Newton Fund: UK-Malaysia STEM skills development programme

Call for applications to attend Closing date 16:00 on 12 July 2017

The Science and Technology Facilities Council (STFC) and the Malaysian Ministry of Higher Education (MoHE) are pleased to announce a workshop to take place in Malaysian Industry-Government Group For High Technology (MIGHT), Prime Minister’s Department, IMPACT Building, Jalan IMPACT, 63000 Cyberjaya, Selangor, Malaysia on 11-13 September 2017.

During the workshop, UK and Malaysian attendees will scope outline proposals aimed at developing a programme for delivering transferable skills in Science, Technology, Engineering and Maths (STEM).

This programme will provide training for people with identified priorities in:
- Mechanical engineering.
- Digital innovation and creativity.
- Decision science (data analytics).

The training would be in the context of some of the biggest and most cutting-edge scientific collaborations in the world e.g. the Large Hadron Collider and astronomical telescopes.
Following the workshop, investigators involved in the identified projects will finalise full proposals and submit for assessment by an expert panel. Additional participants who did not attend the workshop will also be able to submit proposals. The closing date for full proposals will be 21 November 2017.

The total amount available for UK-Malaysia collaborative projects is expected to be £1.5 million from the UK Newton Fund and matched resource from MoHE. Projects will start in April 2018 for three years.

To attend the workshop you must complete the Expression of Interest (EoI) form (Word, 139KB) and email to STFC Newton Fund by 16:00hrs on 12 July 2017. Successful UK participants will be notified in the week commencing 17 July 2017. Submission of the EoI will be taken as indicating availability on the dates of the workshop. The total number of UK participants is limited to 15 and STFC/MoHE will try to ensure a balance across the workshop themes and institutions. Attendance at the workshop does not guarantee funding. Normal STFC eligibility for funding criteria apply for UK applicants.

STFC will cover all reasonable travel expenses for UK participants attending the workshop in line with STFC policy on travel and subsistence expenses. Accommodation and subsistence expenses whilst in Malaysia will be covered by MoHE and STFC.

**Background to the STFC-Malaysia Programme**

Science and technology are the differentiators between countries that are able to tackle poverty effectively by growing and developing their economies, and those that are not. The extent to which developing economies emerge as economic powerhouses depends on their ability to grasp and apply insights from science and technology and use them creatively. Innovation is the primary driver of technological growth and drives higher living standards (IEET ‘The Role of Science and Technology in the Developing World in the 21 Century’, Lee-Roy Chetty, 2012).

**How are these activities directly and primarily relevant to the development challenges of Malaysia?**

A key element of Malaysia’s country strategy focuses on developing human capital and capacity in STEM, through to PhD and early career researchers. It is important to develop skills in big data by improving education from school level to postdoctoral level and so broaden employment opportunities. The programme aims to do this by increasing the number of PhD students trained, and the percentage of PhD qualified staff in higher education and their skill level.

Engagement in particle and nuclear physics and astronomy offers an inspiring way to engage students in high-tech careers as well as providing the opportunity to do so. However, the skills in data analysis and engineering that are needed and the higher level researchers that can provide a sustainable training programme do not currently exist at critical mass across Malaysia. This programme will train researchers in these technical skills.

The emphasis of this programme is the development of transferrable skills such as; programming and software-development; data-transport and analysis techniques; high performance computing and modelling; silicon sensor design; design and construction with advanced mechanical materials; programming FPGAs and designing associated high-speed PCBs to develop high bandwidth data processing systems. Exactly which skills will depend on Malaysia’s needs following detailed discussion with funders.

The training would expose people to scientific projects that have the largest and most complex engineering, data handling and analysis skills requirements in the world. Experience would be gained from carrying out project work within the global distributed computing resources for Particle Physics, Astronomy and Nuclear Physics.

