Collaboration is key to scientific excellence

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Dates for the diary

British Science Festival
(formerly the BA Festival of Science)
Diamond will be involved in this annual festival.
Details will be posted soon on www.diamond.ac.uk.
3rd-9th September 2009
University of Surrey
For event details, visit www.britishsciencefestival.org/web/
BritishScienceFestival

The Royal Society Summer Science Exhibition
Diamond will be displaying its ‘Designs for Life’ textile art.
30th June – 4th July
London
For event details, visit www.summerexhibition.org.uk.

Scientific & Technical Interest

Diamond Seminars
A series of scientific talks held at Diamond and streamed via the web:
Visit www.diamond.ac.uk for details.

3rd April 2009 at 14:00
Prof. Nigel Mason from the Open University will talk about astrobiology and life under extreme conditions.

29th April 2009 at 14:00
Prof. David Klug from Imperial College, High throughput and single cell analysis.

1st May 2009 at 14:00
Prof. Dr Ronald Fahrm from Bergische Universität Wuppertal, Germany, will talk about Q-EXAFS and spectroscopy.

EXAFS workshop
A workshop on the three X-ray Absorption Spectroscopy beamlines that will all be up and running by April 2010.
22nd-23rd June 2009
Diamond Light Source
To register, please visit www.diamond.ac.uk.

Diamond User committee
A chance for the public to visit the facility.
3rd October 2009
Diamond Light Source
To register visit www.diamond.ac.uk.

SAS 2009 – XIV International Conference on Small-Angle Scattering
13th – 18th September 2009
Oxford
To register, visit www.sas2009.org.

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Dear readers

Welcome to the Spring issue of Diamond News. 2009 has got off to a great start here at Diamond with new staff joining the institute, exciting scientific advances being carried out by a host of users from academia and industry, and a facility development programme that will see five new beamlines come online before the end of the year.

In this issue, we report on some of the highlights of the past six months including the appointment of Dr Martin Walsh, our new Life Sciences Coordinator, the wonderful reception that Diamond received when it took top UK Sciences Coordinator, the wonderful reception that Diamond received when it took top UK

We are very grateful to all the staff and users that have assisted with content. Our aim is to try and cover the breadth of science that takes place at the facility. With this in mind, we are always on the look out for stories, so if you have results or topics that you would like to see featured in Diamond News, please do get in touch. We’ll then arrange a phone or face-to-face interview to gather all the facts, and put a draft article together for your approval. As they say, a good image is worth a thousand words, so we endeavour to get creative with our images too. Budding photographers or designers are very welcome to get creative with our images too. Budding photographers or designers are very welcome to get creative with our images too.

We do hope you enjoy this issue and look forward to hearing from you! Warm regards from the Communications Team

Diamond Light Source

Corporation is key to scientific excellence

With beamlines continuing to be added each year and many published scientific papers under its belt, Diamond is really growing in terms of dedicated staff and cutting edge science. One of the latest appointments is Dr Martin Walsh, the Life Sciences Coordinator; a new role which, along with the Physical Sciences Coordinator, Prof. Andy Dent, aims to support and facilitate Diamond’s scientific research and is ensuring that Diamond is maximising the best scientific collaboration opportunities.

The Science Coordinators will work together to assist the information flow between beamlines and promote interaction and overlap between the different techniques available to researchers, both in the physical and life sciences.

"There are many physical science techniques that synchrotron can benefit the life sciences," explains Martin. "Protein crystallography is usually singled out since synchrotron radiation has had such an impact in this field and is now an essential tool for crystallographers, which is reflected in the scope and number of crystallography beamlines currently available at Diamond. But excitingly there is much more available to biologists at Diamond, with a strong set of spectroscopy beamlines coming online such as the circular dichroism beamline and the soon to be available EAXFS and infrared beamlines, which will augment the structural information researchers can currently obtain from crystallography and small angle X-ray scattering.

