Welcome

To the fourth edition of the School of Engineering Research Newsletter.

2011 has seen many changes in the School, including the introduction of research themes and discipline streams, opening of the refurbished spaces, a change of leadership and the instigation of the Research Office, to name but a few.

This edition features information on key events that have taken place this term, introduces some new people and ideas, and as always includes dates for your diary and funding opportunities.

Wishing you all a happy and successful 2012 from the Research Office

The Knowledge Centre

The Knowledge Centre is the new ‘destination’ website for the University of Warwick, created as part of the institution’s ongoing strategy. The site aims to be a source of news and information to both alumni and the general public (even Stephen Fry has tweeted from it!).

Featuring news, videos, podcasts and interviews with Warwick academics, it provides interesting topical insights, as well as information on priority research themes and subject areas.

The team behind the Knowledge Centre are working to provide a targeted service to users, including building up a database of contacts and planning for a tailored news and information service. It is expected that stakeholders would take an interest in the content, as well as alumni and friends.

With expansion of personnel planned, this is clearly a priority area for the University and is already considered important in demonstrating research impact.

If you would like to feature an article, video, podcast or any other media on the Knowledge Centre, you can contact the team at knowledge@warwick.ac.uk, or see Sarah Pain in the Research Office for more information. Audio visual services are available, and the Knowledge Centre staff are happy to write articles for you. They just need a good story and a few minutes of your time.

Find the website at www.warwick.ac.uk/knowledge, or type Knowledge Centre into your search engine.
Camtasia Relay Facilities

It may sound like the name of a children’s movie, but Camtasia Relay is a great new facility available to staff in the School of Engineering.

The free software enables a presentation to be recorded for publishing in a very simple process. Using a table-top microphone, the audio is recorded along with a 5-second screen capture. The result is an online file which replicates the presentation in a clear and easy to follow format.

The software can be downloaded at https://lectcap.warwick.ac.uk/relay and is already installed in Room A401, and will be on others in due course.

The Research Office have a portable microphone which can be borrowed for lectures and seminars, and Sarah Pain can provide training on the software, which will take just a few minutes.

The facility could be used for seminar series, publishing your own work or for many other scenarios.

Please see Sarah in the Research Office for more information, or visit the IT Services web pages and navigate to Audio Visual Services.

Research Staff Workshop

WATCH THIS SPACE.....!

In early spring, the LDC will be working with the School to provide a bespoke workshop for post doctorate research staff. This will be based on the ‘How to Sell Yourself & Your Research’ course offered by the LDC, but tailored to engineering staff.

The workshop will include lunch and networking, and will offer staff the chance to gain valuable tools for furthering their career, as well as providing benefit to the School as a whole.

All research staff are encouraged to attend – look out for an email from the Research Office with further details and registration instructions.
INTRODUCING...the new Faculty of Science press officer, Anna Blackaby

I’m the newest addition to the university’s press team and have a dual role here at Warwick. As the university’s international press officer it’s my job to get more coverage of the exciting research happening at Warwick in the overseas press. The second part of my job is to look after all press and media activity for the Faculty of Science for the local and national press in the UK - as well as for the global press.

For both of these roles I’m keen to hear more from academics within the School of Engineering on what they are up to so please keep me in the loop if you are publishing anything which could be of interest to a wider audience either here or abroad.

If you’ve never done anything with the press before, it can be a daunting world but there are lots of advantages to engaging with newspapers and TV – and it’s my job to help make it as smooth as possible. I’m available on 75910 or a.blackaby@warwick.ac.uk and am more than happy to talk through anything to do with press activities.

Leo Boe is the Student’s Union President for 2011-12. As part of the new strategy, it has been recognised that research students need more support from their Union. Sarah Pain caught up with him to find out what the SU have planned for PGRs over the next few years.

It’s great that you’ve decided to look at how you can support PGR students at Warwick. What inspired this decision for the Union team?

