polymer LINKS

News from the UK's #1 academic polymer research centre

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MOMENTOUS DAY FOR BRADFORD'S RESEARCH

Leading research from across Bradford University was given an airing at the University's third annual research showcase which formed part of the events in their 40th Anniversary celebrations.

The 29 November saw practical workshops by Research & Knowledge Transfer Support for staff in the morning and poster displays filled the new Atrium in the afternoon, demonstrating the breadth of research carried out at the University. The focus of the day was on knowledge transfer and the commercial value of Bradford's intellectual property and facilities. Optometry's research into displays and perception caught the eye of the evening's guest speaker, Professor Sir Richard Friend of Cambridge University and founder of Cambridge Display Technology and Plastic Logic and member of the Polymer IRC Board.

The final events of the day took place in the University's newly completed Norcroft Conference Centre, which forms part of the campus' emerging Science Quarter. An exhibition focussed on areas of knowledge transfer, including the Polymer IRC and FaraPack Polymers, Polymer, Wireless and Pharmaceutical Innovation Centres of Industrial Collaboration (CICs), together with the regional development agency, Yorkshire Forward.

The evening concluded with an international lecture by Professor Sir Richard Friend entitled Conducting Polymers: from Innovative Science to Commercial Exploitation. The talk gave excellent coverage to the fundamentals of conductive polymers, through to applications and their commercialisation and drew an excellent range of penetrating questions, mainly related to the physics and technology.

Sir Richard expressed his enjoyment of the visit to Bradford – "there is a real buzz about the place, and, as I'd expected, very welcoming", and the excellent communication he found in the Research Showcase across the disciplines; he was also "really impressed by the state of your (Polymer IRC) labs" and said that he "did not know of anything else on that scale – a resource of great importance to us all".

Following the lecture, Sir Richard presented Sarah Senior with the first Tom Ashdown Enterprise Award. Sarah, a graduate of Media Technology and Production, has started her own video and multimedia production company, Shoot Productions, after receiving support from the University's business start up unit Think Business@Bradford. Phil Coates, Pro-Vice-Chancellor for Research and Knowledge Transfer and the Polymer IRC's Associate Director at Bradford said: "It was fantastic to see our research community in one place during the research showcase, clearly demonstrating our research culture, giving energetic demonstrations of their work and stimulating awareness and engagement of research at Bradford."

"Various visitors commented warmly to me on the liveliness and clear value of the event. I appreciate the work which goes into it – and I am already aware of a range of good things which will come from this event."

NEW NMR SPECTROMETER

January 2007 the installation of a state of the art 400 MHz AVANCETM II Bruker NMR spectrometer in the School of Physics & Astronomy at Leeds will be completed. We have used SRIF3 money (£0.58M) to refurbish the laboratory, fit the required services and purchase the NMR system. The new machine operates at 9.4T has an 89mm wide bore and three radio frequency channels with digital broadband frequency synthesis (6-20MHz).

This solid state NMR spectrometer has been upgraded to include 3D imaging, rheology and diffusion capabilities, all with controlled temperature operation. Imaging can be carried out on objects with diameters less than 30mm. The system has high power triple axis 60A gradient amplifiers, which give a maximum gradient strength of 150G/cm. The equipment includes a set of single, double and triple multinuclear resonance probes with spinning speeds of up to 35kHz.

NMR can be used to investigate dynamics, structure, orientation, chemistry, morphology, diffusion, inter-nuclear distances and 3D spatial organization. The IRC in Leeds invites you to use this equipment in your research, and to develop future collaborations with us.

For further details contact Dr ME Ries. MikeRies@email.com

LAB REFURBISHMENT AT DURHAM

Work is underway on an extensive refurbishment of the laboratories in the IRC at Durham as the demands on space have changed over the past five years.