"By working closely with Andy and the Principal Beamline Scientists (PBS), our aims are to encourage integration and collaboration across the scientific disciplines to harness the full potential of Diamond and the role it will play in ensuring the UK remains at the cutting edge in research worldwide." These new positions have evolved from the former Experimental Coordinator role, held by Andy, whose main responsibilities were assisting with the smooth design and construction process for the Phase II beamlines, building on the knowledge gained from the first phase, and being instrumental in working with the Technical Division to agree the machine’s operation and shutdown periods.

"As Diamond continued to grow and more beamlines were planned," explains Andy, "it became apparent that there was a need to have two Science Coordinators, each with their own area of expertise, to keep an eye on the bigger picture." Andy has a background in X-ray Spectroscopy from previous positions at Daresbury and was originally PBS for I18 at Diamond. His research interest in Time Resolved Catalysis has involved science at the European Synchrotron Radiation facility (ESRF), and occasionally other SR facilities. From Experimental Coordinator, Andy took on the Physical Sciences role; and Martin was the ideal candidate for the Life Sciences Coordinator thanks to his extensive experience gained from working at other synchrotron facilities and his background in protein crystallography.

"I started out studying chemistry at University College Galway where I ended up focusing on crystallography during my PhD," says Martin. "This is where I got my first taste of synchrotron as a user at the SRS in Daresbury. I left the west of Ireland for the green fields of Yorkshire where I started a post-doc at the University of York. Whilst in York I was drawn to the EMBL Hamburg outstation, which is situated on the Deutsches Elektronen-Synchrotron (DESY) site, which hosted five EMBL beamlines for the life sciences spanning crystallography, small angle scattering and EAXFS. This lead me to the Advanced Photon Source (APS), Chicago, where I was involved in the commissioning of the world’s first dedicated undulator macromolecular crystallography (MX) beamline that exploited the use of anomalous diffraction for determining protein structures.

"After a couple of years at the Merck Research Laboratories in Rome I took up a position at the ESRF, Grenoble, where I was responsible for the Research Council funded BM4 project. BM4 has provided a valuable teaching ground for UK groups as well as allowing us to develop a highly automated beamline in collaboration with colleagues from the EMBL and the ESRF for the European MX community.”

Martin goes on to explain what drew him to Diamond and the role of Life Sciences Coordinator. He says, "I was attracted to this position because I was excited by the opportunities that Diamond and the Harwell campus offer to advance my own scientific interests and to forge new links with other scientific research happening site-wide; there is such a unique set of top scientific research facilities at Harwell and it is thrilling to be a part of that. As Life Sciences Coordinator I intend to establish new links and partnerships with complementary facilities throughout the UK, as well as strengthen existing relationships and collaborations. For example, one of my first tasks with Andy will be to develop, with the scientific staff and Directors at Diamond, strong physical and life science research programmes that would benefit from being integrated into the upcoming Research Complex on the Harwell Science and Innovation Campus.”

Martin concludes, "All in all, the chance to work at a cutting edge facility which produces world-class science was a rare opportunity that I didn’t want to pass up. I am delighted to be taking on a new role at Diamond and became one of the many members of staff who help it to remain competitive in delivering world-class science.”

Diamond News Spring 09

Diamond Light Source
**“Bright Light for Better Health” symposium**

During the past few weeks, you may well have detected an increase in news coverage of synchrotron science and novel experimental techniques, particularly in relation to health and medical research. This interest has resulted from Diamond’s first foray at the Annual Meeting of the American Association for the Advancement of Science (AAAS), which took place in Chicago from the 12th – 16th February 2009. Diamond submitted two symposia proposals to the AAAS in April 2008. The first was a Diamond research focused session entitled “Bright Light for Better Health.” The second was a collaboration, led by Diamond, with other synchrotrons within lightsources.org entitled “Casting New Light on Ancient Secrets.”

We then waited patiently for the AAAS peer review panel to make its decisions. It was smiles all round when we learnt that both symposia had been accepted onto the programme. The fun really started when, in addition to this, we were granted news briefings for each session too!