Researchers would spend up to two years in this programme based at a UK institution. Meanwhile, PhD students from Malaysia would be allowed an attachment in a UK institution for a maximum period of six months.
Newton Fund: UK-Malaysia STEM skills development programme

How will the outcomes of these activities promote the economic development and welfare of Malaysia?

The Second National Science and Technology Policy (STP II) sets out the path for science and technology to be the engine for the country’s future growth and ensure national competitiveness. It focuses on strengthening research and technological capacity and capability. This activity is targeted at the Malaysia priorities of facilitating connections of existing areas of research excellence with the regions to increase regional science, innovation and education capacity in support of a more equal society. This also contributes to building a programme of research collaboration to support Malaysia’s transition from manufacturing to a knowledge-based economy, and support the sustainability of science and innovation development though promoting a culture of science and technology through inspirational R&D.

Other UK-based organisations (including UK subsidiaries of foreign firms) may act as the non-academic partner.

Background to the Newton Fund

The Newton-Ungku Omar Fund is a joint initiative established to develop and support the research and innovation collaboration between UK and Malaysia. Established in 2014, the Newton-Ungku Omar Fund is part of the UK’s £735 million Newton Fund to support science and innovation partnerships between the UK and 17 partnering countries. The Fund uses the UK and Malaysia’s strengths in research and innovation to support greater scientific research capacity in Malaysia and build partnerships between British and Malaysian institutions. This call in particular will help UK research organisations form collaborative partnerships with Malaysian counterparts to develop internationally competitive and innovative collaborative projects that will allow the pursuit of shared interests to address Science, Technology, Engineering and Maths (STEM) skills needs in Malaysia.

The Newton Fund forms part of the UK’s Official Development Assistance (ODA) commitment which is monitored by the Organisation for Economic Cooperation and Development (OECD). ODA funded activity focuses on outcomes that promote the long-term sustainable growth of countries on the OECD Development Assistance Committee list. Newton Fund countries represent a sub-set of this list. For more information, please visit the RCUK Newton Fund page.

The Newton Fund requires that the funding be awarded in a manner that fits with Official Development Assistance (ODA) guidelines. All applications under this call must therefore be compliant with these guidelines.

This programme will be funded under the People strand of the Newton Fund i.e. increasing capacity in science and innovation, individually and institutionally in partner countries.

For further information please contact:
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Cutting-edge technology innovation: apply for business funding

Businesses can apply for a share of £15 million to support disruptive innovation in any technology area with potential to generate growth.

Innovate UK has up to £15 million for game-changing, cutting-edge or disruptive innovation projects that leads to new products, processes or services.

The open programme

This funding is part of a regular series of open competitions that support good ideas with market potential, no matter where they come from.

Projects can come from any technology, science, engineering or industrial area. They can fit in with any of Innovate UK’s priority sectors – emerging and enabling technologies, health and life sciences, infrastructure systems, and manufacturing and materials – or be outside.

Funding is available for a wide range of projects, from feasibility studies to experimental development that is closer to market.

Priority will be given to proposals that are likely to lead to sustainable growth in productivity or develop products and services that will access new markets overseas. All projects should demonstrate the potential to generate commercial impact and economic growth.

Find out more about Innovate UK’s open programme.

Competition information

These are technical feasibility projects. Projects can last up to 1 year, with total costs ranging from £50,000 to £300,000. Research organisations may lead early-stage projects, in partnership with at least one UK business. or, UK SMEs can lead early-stage projects, with or without partners.

- the competition is open, and the deadline for registration is 9 August 2017
- projects must be led by a business, either working alone or with partners
- total project costs can range between £25,000 and £1 million, and projects can last between 6 and 36 months
- businesses could attract up to 70% of their eligible costs, depending on their size and the type of project
- only one project application may be submitted per applicant per competition round

Find out more about this competition and apply
STFC Foundation Award Call 2017

Global Challenge Research Fund

Briefing Event – Royal College of Chemistry, London W1J 0BA

Friday July 21st

This briefing event is to launch the STFC’s Foundation Award Call for 2017. The aim of this activity is to support projects with the aim of accessing the untapped potential of STFC’s community to contribute to addressing challenges in developing countries. Up to £4m over two years will be available in this call for projects.

