

'Making Innovation Happen' with the Fusion Business Team at Culham

In late September Culham Science Centre hosted the United Kingdom Science Park Association (UKSPA) autumn meeting. The theme chosen for this event was 'Making Innovation Happen'.

Hosting the UKSPA meeting was an ideal opportunity to showcase Culham's cutting edge technologies, expertise and facilities.




Over 90 delegates from science parks all over the country attended the meeting at Culham's Conference Centre with its full programme of presentations and workshops on innovation-related topics. Organisers Miriam Mason and Deniese Willis from the Fusion and Industry team were delighted to be given the opportunity to raise awareness of the work undertaken at Culham.

Miriam told Fusion Business "Hosting the UKSPA meeting was an ideal opportunity to showcase Culham's cutting edge technologies, expertise and facilities. The theme of innovation was chosen because

innovative thinking and problem-solving skills form the core of our activities, both within fusion research and at our Innovation Centre, earning Culham Science Centre its world-leading reputation. Since encouraging innovation is also a key objective of UKSPA's member science parks, it seemed particularly appropriate to focus on this area."

Popular Interactive Workshop Sessions

In addition to a number of interesting presentations, interactive workshop sessions were also held and provided an excellent forum in which to discuss the concept of a 'technical support network'. Culham has several aims in driving this initiative

-  To raise awareness of fusion expertise and its extensive range of industrial and business applications
-  To offer to companies on science parks potential access to fusion-based solutions as an extension of the technical support package already available to suitably qualified Culham Innovation Centre tenants
-  To facilitate greater interaction between science parks and to

encourage companies to offer similar support schemes to fellow members, thereby enhancing their portfolio of value-added services.

The Way Forward – a 'Technical Support Network'

"The proposal for a 'technical support network' was very positively received by UKSPA members at the meeting, with a mini-survey indicating strong support for the idea" said Miriam. "A number of actions were identified which we will take forward in collaboration with UKSPA management, including the possibility of a pilot scheme involving a small number of science parks.

Watch this space..."



Meeting organisers Miriam Mason and Deniese Willis with the CEO of UKSPA, Paul Wright.



Delegates discuss the proposal for a 'technical support network' in one of the conference workshops.

Inside This Issue:

New Director for Culham 

Good News for JET 

Oxford Technologies 

Lancaster gets Klystron 

ITER update

The detailed ITER negotiations are nearing completion, including the allocation of components between ITER parties. Fairly soon we should know which components Europe will be responsible for. If ITER is agreed, a European agency will be set up to place the contracts for these components. It is hoped that final decisions will be made at the end of 2003, or early 2004.

ITER Directory

Thank you to all the companies who contributed to Phase 1 of the ITER Directory which contains 50 company profiles. This is now published and has been sent to all contributors. Phase 1 of the Directory can be accessed on the Fusion and Industry website: www.fusion.org.uk/industry.

Phase 2 is now being compiled

Similar to Phase 1 this is designed to give potential purchasers a quick reference source on the skills and technologies available from the UK. Each company profile includes a description of the company and contact details, examples of products, specific expertise, industrial experience, R & D capabilities, quality assurance and process technology. **Suppliers who are interested in being included in the next phase of the directory should contact: deniese.willis@ukaea.org.uk.**

STOP PRESS -

New ITER pages can now be found on the Fusion and Industry website at www.fusion.org.uk/industry. The pages include an outline of ITER's aims and objectives, latest developments, access to the ITER Directory and links to major ITER sites around the world.

New Director at Culham

Professor Sir Chris Llewellyn Smith took up his new position as director of Culham in September. In this role he will be responsible for the strategic development of the UK's fusion research programme.

Chris Llewellyn Smith is an enthusiast for fusion. He said: "I am very pleased to have the opportunity to become involved in the fusion programme, and look forward to working with the staff at Culham to build on all they have already achieved. I know that the next few years will be exciting and challenging ones. The UK has a great track record and a crucial role to play in developing fusion as a source of clean, safe and renewable energy. Culham also has an important role to play in technology transfer and in fostering science and engineering talent, and has links with universities that range from plasma physics to materials science, a subject which will be crucial in developing fusion as a source of power."

I am very pleased to have the opportunity to become involved in the fusion programme, and look forward to working with the staff at Culham to build on all they have already achieved.

Chris Llewellyn Smith spent much of his career at Oxford, where he merged five University Departments to form one of the UK's top rated physics departments. He was Director-General of CERN, the European Laboratory for Particle Physics, from 1994 to 1998, and was President and Provost of UCL (University College London) from 1998 to 2002. He has served on numerous advisory committees, including ACOST, the Prime Minister's Advisory Committee on Science and Technology (1989-92), and is currently Chairman of ACME (the Advisory Committee on Mathematics Education), and a member of the US National Academies' Committee on Setting Priorities for National Science Foundation Sponsored Large Research Facility Projects.