“It was a real honour to be part of such a prestigious meeting, representing UK science and talking about the exciting progress that we are making with the help of Diamond.”

Silvana Damerell, Diamond PR Manager, adds “The AAAS is a fantastic meeting and the amount of work that goes into ensuring its smooth running is phenomenal. All in all we achieved five fantastic meeting and the amount of work that goes into ensuring its smooth running is phenomenal. All in all we achieved five

During his AAAS talk, Prof. Stuart also praised the achievements made by many structural biology groups in the UK over the past year. In particular, the work of Prof. Rick Lewis and his colleagues at Newcastle University who in the past 16 months alone have solved 18 new structures using Diamond.

The Newcastle group were the first to use the SAD method successfully at Diamond, to determine de novo the structure of a scaffold protein from a bacterial multi-component, signal processing hub called the ‘stressosome’.

**Advanvancing our understanding and treatment of eye diseases**

Prof. Keith Meek, Head of the Structural Biophysics Research Group at Cardiff University, has been using X-ray scattering techniques, first at the SRS and now on the non-crystalline diffraction beamline, I22, at Diamond to perform structural analysis of the cornea. Due to the detailed nature of the experiments, Prof. Meek and his colleagues are making discoveries about the eye that should help to advance laser surgery, such as LASIK, and contribute to the eventual development of an artificial cornea. Prof. Meek explains, “Synchrotrons have taught us that the cornea has a highly specific fibrous collagen arrangement that is lost in keratoconus. With a greater knowledge of the structure of the corneas at the molecular level, we are increasing our understanding of how physical disruption of the corneal structure can lead to refraction changes. This knowledge is helping us to suggest methods for improving corneal surgical outcomes.”

He adds, “Another aspect to the research is that, due to the fact that in many parts of the world the demand for donor corneas far exceeds the supply, the need to develop an artificial cornea has increased.”

“In theory it would take months to scan a single cornea using a conventional laboratory source, but due to the high intensity of Diamond’s X-rays, a cornea can be scanned in just a few hours. In addition, because synchrotron X-rays can be focussed to a tiny spot, we can generate more detailed maps of corneal structure than ever before. In 12 months’ time at Diamond, the achievable spot size is on non-crystalline diffraction beamline will be in the order of 10 microns, which is less than a 10th the size of a human hair. This means that, within a few years, his work will be at a stage where it can feed into the development of artificial biological corneal constructs that mimic the remarkable natural properties of this remarkable tissue.”

With around 65,000 penetrating corneal graft procedures being carried out worldwide each year, this research is playing an important part in advancing eye surgery techniques that are vital to improving the quality of life of those affected by serious eye diseases and disorders.

“Laser-assisted in situ keratomileusis.”

Source: Eye Journal Dec 2008

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**Synchrotron science showcased at the Windy City**

Prof. Dave Stuart, Diamond’s Director of Life Sciences and head of the Structural Biology Laboratory at Oxford’s Wellcome Trust Centre for Human Genetics, unveiled the structure of a biological protein from the vaccinia virus. The structure was solved at Diamond on MX beamline I04 in December 2008 when Prof. Stuart and his colleagues discovered that this complicated member of the poxvirus family is related to a large number of simpler viruses and shows the elements of Darwinism to these, the simplest forms of life. Prof. Stuart explains, “This is a step towards a reclassification of the virus world, which can guide the way we think about therapies in the future. If structural commonalities between viruses are known, these links can be used to create therapies that work on a family of viruses, as opposed to just one.”