Call opens: 26 July 2017

Closing date: 4pm on 5 September 2017

For more details on the call, please go here

To register for this event, please go here

The Global Goals
For Sustainable Development
Cutting industrial waste in India: apply for innovation funding

Business and researchers can apply for a share of £8 million to work with Indian partners on solutions to waste and pollution.

Innovate UK, the Biotechnology and Biological Research Council (BBSRC) and the Engineering and Physical Sciences Research Council (EPSRC) have up to £8 million to invest in joint UK-India projects that reduce industrial waste and pollution in India.

The investment is part of the Newton Fund, which uses science and innovation to promote economic development and social welfare of official development assistance (ODA) partner countries. The competition is funded in India by the Government of India's Department of Biotechnology (DBT).

Projects can target 5 key areas

Projects must use biotechnology to aim to reduce waste and pollution and improve the recovery of value from waste in 5 areas:

- leather, tanning and/or textiles
- municipal solid waste
- paper and pulp
- sewage
- sugar cane

Projects must aim to increase economic development and have a positive social or environmental effect on wider Indian society.

Find out more about how Innovate UK supports business research in life sciences

India has experienced rapid industrialisation

India has experienced strong growth in recent decades leading to large-scale industrialisation and areas of dense population.

It produces 13% of the world's leather, has 51 million people employed directly and 68 million employed indirectly in the textile industry. It is also the world's second largest producer of sugar cane, and has a rapidly growing pulp and paper industry.

Cities need new solutions to reduce landfill and the incineration of waste. Only around 30% of the country's sewage is treated, and the existing centralised sewage systems have failed to achieve the country's required discharge standards.

Competition information

- the competition is open, and the deadline for applications is at midday on 18 October 2017
- projects must involve at least one UK business, one UK higher education or research council institute, and one Indian academic institution or research organisation
- a UK-based business or research organisation can lead the project
- we expect total grants for the UK element of projects to range up to £2 million and to last between 30 months and 3 years
- businesses can attract up to 70% of their total project costs
- a briefing event will be held in York on 12 July 2017

Find out more about this competition and apply
This ranking refers to our latest citation analysis for period 2008-2013. STFC-funded researchers are ranked first in the world in particle physics, nuclear physics, and astronomy.

International subscriptions:

- £157m
- £161m
- £165m
- £37.9 million

Total international payments:

- £92.4 million
- £157m
- £161m
- £165m

2015/2016 unless otherwise stated. Statistics refer to FY.

**WORLD-CLASS RESEARCH**

STFC’s programme of world-leading discovery science supports universities and industry and delivers a national and international impact. STFC-funded experiments, which produced 5,570+ unique users, to carry out research at CERN.

**WORLD-CLASS INNOVATION**

STFC's intellectual property portfolio. Since 2002, STFC’s Innovation team are responsible for the protection and exploitation of commercialisation from STFC's National Laboratories.

**WORLD-CLASS SKILLS**

STFC develops current and future generations of scientists, engineers, and technologists to support the growth of the UK’s high-tech economy, as well as inspiring young people and the general public in the benefits of science.

Download the full report [here](#).
STFC – Emerging and enabling technology survey

The STFC External Innovation and 21st Century Challenges team is working to foster and strengthen collaboration with Innovate UK and the Catapult centres. As part of this, we are looking to map the landscape of emerging and enabling technology arising from our science programme. Therefore, we are inviting our research community to complete a survey to provide baseline information about existing interactions with Catapults and examples of emerging and enabling technologies, together with potential applications.

We will use this information to establish priority areas for facilitating collaboration with Catapults and people to involve in future activities and discussions.