Oxford Technologies and Ansaldo Ricerche s.r.l. Target Remote Handling and Robotics Market

With the European market for remote handling and robotics in hazardous environments worth around €100 M per annum, Oxford Technologies Ltd (UK) and Ansaldo Ricerche s.r.l (Italy) are collaborating on the development of remote handling and robotics solutions for nuclear plant decommissioning, underwater and military projects.

Under the collaboration agreement both companies will pool their complementary technical, marketing and commercial strengths. "We aim to expand Ansaldo and Oxford Technologies' existing involvement with nuclear decommissioning and fusion projects and also to play a major role in the emerging markets for remote handling and specialised robotics capabilities such as security and hostile environment applications," commented Ing M.Santangelo, Managing Director of Ansaldo Ricerche s.r.l.

For Dr Alan Rolfe, Managing Director of Oxford Technologies Ltd, the

opportunities created by the collaboration are immense. "Ansaldo Ricerche is a dynamic company involved in engineering projects across many markets where hazardous environments are a fact of life. By sharing our expertise we will be able to offer Ansaldo Ricerche customers an unbeatable breadth of competences and experience in remote handling and robotic applications."

For more information please go to www.oxfordtechnologies.co.uk or contact alan.rolfe@oxfordtechnologies.co.uk.

New Fusion with Industry Brochure

Don't forget to read the new Fusion with Industry brochure which accompanies the November edition of Fusion Business. If you do not receive your copy please contact Deniese Willis on 01235 466608 or e-mail: deniese.willis@ukaea.org.uk.



UKSPA Conference

Venue: **Culham Science Centre**

Date: **18-19 September 2003**

In September Culham Science Centre hosted the United Kingdom Science Park Association (UKSPA) meeting. The event was organised by Miriam Mason and Deniese Willis from the

Fusion and Industry team and proved to be a great success. "The UKSPA meeting took a great deal of organising as we had over 90 delegates attending from science parks all over the UK ranging from

the north-west of Scotland to Surrey," said Deniese. "Our aim was to provide a varied programme based around the theme of innovation. This proved very popular with the delegates."



Delegates enjoyed a drinks reception on a steamer cruise up the River Thames from Abingdon to Sandford. This was followed by an excellent dinner at the Oxford Thames Four Pillars hotel. The conference was sponsored by solicitors Martineau Johnson.



After-dinner speaker, Prof Joshua Silver, from Oxford University, talked on the theme of innovation and evolving technology through his own experience of producing a single variable lens of high optical quality. Commissioned by the World Health Organisation the lens needed to be cheap to manufacture and easy to use in glasses for people living in developing countries on low incomes. Our photo shows Prof Silver demonstrating his lens technology.



A series of presentations based around the meeting theme of innovation were given by Dr Michael Wright, Director of the Southern Oxfordshire Enterprise Hub; Dr George Blumberg, Oxford Innovation; Tom McGuire & Clive Read (pictured) from solicitors Martineau Johnson; Dr Cleve Forty and Miriam Mason, UKAEA Fusion & Industry.



In addition to the presentations and workshops delegates were given the opportunity to network with their colleagues and visit the small exhibition outside the John Adams Lecture Theatre. Exhibitors included Martineau Johnson, Nu-tech Associates, Oxford Scientific Limited, Oxford Innovation and Reaction Engines.



The recently introduced workshop format was welcomed by many UKSPA members who are in favour of a more interactive approach to their meetings. Workshop leaders were Malcolm Parry, Chairman of UKSPA from the Surrey Research Park, UKSPA board members – Peter Maxwell from The Universities of Bristol & Bath at QWest, Dr Doug Millington from Westlakes Science & Technology Park and Nigel Shaw from Malvern Hills Science Park. The workshops concluded that a 'technical support network' was a good idea and proposed the launch of a pilot scheme.

UKSPA OBJECTIVE

"To be the authoritative body on the planning, development and creation of science parks that are for facilitating the development and management of innovation, high growth, knowledge based organisations"

For more information on UKSPA visit their website at www.ukspa.org.uk

GOOD NEWS FOR JET

Good progress has been made over the past month with a proposal to extend the EFDA arrangements by one year to allow the use of JET in 2005. The proposal has been endorsed by the EFDA Steering Committee and the CCE-FU, the senior European fusion programme advisory body.

Frank Briscoe, Operations Director, UKAEA Culham Division, said "The formal documents to amend the existing agreements including the JET Operation Contract will now be submitted for signature by all the EFDA parties and it seems likely that the extension will be in place by early 2004. This would enable UKAEA to put in place the sub-contracts to support the use of JET in 2005 under the JET Operation Contract in good time."