Within our new strategy we address the need for greater representation and dialogue with the postgraduate community as a whole, while recognising that the lifestyles of PGT versus PGR students are quite different. We are therefore looking to establish a proper conversation with PGR students for the first time in order to ensure that we know how to argue their case effectively within University meetings. We also acknowledge that with assessment feedback from undergraduate students being a core issue for us to tackle, we must also acknowledge the priorities and pressures of PGR students so that we aren’t seen to be selling one out for the other.

We’ve also realised that we need to do more to help the University foster a greater sense of community amongst PGR students across different disciplines. We’ve been working with the Graduate School, Careers and skills and the Wolfson Research Exchange to develop the forums, facilities and events, that will help this happen. With postgraduates generally representing 40% of our vibrant student population, it only makes sense to ensure we get better at representing and supporting them.

What can our current postgraduate students do to help this process?

At the moment we are trying to find out what the expectations, needs, lifestyles, and student lifecycles are of PGR students. We can try to meet their expectations now, but we would be doing so based on assumptions without proper consultation. We are brainstorming ways as to how we can best capture PGR students’ perspectives on their student experience and how we currently fit in, or more importantly, how we could fit in.

We will be holding regular focus groups with postgraduate students in term 2 which I would encourage PGR students to look out for, and come along to. Our Postgraduate Forum will be helping us start a dialogue with PGR and PGT students alike. Complementing this, at our General Meeting, policy was passed establishing a Postgraduate Association (PGA). A part of the SU, the PGA will be responsible for representing all PG students to the University on the Educational and Pastoral issues affecting their lives as students at Warwick, while also developing the work we’ve done so far this year on providing better social events for PGs. How the Association will be run has yet to be finalised, so the PG Forum Coordinator Matteo Locane will be looking for input from all postgraduate students on their new Association.
The School of Engineering and WMG recently collaborated on a conference with IMAPS-UK and NMI. The two-day event brought together more than 150 representatives from across the UK in the field of Power Electronics Technology, for networking between end-users, researchers, supply chains and technology providers. It was hosted at the WMG International Digital Laboratory and International Manufacturing Centre.

Power electronics is a significant growth area for the UK, and events which bring together the key people working within the country will help to strengthen its position across the world. This conference offered the chance to exchange innovative technical solutions and practical problems to stimulate new applications and to help to establish an infrastructure for a more cost effective, energy efficient future. The School has many significant projects in the area, and the PEATER group, lead by Professor Phil Mawby, is helping to pave the way for future developments.

The iPower event featured a series of presentations by leaders in the field, poster sessions, laboratory tours and table-top demonstrations from suppliers.

Speaking of the conference, Prof. Mawby said: “It was an extremely successful event, drawing at least 80% of the attendees from industry. It helped to highlight the strength of the UK’s contribution to the international power electronics scene.”

The event included display of a new generation hybrid Lotus (pictured on front cover).

‘Transforming the Top & Tail’ is an EPSRC Grand Challenge, bringing together the collaborative efforts of 8 universities and 7 industrial partners. The project focuses on the physical infrastructure change in energy networks required to move the UK to a low carbon economy, and to achieve the Government’s 2050 reduction in CO2 emissions target. The ‘top’ and ‘tail’ are the two particular places in the energy network where existing technology and infrastructure need radical change.

At the ‘top’ of the network (where the very highest transmission voltages occur), there is an expected emergence of transcontinental energy exchange in Europe, driven by exploitation of diversity in renewable sources and diversity in load. The ‘tail’ of the network is the ‘last mile’, and takes place behind the meter wiring into customer premises. More than half the capital cost of an electricity system is spent in the last mile, and cost and disruption barriers have made it resistant to change.

On Monday 28th November, the School hosted the first Annual Technical Review meeting for 41 members of the consortium, including five of the industrial partners; Converteam, Dynex, Energy Technologies Institute, National Grid and Scottish & Southern Electricity.

The meeting was the first opportunity to share ideas and information amongst the consortium, and begin the work which will target some major issues within the industry. Specifically, the objectives are; to tackle the technology barriers to implementation of a European SuperGrid, and to create technology innovations to radically increase the capacity of ‘last mile’ energy networks.
Research Events

Opportunities for materials engineering using synchrotron X-rays and neutrons

On 6th December, Dr. Joanna Collingwood and Dr. Darren Hughes organised a workshop for all staff within the two departments regarding the range of materials engineering which can be addressed using synchrotron X-ray and neutron techniques.