To complete this survey, please go here

If you have any queries please contact Andi Kidd
NuSec network 2016/17 achievements and opportunities

Our 1st Annual newsletter summarises the achievements of the Nuclear Security Science network in its inaugural year.

It also explains our future Networking and Funding opportunities for Nuclear Security Scientists and Engineers working in Academia, Industry and Government.

NB The newsletter has been designed to print in A3 double sided and in full colour.

Welcome

Welcome to the 1st edition of our annual newsletter, aimed at Academic, Industrial and Government scientists and engineers working in Nuclear Security Science. In this edition, we summarise our 2016/2017 achievements and our future Networking and Funding opportunities for nuclear security Research and Training.

Our Role

The NuSec Science Network promotes research and technology in Nuclear Security Science, with an emphasis on radiological detection techniques and systems. The Network acts as a forum to support collaboration and capability amongst Academic, Industrial and Government scientists and engineers working in nuclear security and related areas.

The network is a 3 year project led by the University of Surrey in partnership with AWE and funded by the Science and Technology Funding Council (STFC) 21st Century Global Challenge Networks Programme. Government sponsorship and oversight comes from the Home Office, MoD, Department of Health and DEFRA, and academic leadership includes Universities of Bristol, Liverpool, London, Sheffield, Manchester, Glasgow and Cambridge.

The network has now been running for one year and has more than 250 registered NuSec network members of which 10% are from Government Departments and funded Agencies, 40% from Academia and 50% from Industry.

If you would like to join the network membership and receive regular network updates please contact info@nusec.co.uk

NuSec network 2016/2017 Achievements

- Held 2 Scientific Workshops involving >160 Academic, Industrial and Government scientists and engineers.
- Awarded 7 Personal Development Grants totalling more than £7,000.
- Generated a wide range of collaborations between Academics and Industry and a broad range of Government Agencies.
- Well attended network meetings, with strong interest in the network from the full range of stakeholders.
- Good scientific outcomes delivered by our Summer Pilot Projects, some of which are being taken forward by our network partners.

NuSec supports training activities in Nuclear Security for the research and industrial community.

Credit: Dean Calma / IAEA
UK’s world leading laser facility celebrates 40 outstanding years

STFC’s Central Laser Facility is celebrating forty years of spectacular science and achievement as one of the world’s most advanced laser research, development, exploitation and training facilities.

The lasers developed by the Science and Technology Facilities Council’s Central Laser Facility (CLF) over the past forty years are in use at many research facilities around the world and its expertise is recognised around the globe. In addition the CLF has a strong background in innovation, technology transfer and spin-out companies.

Based at STFC’s Rutherford Appleton Laboratory site in Oxfordshire the CLF has been keeping the UK at the forefront of laser science for forty years by discovering and developing new technologies. From humble beginnings with just a single laser, the facility now has a large suite of instruments, and works with and for researchers and organisations around the world.

Celebrating the anniversary this week Professor John Collier, Director of the STFC Central Laser Facility said: “For forty years the team of CLF scientists, engineers and researchers here in Oxfordshire have been developing laser technologies and techniques that have been instrumental in opening up new areas of study and research. Part of our success has been down to the way we have listened with our many collaborator organisations in academia and in the commercial sector and evolved to reflect science’s growing and changing demands.”

The technology developed by CLF has a range of potential uses including new medical applications, imaging capabilities and the processing of novel materials. Over the last forty years the partnership between CLF staff and the large number of members of UK and European Universities who use the specialised laser equipment has led to a broad range of experiments in physics, chemistry and biology, accelerating subatomic particles to high energies, probing chemical reactions and studying biochemical and biophysical processes. The CLF is currently building a DiPOLE100 laser for the European XFEL, where it will be used to recreate the conditions found within stars.

STFC’s Chief Executive Dr Brian Bowsher said of the 40th anniversary: “Our expert staff have been at the heart of the CLF’s success over the last forty years. The organisation has grown from a handful of people working on a single laser to a facility with more than 100 full-time staff, involved in hundreds of international collaborations. This makes the CLF not only an international hub for skills and excellence in laser science but also a research facility that everyone at STFC is immensely proud of. I look forward with great interest to see what John and his team will achieve next.”