**...towards a reclassification of viruses**

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Understanding the brain chemistry in Parkinson’s disease

With around 4 million sufferers world-wide, Parkinson’s is a complex disease that varies greatly among affected individuals. Understanding the brain chemistry that leads to the onset of Parkinson’s is vital if we are to develop methods for early MRI diagnosis and new treatments for this devastating disease. Dr Joanne Collingwood, from Keele University, presented new results from studies carried out in collaboration with Dr Mark Davidson from the University of Florida. They have been using the Microfocus Spectroscopy beamline, I18. Dr Collingwood comments, “Our results show how the distribution of metal ions in the brain tissue of sufferers is altered by the disease process. By studying the tissue as a whole, it has been possible to map metal distribution throughout the brain region containing the vulnerable motor neurones in Parkinson’s disease in a region where we had earlier shown that iron levels nearly double in individual cells [Oakley 2007]. To move this research on into the clinical area, we need to determine how much the contrast change seen by clinicians in the MRI scan results is directly due to changes in iron distribution and form. The ultimate goal of this research is to find a method for early diagnosis so that medical treatment can begin as soon as chemical changes are detected and before the irreversible cell death takes place.”

Individual dopaminergic neurons show raised iron levels in Parkinson’s disease.


Iron from the tissue below

Brain tissue with vulnerable cells

0.1mm

Dr Joanne Collingwood on I18 with a mounted sample

Lightsources.org “Casting New Light on Ancient Secrets” symposium

Dr Jen Hiller, Diamond’s in-house archaeologist, joined scientists from five other synchrotrons - the Advanced Photon Source (APS) in Illinois; Cornell High Energy Synchrotron Source (CHESS) in New York; the European Synchrotron Radiation Source (ESRF) in Grenoble; the National Synchrotron Light Source (NSLS) in New York; and Stanford Synchrotron Radiation Laboratory (SSRL) at SLAC in California - to update the AAAS on exciting results and developments relating to cultural heritage studies.

The latest findings on ancient manuscripts such as the Archimedes Palimpsest, early Chinese bronzes, and the stunning imaging of previously undetectable fossils all captivated the audience. As did Dr Hiller’s announcement that, for the first time ever, cultural heritage scientists will be able to scan and image large relics and artefacts up to two tonnes in weight in incredible precision description when the larger experimental area of Diamond’s Joint Engineering, Environmental and Processing (JEEP) beamline comes online in Spring 2010. Dr Hiller explained, “Heritage scientists across the world are able to apply to use this unique beamline to delve deep inside precious ancient artefacts to unravel their secrets in a non-invasive way. Never before has it been possible to scan and image such large relics with such precision. Now is the time for researchers in this field to maximise this unique opportunity and consider how JEEP can help to advance their studies.”

“Thanks to the intensity of the X-rays produced by JEEP and its flexible space, researchers will be able to obtain a much higher resolution image, down to the scale of a few microns (less than the width of a human hair), and in significantly less time than the existing methods, we are talking about a matter of minutes as opposed to a number of hours. This finely detailed picture will enable scientists to see right inside an artefact helping them to obtain crucial information to piece together the story of its origin and history.”

Dr Michael Drakopoulos, the Principal Beamline Scientist for JEEP, says, “it’s fantastic that JEEP can help not only towards major advances in the environmental sciences and the world of engineering but also can have an extremely positive impact within the field of world heritage science.”

Eagerly awaiting the arrival of JEEP is Dr Janet Ambers, a scientist from the Conservation and Scientific Research Department at the British Museum. Along with her team Dr Ambers is currently studying a group of half life-sized Egyptian bronze statues. Until now they have only been able to examine them in a limited amount of detail leaving many questions unanswered. Diamond’s JEEP beamline is set to change that.

Dr Ambers says, “We know that these statues are made up of a number of different parts that have been joined together. The joints are so dense that it is only by using JEEP’s intense X-rays that we will be to penetrate them and see how the statues were made. This will help to answer questions about the technology and materials used to originally produce the statues as well as provide information on how they were modified during 5th century restoration work. We are very excited about having access to this innovative tool because it will allow us to look at our artefacts in a completely new way.”
A further five Phase II beamlines are due to come online this year:

- **I07**: Surfaces and interface diffraction (XENA)
  - I07’s equipment is currently being installed and first users are scheduled for October 2009.

- **I12**: Joint Engineering, Environment and Processing (JEEP)
  - In-house designed monochromator being installed. Optics hutch commissioning due to commence in April this year after first light achieved. Construction of the external building providing the shell for the I12 long beamline is complete.