Professor Richards' legacy to the Chemistry Dept. was the £5 million JIF funded Materials Chemistry Building which now houses the x-ray and light field scattering facilities. The Polymer IRC in Durham has three groups working in polymer synthesis, the groups of Dr Neil Cameron, Dr Ezat Khosravi and Dr Lian Hutchings and the existing laboratory space was proving insufficient to allow further expansion.

To overcome these problems and prevent space becoming a rate determining step in the research output of the Durham IRC a program of work to refurbish and reallocate space with the IRC labs has begun. What was the characterisation laboratory will become a dual purpose laboratory. Following the refurbishment this lab will continue to house the three SEC set ups which are run as service by Dr Hutchings for the local (and wider) IRC and the Chemistry Dept. This lab will also be fitted out with two new 2 metre fume cupboards and a walk in fume cupboard, offering new space to house the expanding group of synthetic polymer chemists at Durham. The thermal analysis equipment (DSCs and TGAs) will be re-housed in a dedicated laboratory, kitted out specifically for this purpose.

The refurbishment will obviously benefit the Durham IRC, the modernised and refurbished laboratories will enhance the synthetic capability of the Chemists at Durham, enabling the more efficient production of materials for collaborative projects across the IRC.

FOCUS : Conferences & Courses

UK POLYMER SHOWCASE GOES FROM STRENGTH TO STRENGTH

200 delegates turned out to attend the 3rd Annual UK Polymer Showcase at Wakefield in September. They were presented with the unique mix of cutting edge science combined with insight into the management and future direction of polymers and soft-matter that has become the meeting's trademark. The subjects covered included soft matter for energy, Bio-nano science and technology, smart-soft surface engineering, managing technology and innovation and an insight into work across the Polymer IRC's extensive network.

Abstracts of the posters and talks from 2006 can be found in electronic form on the web at www.polymerirc.org/pages/PolymerShowcase, PDFs of oral presentations are available to Club members on their private web site at www.polymerirc.org/irc_club/login.php

The Showcase aims to bring the best current science to the attention of the UK polymers community from both industrial and academic backgrounds. Sponsorship from the IRC's Industrial Club members and Yorkshire Forward has ensured that the Showcase has remained a free event, enabling more people to leave their offices and labs to catch up on developments and exchange views with colleagues.

The 2007 Showcase is planned for 5—7 September 2007, so note these dates in your diary now!

For more information contact Helen Clancy on h.e.clancy@leeds.ac.uk

TRAINING FOR INDUSTRY – POLYMER IRC SCIENCE AND TECHNOLOGY MODULAR COURSE 30TH OCTOBER – 9TH NOVEMBER 2006

Following the successes of last year, the modular course was held once again with the addition of three new core subjects: Multi-Phase Polymer Materials and Composites, Polymeric Bio Materials and Polymer Nanotechnology - making in total a 9 day course.

Once again attendance was high – 70 registrations were received, 37 delegates from Industry and 33 students/post docs from academic institutions including the four Polymer IRC Universities. We were fortunate to attract two delegates from Saudi Arabia who attended the full 9 days, and who thoroughly enjoyed the course and their stay in Yorkshire! Guy Fawkes Night on November 5th was somewhat of a mystery to them however!

To deliver this course, we were able to draw from a fantastic pool of polymer expertise from across the Polymer IRC. The delegates were most impressed with the depth and content of the lectures. Resulting from the feedback from last year's course, we took a delegation to the University of Bradford for the Engineering module which again received a very positive response, and the three new modules also received high praise.

It is the intention to run this modular course again in 2007, starting Monday 27th October 2007, but we welcome any suggestions for change or additional modular options. Look out for confirmation of the programme.

For more information contact Shelagh Cowley at s.h.cowley@sheffield.ac.uk

FARAPACK POLYMERS OPEN DAY

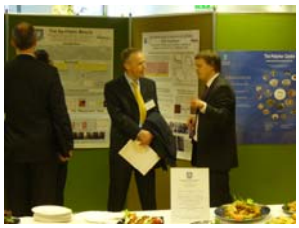
The Open Day hosted by FaraPack Polymers on 22nd November 2006 was deemed a success by all those involved in the organisation of the event. Over 50 people attended, mainly from industry but a few from academia also.