What's new at www.fusion.org.uk?

Check out the new pages on the Fusion and Industry website. The new contract & tender pages are designed to give all suppliers comprehensive information on the latest contract opportunities and also gives all potential suppliers the chance to register for any future projects. The new ITER pages provide online information on all ITER developments and links to major ITER sites around the world.



Culham Innovation Centre

Intellikraft Charging Up at Culham Innovation Centre

The next generation of small, and perfectly formed, rechargeable batteries and high voltage portable power packs are being developed by Intellikraft at the Culham Innovation Centre.

Intellikraft specialises in designing solutions to energy storage and high voltage applications where longevity and size are critical. The company's ultra slim, advanced lithium polymer-based 2-4 volt rechargeable batteries are at the R & D stage and will ultimately be used in applications such as smart cards and mobile phones.

In addition to battery technology, Intellikraft is developing piezoelectric power supplies involving new designs in piezo transformer drive circuitry, under the brand name Pi Power. At present the company can achieve 25% efficiency for generating 4.5kV with 2µA load (9mW power output) from 1.8V at 20mA (36mW input power) in the size of a pocket match box. Intellikraft's piezoelectric

technology is already being trialled by a scent sprayer manufacturer. It will allow miniaturisation of the scent sprayer and half the number of 1.5V C batteries required to two.

According to Gleb Ivanov, (pictured) Managing Director of Intellikraft Ltd, this is just the beginning. The company is also working on a development offering higher efficiency - and 9kV 1µA output from a 1.6V 20mA supply. He told Fusion Business, "Using conventional magnetic coil

technology it's not possible to achieve this performance in such a small package. Our focus is on delivering longer operating time for battery powered products through higher efficiency and smaller size/weight with more stable output across a range of operating conditions."

Intellikraft chose the Culham Innovation Centre for its location, and reputation as an internationally respected science centre. "At present we have not chosen to apply for the technical support package. However it is an attractive feature of the Centre and one we may yet take advantage of," said Gleb Ivanov.

For further information on Intellikraft please visit the following websites: www.intellikraft.com and www.pi-power.com.



Indeva – Flying high in the Energy Market

Another Culham Innovation Centre company operating in the energy market is high flier, Indeva.

Based in Henley-on-Thames, Indeva has established itself internationally as an innovative leader in the provision of enhanced methodologies for valuation, risk analysis and business modelling. Indeva works with leading multinational energy

companies, major banks and management consultants around the globe.

An internationally known leader in the provision of enhanced methodologies for valuation, risk analysis and business modelling, Indeva works with leading multinational energy companies, major banks and management consultants around the globe. At present it is developing a new modelling software suite for any company undertaking

financial planning. "We chose to base our business at Culham because it is a secure site with excellent rail links for staff commuting from Reading and Oxford," says Chief Executive Mike Whiteside.

To find out more about Indeva contact www.indeva.com.



JET Klystron gets a new lease of life at Lancaster University

Since their retirement from the JET programme a set of klystrons along with their power supplies have been gathering dust at UKAEA Culham.

But now, thanks to the efforts of the Fusion and Industry team and the High Power Radio Frequency (HPRF) Faraday Partnership, a DTI initiative to stimulate core and applied research into Radio Frequency technology, one of the klystrons with a power supply has now been installed at Lancaster University to conduct research.

Steve Bowater from the HPRF Faraday Partnership said, "Prof Richard Carter and Dr Rebecca Seviour, from Lancaster University are investigating the causes and cures for multipactor, a potentially damaging electrical discharge within high

power vacuum electronic devices. This research will improve our understanding of the multipactor phenomenon and enhance mathematical modelling capabilities to predict the occurrence of multipactor. One of the objectives of the work is to develop computer software which can be used by klystron designers to minimise the risk of multipactor occurring. The ex-JET klystron will be used to validate the mathematical modelling work. The research will be of particular relevance to RF systems for high energy physics accelerators and fusion projects and will put the UK at the forefront of RF systems technology."

The HPRF Faraday Partnership

The HPRF Faraday Partnership consists of companies, academic institutions and research organisations with an interest or specialism in RF systems and devices or have a requirement to use RF devices. The Partnership is currently active in areas



The ex JET klystron has now been installed in the new laboratory at Lancaster University.

as diverse as accelerator science, defence, food processing, minerals extraction, waste recycling and composite manufacture on a high volume production line. The Partnership is also pursuing core RF component research and is investigating the design and manufacture of pulsed superconducting RF cavities. If you are interested in the activities of the Partnership, please contact the Project Director Steve Bowater on 01235 446612 (mobile 07901 516522) or e-mail: s.p.bowater@rl.ac.uk.