- **I04-1**: Monochromatic MX
  - First light to I04-1’s optics hutch is due in May this year ready for first users in October 2009.

- **B22**: Infrared microscopy
  - B22’s front end is due to start commissioning in June this year. First users are scheduled for October 2009.

- **I20**: X-ray spectroscopy (LOLA)
  - I20’s beamline accommodation is about to be completed, the in-house designed monochromator can then be installed. First users are scheduled for December 2009.

The final four Phase II lines are due by 2012:

- **B18**: Core extended X-ray absorption fine structure (EXAFS)
- **I10**: Advanced Dichroism (BLADE)
- **I13L**: X-ray imaging and coherence
- **I09**: Surface and interface structural analysis (SISA)

Proposed Phase III beamlines

The application for Phase III is currently underway with the first five proposed beamlines approved by the Science Advisory Committee (SAC):

- **B21**: High throughput small angle scattering (HATSAXS)
- **I23**: Long wavelength tuneable MX
- **I05**: High resolution angle resolved photoelectron spectroscopy (ARPES)
- **I08**: Soft X-ray microscope (STXM)
- **I20**: Soft X-ray Microscope for the Life Sciences (TXM)

A further five beamlines have been proposed and will be submitted to the SAC for consideration in due course. For further information on Diamond’s beamlines, visit [www.diamond.ac.uk/Beamlines](http://www.diamond.ac.uk/Beamlines).
In the last edition of Diamond News, the Microfocus Macromolecular Crystallography beamline, I24 had just come online. With a beam size of 5-500 µm, I24 is dedicated to working on crystals of biological macromolecules that have previously been considered too small to be used for X-ray diffraction experiments on the other macromolecular crystallography beamlines. Gwynaf Evans, Principal Beamline Scientist, says, “We have only had about 10 user groups in so far as we have been optimising the beamline, but it has been a really exciting period for us as we are already seeing the potential of the microfocus beamline being realised. Response from the users who have got beamtime has also been extremely positive.”

One user who has taken advantage of the potential of I24 to study tiny crystals is Prof. Stephen Curry of Imperial College London who was looking at the 3C protease from foot-and-mouth disease virus. In the past they have solved the structure for the 3C protease from a different strain of the virus, and wanted to examine the difference between strains. Stephen says, “We don’t anticipate big structural changes but we’d like to see them to be sure. It will give us a better understanding of the degree of structural variation between the proteases from different strains. It may help future efforts to design drugs that inhibit the protease which — unlike strain-specific vaccines — could be effective against all seven serotypes of foot-and-mouth disease virus.”

You can read more about Stephen’s research on his blog: http://network.nature.com/people/scurry/blog/

“it has been a really exciting period for us as we are already seeing the potential of the microfocus beamline being realised.”

Growing nanowires

Scientists from the London Centre for Nanotechnology at University College London, Manchester University and Diamond have been using the Nanoscience Beamline (I06) to study the growth of tiny particles called nanowires, which could prove crucial in the development of nanoscale electronic components. This research has been published in the journal Nano Letters.

Electronic devices are getting smaller all the time, and the challenge is to make the individual components as small as possible without affecting how they function. This includes the need for nanometre scale wires to be placed on electrically insulating substrates.

The group used a technique called metal vapour deposition to grow palladium nanostructures on a dielectric support. They then used Scanning Tunnelling Microscopy (STM, at UCL) to identify two distinct structures: roughly hexagonal islands and long thin wires just a few nanometres wide.

Although STM gave the group a good idea of the shapes of the nanostructures, it does not provide any information on their chemical make-up. Here they turned to the Nanoscience beamline at Diamond.

Using a technique called Low Energy Electron Microscopy they were able to identify the same nanoparticles after growing them at Diamond. Then they used X-ray Photoelectron Microscopy (XPEEM) to monitor the chemical state of individual nanoparticles on a particle by particle basis. By scanning the kinetic energy and creating a movie, the scientists determined that the nanoparticles were composed of metallic Pd, identifying a route for growing metallic nanowires on a dielectric substrate.