The Open Day was designed to give new potential customers a deeper insight into the services that FaraPack Polymers can offer, and included a presentation covering this from Managing Director of the company, Dr Malcolm Butler, as well as a tour of some of the facilities FaraPack Polymers has access to. There were also presentations given by Prof Tony Ryan OBE, Director of FaraPack Polymers Ltd, entitled "Fertilising research: A blue-sky project to build a synthetic sperm" and Prof Tom McLeish, Director of the Polymer IRC which aimed to raise awareness of the Polymer IRC, and its unique approach to fast track science.

The Open Day was just one way that FaraPack Polymers intends to publicise its capabilities to a wider audience and a growth strategy was adopted by the company in July 2006, when FaraPack Polymers reported a profit. Having firmly established that there is a market for their services, FaraPack is now looking to grow and hopefully the success of the Open Day will be a firm step in the right direction towards this goal.

I would like to thank both Tom and Tony, and everyone who attended for making the day such a huge success. FaraPack Polymers received several enquiries on the day and hopefully some of these will develop into new contracts for the company.

If you would like more information about the services offered by FaraPack please email Kelly Simkiss at kelly.simkiss@farapackpolymers.com



NANOTECHNOLOGY 4 CHEMISTS 5 - 7 JUNE 2007, SHEFFIELD, UK

Following the success of last year, the RSC is running this course again in association with the Polymer Centre www.polymercentre.org.uk at the University of Sheffield; sponsored by Yorkshire Forward www.yorkshire-forward.com

From the 15 delegates who were registered last year, their industrial backgrounds ranged from a Slovenian rubber Manufacturer to Multi-International Research Companies. Speakers were also invited from a broad background of expertise and all were highly praised for the content of their lectures. The general feedback was that the course was well received and we are hoping for similar interest in 2007.

The use of nanoscale materials is constantly expanding to play a role in an ever increasing number of industries. This can be as the actual product (e.g. electronics, packaging), as a nanocomposite, as an active or functional material or as part of the manufacturing process (such as a substrate for biomaterials).

This course gives an introduction to the basic concepts that underlie nanotechnology. It explains how nanomaterials are made and characterised and gives pointers to ways in which these properties will be exploited in the future to make new high added-value products.

FOCUS : EU Framework VII

Q&A: EUROPEAN FP7

The Polymer Centre wanted to find out more about the upcoming European Framework Programme, so we went straight to the expert. Gill Wells, of Sheffield University's Research Office, answered our questions.

What is the European Union's 7th Framework Programme?

The Seventh Framework programme for Research and Technological Development (FP7) will be the European Commission's main instrument for supporting Research and Development and will run from 2007 to 2013. The overall budget is over €50 billion, allocated to support four "pillars" of activity, namely Cooperation, Ideas, People and Capacities.

Which of these pillars are particularly aimed at supporting collaboration between Universities and industrial partners?

The most important from a R&D point of view will be the Cooperation pillar. This is divided into ten thematic areas; people in polymer science and technology will have interests in many of these, which are explained in detail on the Cordis website http://cordis.europa.eu/fp7. The idea here is to fund multi-site, multinational projects to underpin the development of the European Research Area and it is recognised that support is desirable all along the "knowledge spectrum", from blue skies to really quite close-to-market research.

Another potentially interesting mechanism falls under the People pillar. Programmes like Industry Academia Fellowships fund, effectively, sabbaticals for industry-based researchers to work on a project at a university in a second country.

How can our readers find out more about specific Calls for Proposals?

Calls will be announced on Cordis; if you are interested, you can sign up there for alerts. The first calls are due on December 22, with deadlines for submission in April or May.

What percentage of industrial partners' costs towards research projects is met by the EU?