There has been significant investment in synchrotron X-ray and neutron central research facilities in recent years. Although these facilities are often perceived as the domain of pure science research, there are also unique opportunities for applied material research.

The workshop included presentations from Dr. Thomas Connelly of DIAMOND Light Source and Dr. Terry from the ISIS Neutron Source at Rutherford Appleton Laboratory, as well as University of Warwick specialists.

If you would like to find out more about these facilities and see if they might be suitable to further your research, contact Darren Hughes (d.hughes@warwick.ac.uk) or Joanna Collingwood (j.f.collingwood@warwick.ac.uk) for more details.

Andrew Little Lecture Series Round-up

This term’s well-received Andrew Little Lectures featured some experts in the field of energy research. The talks were informative and thought-provoking, touching on a number of topics which affect everyone, notably climate change and the need to address global energy consumption.

Professor Ruzhu Wang from Shanghai Jiao Tong University presented on the work of his group, which is tackling the important issue of green building energy systems. Their work covers numerous aspects of ensuring that buildings are as efficient as possible, using technologies such as solar integrated hybrid energy systems and air source heat pump water heaters. Following on from this, Professor Dorota Chwieduk from Warsaw University of Technology, presented on the development of solar thermal technologies, which again emphasised the necessity of ‘nearly zero energy’ buildings.

The lecture which gave rise to the most interesting debate and questions came from Professor Kevin Anderson of the Tyndall Centre for Climate Change (pictured on front cover). His lecture explored ‘the void between rhetoric & reality on climate change mitigation’. The target of staying below 2°C climate change is undoubtedly a challenging one, and as Kevin clearly indicated it will take complete global co-operation, changes at an individual level, along with developments by engineers such as ‘green building’ research, more efficient vehicles and many other carbon reduction technologies. The facts and figures are stark, but send a clear message. His lecture has already been viewed over 600 times to date on the Andrew Little webpage.

Professor John Loughhead is Executive Director of the UK Energy Research Centre. His lecture ‘Where is UK Energy Going...’ presented a thorough overview of the status of energy provision in this country and the changes that are either underway or need to be implemented to achieve the sharp turn-around required to address the ‘world-changing targets’ set by politicians. As he concluded “To meet them will need innovation on an equivalent scale from the engineering (and finance) professions”.

The series was rounded off with a lecture from Jihong Wang, who is Professor of Electrical Power & Control Engineering at the School of Engineering. She neatly followed the previous lectures with a talk on a notorious area of energy consumption – coal. Her presentation ‘Can Coal Fired Power Generation be Cleaner’ made some extremely interesting points on the future of fossil fuels and presented clear evidence that the use of coal is unlikely to reduce for some time. Professor Wang presented information on research projects world-wide which are attempting to improve ‘clean coal’ technology, in order to address the gap between energy need and requirements for CO₂ reduction.

We are very grateful to all our speakers for taking the time to be part of this exciting lecture series, and extend our thanks to Andrew Little for his financial support. For more information, to view presentations from this series and for details of next terms lectures, visit go.warwick.ac.uk/andrewlittlelectures.
Local Foundations Support for Biomedicine

Colon Cancer is one of the most common forms of cancer in the developed world, with around 40,000 cases diagnosed in the UK per year. The current procedure for diagnosis is obtrusive and therefore off-putting to many people, which is why many cases advance beyond optimum treatment points before being diagnosed. Research between the School of Engineering, WMS and doctors at UHCW could change the face of colon cancer diagnosis.

Dr James Covington leads the team at the School, who will begin a trial in January 2012 using ‘electronic noses’. These ‘sniff’ out unique biomarkers in urine which are given off by colon cancer. If successful, the procedure would lead to the development of non-invasive techniques, which would change the face of colon cancer diagnosis, and ultimately lead to improved recovery rates.