PhD student David Humphrey who works in Geoff Thornton’s group at UCL explains, “This is the first time that it has been possible to grow metallic nanowires on a dielectric platform. This is important, as these could become crucial components in nanoscale electronics. Using XPEEM at Diamond provides the chemical sensitivity at the high spatial resolution required to study nanowires on this scale.”

Self assembled metallic nanowires on a dielectric support: ‘Pd on rutile TiO2(110),’

David S. Humphrey, Gregory Cabailh, Chi L. Pang, Chris A. Muryn, Stuart A. Cavill, Heidi Marchetto, Alessandro Potenza, Sanjay S. Dhesi and Geoff Thornton

Nano Letters, 2009, 9(1), 155-159

DOI: 10.1021/nl802703e

Getting magnetic

Extending our knowledge of how magnetic materials behave on an atomic scale has led to considerable technological advances, particularly in the area of information storage.

Scientists from the University of Leeds have been using the PhotoEmission Electron Microscope (PEEM) on the Nanoscience beamline (I06) to image the structure of magnetic domain walls, the boundary between areas of material with uniform magnetization. The group has modelled the way that these walls move when current is applied, a technique which has promising applications in writing data in more efficient digital memory devices, as well as improving our fundamental understanding of magnetism. The micromagnetic structure can be very complex, but the data obtained through the PEEM imaging provides enough information to build up detailed models and predict the behaviour of these nanostructures. This work has been published in the journal Physical Review B.

Chris Marrows from the University of Leeds says, “In this experiment we were able to separate and understand the two different ways that a spin-polarized current can depin a domain wall in order to start it moving. We will now exploit this understanding to reduce the size of the current pulse needed, to make a device that requires less energy to operate. We’re currently planning more experiments with the scientists at Diamond to watch the wall moving using the microscope at I06.”


DOI: 10.1103/PhysRevB.79.094422

Dr Gwynaf Evans in the Storage Ring

PEEM micrography being processed into a vector map (colourised)
Diamond is set to pass another milestone this year as it starts to incorporate its first in-house designed front ends for the upcoming beamlines. Previously these systems were designed by project engineers at the Daresbury Laboratory. But with Diamond continuing to grow and more design being brought in-house, a dedicated front end project engineer, Callum Ide, was appointed in 2007 as part of the Accelerators Engineering team to manage the design and commissioning of these systems.

“One of the main purposes of a front end is to trim the beam so that the beamline only receives the portion of the beam that it needs and its optics equipment doesn’t have to handle excessive heat loads,” says Callum. “We do this by using apertures which are basically copper funnels or cones: the photon beam goes into the cone and through a small hole in the center, meaning that the unwanted fringes of the beam are absorbed. This makes the copper cones increase in heat load up to 200°C, so we have to design them carefully to minimise the temperatures and provide water cooling.”

“The experimental stations that have a wiggler insertion device at their source producing hard X-rays, such as the extreme conditions beamline (I15) and JEEP (I12), create the biggest challenge. The heat produced within their front ends reaches in the order of 200°C, which is nearing the extreme temperature that the copper cones can handle; any higher and we would have to start making the cones out of exotic alloys instead of simple copper. Since the temperature is determined by the angle of the cone, we have to make sure we design a cone with a shallow enough angle to keep the temperature below 200°C; this means a long cone in a limited space, which can be tricky, but we enjoy the challenge.”

The process of delivering a front end from start to finish takes about two years. “We spend around six months drafting and finalising the design of the front end, which is then followed by a 12 month procurement period,” says Callum. “After that, the system is delivered to Diamond pretty much fully assembled and we spend several months on commissioning and installation to ensure that it is in full operational order before it takes first beam.”

