Swiss guests welcomed at Culham, UK
(from left to right): Dr. Charles Kleiber, Prof. Minh Quang Tran
and Dr. Jérôme Paméla.

* CCE-FU means
"Consultative Committee
for the EURATOM Specific
Research and Training
Programme in the Field of
Nuclear Energy Fusion "

For more information
see our EFDA website:

<http://www.efda.org>

and additionally

<http://www.jet.efda.org>

<http://www.iter.org>

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