Recent innovations involving the CLF team have included developing scanning technology that detects the chemical contents of passengers’ unopened containers to prevent potentially explosive materials being smuggled onto aircraft and work developing laser tweezers to enable researchers to better understand the structure and function of a molecule.

Wide-ranging laser applications have included experiments in physics, chemistry and biology, accelerating subatomic particles to high energies, probing chemical reactions and studying biochemical and biophysical processes. The CLF is currently building a DiPOLE100 laser for the European XFEL, where it will be used to recreate the conditions found within stars.
UK’s world leading laser facility celebrates 40 outstanding years

CLF is also the home of record breaking technology. When it commenced operations in 1977 with the launch of the Vulcan laser its two-beam, 0.5-terawatt laser emitted an optical pulse that is as powerful as the total energy produced by all of the world’s wind turbines today. Those records continue to be broken and at the start of 2017 came the news that the CLF’s DiPOLE 100 laser, delivered under contract to the Czech Republic’s HiLASE centre, had officially become the most powerful laser of its kind in the world. The laser delivered ten pulses per second (with 100 joules per pulse at 1kw), and is the first to combine both high energy levels and a significant number of pulses per second.

STFC is celebrating the 40th anniversary by, today, hosting a one day conference on the ‘Impact and Importance of UK Laser Science on the Global Stage’. Leading speakers from the world of laser science will be speaking at the event including renowned physicist Professor Sir Peter Knight from Imperial College London. However, the CLF has no plans to rest on its laurels just yet. The CLF team, led by Director John Collier, has an ambitious science programme planned for the up-coming years that will to continue to push the boundaries of laser science into new territory.

Some projects being explored involve using lasers to create mass from light and developing uses for laser-based accelerators in sectors such as medicine, aerospace, nuclear, security and defence.

Further collaboration, this time with other facilities on the Harwell Campus may also see the CLF providing deeper insights into biological, medical and materials science. By working with the Research Complex at Harwell, Diamond Light Source Ltd., and The Rosalind Franklin Institute, the CLF can contribute to the establishment of a world-leading centre for multimodal imaging.
Scientists make receptor discoveries that pave the way for new drugs to treat metabolic diseases

New structural information obtained with the help of intense X-rays generated by Diamond Light Source, the UK’s synchrotron science facility in Oxfordshire, has enabled scientists from Heptares Therapeutics (‘Heptare’, the UK-based subsidiary of Sosei Group Corporation) to solve the high-resolution X-ray crystal structure of the glucagon receptor. This biological receptor plays a crucial role in the management of blood glucose levels and is considered to be an important target for drugs designed to treat metabolic diseases, such as diabetes.

The breakthrough research by Heptares on this receptor, which was carried out on one of Diamond’s crystallography beamlines (I04), adds to the wealth of information the Company has generated using its StaR® platform on G protein-coupled receptors (GPCRs), the most important family of receptors targeted by drug developers. The unique resource, including detailed X-ray structures from more than 12 GPCRs solved by Heptares scientists, is enabling the Company to apply its structure-based design platform to develop therapeutics (small molecules and biologics) for these and structurally similar receptors that have strong links to disease.

Heptares is using the structural and physicochemical information derived from its pioneering research on the glucagon receptor, and from other receptors in the same class (Class B GPCRs), to advance small molecule GLP-1 antagonists towards the clinic as potential new treatments for the rare disease congenital hyperinsulinaemia.

The findings, published in Nature by Heptares scientists, describe the identification of a novel binding site distinct from the glucagon-binding site. This ‘allosteric’ binding site is located outside the transmembrane domain of the receptor, at the interface with the cell membrane, and is shown to inhibit the normal signalling function of the receptor when bound to a small molecule antagonist MK-0893.