Since Diamond continues to add beamlines, there is always another front end waiting to be designed and delivered by the team – which includes the survey, electrical, controls, and vacuum engineers and technicians who contribute to the front end projects. It is fantastic to know that from now on, when the photon beam reaches future beamlines for the first time, it will have successfully travelled through a custom-made front end, designed entirely in-house.
A possible new light source for the UK

As some of our readers might already be aware, a project led by Jon Marangos from Imperial College London has been exploring the needs and opportunities presented by a new light source to complement what Diamond is currently providing to the UK community. Diamond News spoke to Gerd Materlik about Diamond’s involvement and to Jon Marangos to learn a bit more about the project and where it is up to.

What involvement does Diamond have in the project?

Gerd: “While operating and continuing to develop Diamond remains our top priority, we have a number of members of the technical team contributing to the design of the proposed new machine. This effort is led by Richard Walker, our Technical Director, who is the Source Manager for the project and involves, among others, Riccardo Bartolini, Diamond’s Head of Accelerator Physics. They are working closely with a team of people from STFC’s Accelerator Science and Technology Centre (ASTeC) at Daresbury and other STFC departments and universities across the group on the design of the facility.

“We are also involved on the science side, specifically Louise Johnson, former Life Sciences Director here and now a Diamond Fellow, who is one of the science coordinators for life sciences.”

How would the new light source differ from Diamond and would it replace it?

Gerd: “The new light source is an entirely different machine to the synchrotron. By producing ultra short pulses of highly coherent light, in other words high peak brightness, it will allow new kinds of experiments, exploring extremely fast processes in matter of all kinds. In this way, it complements the extremely high average brightness of Diamond, as well as the experimental capabilities of the Central Laser Facility.”

So now to Jon, what’s been happening with the project so far?

Jon: “Everything began a year ago when we started a wide consultation with the potential users to explore with them the applications for a high brightness short pulse light source covering the THz to soft X-ray range. Some very exciting new science has been identified. We have since tried to involve as many as possible in the project and we hope that many will take up our invitation to attend the next meeting on 24th April. We also hope that users of large-scale facilities such as Diamond will talk to colleagues so that attendance can be widened as much as possible.”

Why is the 24th April so important?

Jon: “Well, it’s all about making sure that we can be visionary in what we eventually propose and ensure the proposal is anchored in real needs. It’s often difficult to get busy scientists together in a room to discuss what their needs will be in 5-10 years but it’s really important they do so… The 24th will be an excellent opportunity for user community input before the project is submitted for international peer review, so it’s a good time to participate.”

What if scientists cannot attend the session on 24th? How else can they input their views?

“...if they cannot attend the session, the next best thing is to contact me or any of the science coordinators (listed on the website – www.newlightsource.org) who can ensure that their views are appropriately captured and fed into discussions.”

The XIV International Conference on Small-Angle Scattering (SAS) comes to the UK

Along with ISIS, Diamond is honoured to be organising SAS 2009, an international meeting which has been held approximately every 3 years since 1965. Diamond News caught up with Dr Nick Terrill, Principal Beamline Scientist responsible for the SAXS beamlines here, who is Co-Chair of the Local Organising Committee for the meeting.

What will the conference offer to delegates?

Nick: “The purpose of the conference is to provide an opportunity for scientists using SAS in the study of subjects ranging from biology and medicine, to materials science and nanotechnology, whether with light, X-rays or neutrons, to meet and share their latest scientific results and technological improvements.”

What is special about the 2009 meeting?

Nick: “For the first time in its history, the conference will be staged in the UK. For European based scientists using SAS, this presents the principal opportunity to learn and network with many of the top scientists in the field. We have an excellent programme for SAS 2009, including plenary speakers from across the world including Europe, China, Japan, Korea, Australia and the US.”

How can I register for the conference?

Nick: “Delegates and speakers can register via the website, which is www.sas2009.org, and the Abstract & ‘Early-bird’ Registration deadlines have been extended to 1st May so there is still plenty of time to sign up for the conference. We are looking forward to welcoming around 500 delegates to Oxford for what promises to be an exceptional few days for the international small-angle scattering community.”

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