This is a knotty question and is best answered on a case-by-case basis, but a rule of thumb is that companies can recover about 50% of their eligible costs. Under FP7, support for Demonstration Projects has increased from 35% to 50%, an improvement on previous Framework Programmes.

Is any support available to build international networks?

Information days relating to the various thematic areas in the Cooperation pillar are planned for the coming months in locations all over Europe. These are organised by the national contact points for each thematic priority area (e.g. DTI in the UK) and all will be publicised on Cordis.

What mechanisms are available for our readers to influence the general direction of FP7 research and the content of specific Calls?

The Commission holds consultations on the level of thematic priority area, so interested parties can do a lot worse than finding out who the right contact in the Commission is and getting in touch directly. Alternatively, speak to your national contact point for your thematic area. For a more formal role, people are encouraged to get in touch with the Technology Platforms that feed into each thematic area. Again, more details are on Cordis.

How does the Research Office at the University of Sheffield work with academics and industrialists on European projects?

Pre-award, we assist with advising on policy areas and the rules, setting the budget, drawing up the consortium agreement and providing the "boilerplate" text common to all applications. Once you receive the award letter from the Commission, we work very closely with Finance to negotiate the final contract and, post-award, we continue to assist with financial monitoring and management, as well as reporting and auditing. The key point is that we have built up a store of best practice from scores of applications to previous Framework Programmes.

Is FP7 going to be an administrative nightmare for all concerned?

It's important to note that, at source, we are talking about public money, so it's in all our interests to make sure it is spent responsibly, as judged by the European Court of Auditors. The Commission has made changes to the application process to streamline things a bit. You now only have to register your company's details once even if you want to make multiple submissions. Also, some proposals will now go through a two-stage assessment, so that the all-important scientific and project management section is submitted and assessed and you only have to submit detail on the expected impact, etc., if your project is judged likely to be funded. This will cut at least half of the effort expended on paperwork for unsuccessful projects. Further down the line, there is provision to spend 7% of the overall project budget on project management and 100% of management costs can be met from the grant.

Where can our industry-based readers turn for more information?

There are plenty of sources of information and guidance. Alongside the Cordis website, each EU country should have a national contact point for each thematic priority area, as well as one dedicated to SMEs. In the UK, this is Beta Technology. Most countries also offer help through government agencies; in the UK, OSI in the DTI run information days and consultation exercises. Last, but I hope not least, the Framework Office at Sheffield is more than happy to help companies who wish to work with our academics under FP7.

For more information on collaborating with Sheffield's Polymer Centre under FP7, please contact Liam Sutton on 0114 222 9383 or at L.R.Sutton@sheffield.ac.uk.

FRAMEWORK 6 NETWORK OF EXCELLENCE—SOFTCOMP

SoftComp aims to establish a knowledge base for an intelligent design of functional and nanoscale soft matter composites. It has over 20 member organisations spread across the EU, including three affiliated to the Polymer IRC. The field has previously been fragmented in two ways, firstly along the disciplinary lines of theoretical and experimental physics, computer simulation, chemistry and applied biology and secondly following the material structures themselves in terms of polymers, colloids, surfactants, membranes and biopolymers. SoftComp aims to overcome this 2-fold fragmentation by creating a virtual interdisciplinary research centre with the potential to unleash a range of exciting and intelligently-designed hybrid materials and structures. This integrated team will unite the European potential in soft matter composite materials and disseminate excellence through extensive training and knowledge transfer schemes.

The scientific aspects covered by SoftComp deal with different material composites: colloidal composites; self-assembling surfactant systems with additives; complex membranes; polymer-based complex systems and gels and glasses from composite materials. The three research platforms that assemble the different technical and scientific abilities present in the network are Synthesis, Experimental Techniques and Theoretical and Numerical Methods. Using these platforms plays a major role in achieving long-term integration between the SoftComp partners and in providing essential skills to support research.

More information on SoftComp is available at: www.eu-softcomp.net/news

NEW FACE IN DURHAM

Professor Colin Bain has joined the Durham Polymer IRC team. Colin migrated north from Oxford in September 2005 to join the staff in Chemistry at Durham, taking up a Chair in Physical Chemistry.