Prof Dave Stuart, Diamond’s Director of Life Sciences comments, “This important research is a wonderful example of how industry is able to access Diamond’s advanced life science capabilities and contribute to the body of high impact papers that is helping researchers to advance drug development across a wide range of critical health areas. In particular, structural biology research is a key strength of Diamond and this research, pushing our understanding of GPCR binding modes, fully exploits our world leading facilities for macromolecular crystallography research. Additionally, in the past 12 months, we’ve extended our structural biology facilities to include cryo-electron microscopy and fragment screening, which moves us closer towards our vision of delivering a broad suite of capabilities that allows both academic and industrial researchers to tackle more challenging problems and progress their structural biology work further down the drug development pipeline.”
Heptares continues to demonstrate the power of its StaR® technology to elucidate the structure of important GPCRs and apply this knowledge to its drug design programmes and those of its partners," said Fiona Marshall, Chief Scientific Officer at Heptares.

“Our pioneering research is greatly enhancing our ability to apply our structure-based approach to drug discovery across a wide range of GPCR targets with strong clinical validation, but which have proved difficult or impossible to access previously. Access to Diamond’s crystallography beamlines remains critical for our work and the synchrotron’s developments in areas such as microfocus crystallography and membrane protein research will further strengthen the UK’s position as a leading contributor to structural biology research globally.”

Class B GPCRs represent a family of structurally similar receptors for peptide hormones such as GLP-1, glucagon, corticotropin-releasing factor (CRF), calcitonin and parathyroid peptide hormone. Class B GPCRs include many therapeutic targets for cardiovascular diseases, metabolic diseases, bone diseases and migraine, but despite strong clinical validation, structural information is limited.
Early public and private investment speeds up innovation

UK businesses can benefit from a mix of government grants and private equity. See examples and an opportunity to access both simultaneously.

Start-ups often rely on external funding – whether that be from public or private sources, or both together – to get them on the right track for success.

Investment can help them do things they wouldn’t be able to do alone, or do so at a faster pace. It can give them confidence and remove the need to find other funding resources. It may also help them to access business advice and market opportunities.

Below are case studies of businesses that received Innovate UK support and have gone on to attract private equity, speeding up the time it takes to develop and commercialise their solutions.

**Improving female health and wellbeing**

**Chiaro** – the female healthtech business behind the Elvie connected pelvic floor exerciser – was awarded a grant by Innovate UK in its start-up phase. This allowed the company to leverage the latest developments in wearable tech that underpin Elvie. The device has proved a success, with the company making a profit within 6 months of it going on sale.

The business has since gone through a number of funding rounds. In its latest, it attracted £4.8 million of external investment, including Octopus Ventures and Allbright. This will support the development of 3 more smart products for female health and wellbeing and its global expansion into 25 countries. Chiaro’s total capital now stands at £9.6 million.

**Early cancer detection**

Cambridge company, **Owlstone Medical** has developed a breath biopsy tool that offers early diagnosis of cancer and other diseases.

Owlstone Medical has received funding from us totalling £277,000. This has allowed it to conduct a feasibility study into a diagnostic test for Crohn’s disease and ulcerative colitis, and go on to develop the core technology for its breathalyser: a microchip field asymmetric ion mobility spectrometer (FAIMS) sensor.

The company has raised £19.3 million ($23.5 million USD), including an investment by **Aviva’s venture capital arm**. This is helping to promote Owlstone Medical in the healthcare sector, build awareness of breath biopsy and commercialise the platform.
Diamond Light Source has welcomed the very first users, from The National Graphene Institute at The University of Manchester, to our electron Physical Sciences Imaging Centre, ePSIC.

A result of a collaboration between the University of Oxford, industry partners Johnson Matthey, and Diamond, the electron microscopy centre will offer atomic scale imaging at world-leading resolution.

“This helps us to realise a challenge put to me around 5 years ago,” says Professor Angus Kirkland, Science Director at ePSIC. “Which was to build on the synergies with Diamond and the ISIS Neutron and Muon Source to make the Harwell Science and Innovation campus a home to imaging across X-rays at Diamond, neutrons at ISIS and now electrons with ePSIC.”

The centre hosts two electron microscopes, one operated shared between the University of Oxford and Diamond, and one operated in conjunction with Johnson Matthey.

“Our strategic objective has been to add value to the electron microscopy landscape, and our design has ensured one of the most stable electron microscopes in Europe,” continues Professor Kirkland. “We’ve not replicated what other labs have done; as a result our equipment is capable at operating at very high resolutions – around 43 picometers – and at frame rates of up to 1,000 frames per second.”

“It’s very satisfying to see how new ideas for new experiments flow when collaborating with different scientific communities,” adds Dr Cecilia Sanchez-Hanke, Operations Director at ePSIC. “These electron microscopes are an excellent complement to Diamond’s imaging beamlines with spatial resolutions in the nanoscale range, such as our X-ray Nanoprobe beamline (I14) and our scanning X-ray microscopy beamline (I08).”

The partnership with the University of Oxford sees Dr Christopher Allen from the university’s Maths, Physical and Life Sciences Division (MPLS) based at Diamond.

“In addition to supporting users, and keeping the microscope operating as well as it possibly can, I’m able to continue my work into low dimensional materials like graphene,” explains Dr Allen. “Our hope is that we can encourage people from outside the traditional electron microscopy community, who wouldn’t normally use such a technique, to exploit imaging techniques we can now offer here.”
“Collaborations between I14 and ePSIC are already in place, and there’s interest in the community in the atomic resolution spectroscopy these machines will offer,” adds Dr Sanchez-Hanke. “It’s fantastic to see the excitement growing.”

The first users, from the University of Manchester’s National Graphene Institute are investigating the properties of a two dimensional superconductor.

“This sort of superconductor behaves in an unusual way and we think the promising properties are related to its atomic structure,” explains Dr Sarah Haigh, from the National Graphene Institute. “If we can understand this behaviour these superconductors they could have many different benefits. For example, a sizeable chunk of the nation’s energy budget is lost between power plants and the consumer: superconductors offer a route to a more efficient national grid. Better superconductors would also allow us to develop improved medical imaging techniques.”

“There’s lots we don’t understand, and this microscope really allows us to probe the fundamentals of how this superconducting material is behaving,” she continues. “It’s a very new material, so we don’t know the best conditions under which to investigate it. The wide range of energies this microscope operates at will hopefully allow us to determine those optimal conditions – then we can really understand how it’s working. It’s really very exciting to have access to this cutting edge facility.”

Users of ePSIC will apply for access to the electron microscopes in the same way they would for any other beamline at Diamond, through a well-established peer review process, or by performing proprietary research available through Diamond’s Industrial Liaison Office.

“The next step is to develop even more techniques for our users to take advantage of, many of which will be new for the field of electron microscopy,” says Dr Allen. “These include using our fast electron detectors to study the atomic structure of our samples while we heat, cool or pass electrical currents through them.”

“The incorporation of these new high resolution electron microscopes into our suite of imaging beamlines will help us to achieve our goal of expanding the spatial resolution range in imaging we offer from microns up to the atomic level, and beyond,” concludes Dr Sanchez-Hanke. “This is another element of Diamond’s efforts to maintain its place as a world-class facility for the next ten years, and beyond.”

For more information about ePSIC, visit the website
External Innovations and Innovations Club

The External Innovations team manages the activities that aim to realise the impacts and benefits that flow from STFC's investments in science and technology towards commercialisation through one to one brokering, events and a range of funding schemes.

If you wish to contact the teams for more information please see the following contacts and email addresses.

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The Innovations Club newsletter contains a selection of articles drawn from our partner organisations that we think you will find interesting. We welcome your comments innovationsclub@stfc.ac.uk