After graduating from Cambridge with a BA in Natural Sciences in 1983, Colin moved to Harvard to conduct his Ph.D. studies with George Whitesides. During this time, he worked on the adsorption of thiols onto gold surfaces, which led directly to the production of self-assembled monolayers and therefore the soft lithographic techniques that are now so widely used. He returned to the UK in 1988 to take up a Royal Society Research Fellowship at Cambridge, before moving to Oxford in 1991 to a Lectureship in Physical Chemistry until 2005, When he took the road north to Durham to take up his present position.

During his career, he has won several awards and medals, including the Harrison Memorial Prize and the Corday-Morgan Medal of the Royal Society of Chemistry and in 2005 he was a Visiting Fellow at the Indian Institute of Science in Bangalore. He is on the Editorial Boards of Soft Matter, Langmuir and ChemPhyschem.

Colin's current research interests lie in the area of 'wet' surface chemistry. His group's research is motivated by two general questions: What is the relationship between the microscopic structure of a thin film and the molecular structure of its constituent molecules? How do the microscopic properties of an interface determine the macroscopic behaviour of a system? The focus is on fundamental physical chemistry, but the systems studied have potential applications in areas such as lubrication, food processing, printing and coating technology, process engineering and pathology. Systems are chosen to be sufficiently complex to capture the essential behaviour of real applications, yet simple enough to permit a determination of the structure of the interface. He uses a wide range of techniques, including linear and nonlinear vibrational spectroscopy, ellipsometry, neutron reflection, light scattering, tensiometry and optical tweezers. The development of new methodology plays an important part in his research. Specific polymer-related interests include the structure of adsorbed polymer and polymer-surfactant films at interfaces, surface effects in inkjet fluids, kinetics of adsorption in polymer-surfactant mixtures, and the use of optical trapping to produce micron-sized polymer objects of controlled shape.

Further information on Colin's research activities can be found on his personal web pages at www.colinbain.net.

NEW FACE IN SHEFFIELD

Giuseppe Battaglia was appointed as Lecturer in Bionanotechnology in February 2006. Prior to this, he completed his PhD in the Dept. of Chemistry at the University of Sheffield within Prof Tony Ryan´s research group.

Before moving to Sheffield, He graduated in Chemical Engineering at the University of Palermo, Italy, specialising in Macromolecular Biomaterials, before joining the ICI Strategic Technology Group as Research Process Engineer.

"My research interests are into the ways that polymer molecules can self organise to give a range of useful structures. Amphiphilic polymers can aggregate to mimic biological membranes, which are more robust than natural phospholipid membranes. Our understanding of the phase behaviour of these materials is allowing us to investigate a range of new products, including drug delivery systems and tissue engineering scaffolds."

For further information you can contact Dr Battaglia on g.battaglia@sheffield.ac.uk

NEW FACE IN LEEDS

Dr. Easan Sivaniah, at Leeds since September 2006, has studied systems such as block copolymers, polymer thin films, low surface energy coatings and polymer/nano particle composites. The tools for his projects include x-ray and neutron scattering, electron and scanning probe microscopy and ion beam analysis, depending on the nature of the problem.

His current research interests include polymer biomineralization, block copolymer behaviour in thin films, compatibilizer effects on BCP microphase separation and biopolymer functionalization of synthetic block copolymers.

His collaborations include Leeds School of Biochemistry and Molecular Biology, Warwick University Department of Physics and University of Wisconsin – Chemical Engineering.

For further information you can contact Dr Sivaniah on e.sivaniah@leeds.ac.uk

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HOW TO PLAY

Fill in the grid so that every row, every column and every 3x3 box contains the digits 1 through 9 with no repetition!

E-mail the highlighted numbers to us and you will receive a mystery prize!

Jen.Harris@sheffield.ac.uk

CONTACT US

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