This work is part of the FAMISHED (Food and Fermentation using Metagenomics in Health and Disease) project, and is supported by NIHR and CLRN. The long-term vision is to develop a new generation of non-invasive, rapid, portable instruments that will detect a broad spectrum of ailments.

The value of the research has been recognised by the WPH Charitable Trust and the Eveson Charitable Trust, and they have joined forces to provide funding for the project. Covington says of the support; “I am pleasantly surprised at the immensely positive reaction for this work, and it is a clear indication of the value of the research. The team working on the FAMISHED project have a clear vision of where this technology can take the future of medical diagnosis, and this funding and any future support helps greatly to achieve this aim”.

For more information about the work, visit go.warwick.ac.uk/famished.

Poster Prize for Biomedical Student

Warwick Medical School recently held the inaugural “International Symposium on Advances in Human Metabolism Research”, which brought together researchers from around the world. At this event Natalie Ouaret, a PhD student at the School of Engineering, received a prize for her poster entitled “Diagnosis by an Electronic Nose” in the Society for Endocrinology Poster Session.

The judging panel itself was an international mix, including Prof. Susan Fried (Boston University), Prof. Jeya Henry (Clinical Nutritional Sciences, Singapore) and Dr Tom Barber (University of Warwick & UHCW NHW Trust).

Natalie is supervised by Dr James Covington, who leads a team focussing on the ‘electronic nose’.

Diary Dates

IoH Speculative Lunch

“Public Health Across Borders & Minds”
Wed 25 Jan 2012: 12.30pm
Room S0.98 Social Sciences
Come and join the quest for innovation & interdisciplinarity, trying to combine the knowledge & practice of public health with the creativity & outreach of the media.

LDC Research Staff Workshops

Presenting Your Research to Different Audiences
Tue 24 Jan 2012

Being an Enterprising Researcher
Thu 9 Feb 2012

How to Sell Your Research & at What Cost?
Thu 23 Feb 2012

For more information, contact Sandy Sparks on extension 74121 or sandy.sparks@warwick.ac.uk

School of Engineering Events

Workshop for modelling and simulation of coal fired power generation and CCS process
Tue 20 – Wed 21 Mar 2012
A two-day event bringing together researchers and students from different universities to exchange information about coal-fired power plant and CCS (carbon capture and storage) process modelling and simulation.
For more information, contact Jacek Wojcik: j.d.wojcik@warwick.ac.uk

ICTON 2012

Mon 02 – Thu 05 July 2012
The 14th International Conference on Transparent Optical Networks (ICTON) is this year hosted by the School of Engineering at Warwick. Chair of the conference is Prof. Roger Green. For more information visit: go.warwick.ac.uk/icton2012
Here is a selection of upcoming funding opportunities. You’ll find brief introductions below; see the funding calendar online for more information, as well as details of other new additions: go.warwick.ac.uk/engcalendar

Smart power distribution & demand
TSB is to invest up to £2.4m in feasibility studies to stimulate innovation in power distribution & in management of demand. Proposals are invited that demonstrate innovation in component design, software, implementation, integrated systems and novel business or operational models.

Closing date: 22 Feb 12
www.innovateuk.org

Translational Research Project Grants
These grants show commitment to supporting innovative ‘bench-to-bedside’ research which can improve the health and treatment of patients with cardiovascular disease.

Closing date: 01 Feb 12
www.heartresearch.org.uk

Marie Curie Industry-Academia Partnerships & Pathways (IAPP)
This assists senior established researchers to complete a research project & prepare the results for publication.

Closing date: 02 Feb 12

Marie Curie Career Integration Grants

Do you have overseas contacts who you would like to bring to Warwick?

The CIG grant is open to experienced researchers from any country in the world, with at least 4 years’ full-time research experience or a doctoral degree. They must have been actively engaged in research, but not have carried out work in the UK for more than twelve months over the last three years to be eligible to come here. This grant offers a great opportunity to further established collaborations.

Closing date: 06 Mar 12
http://cordis.europa.eu

Industrial Secondment Scheme
This scheme provides an invaluable opportunity for engineering teaching staff in HE institutions to gain state-of-the-art industrial experience.

Deadline is yet to be announced but is likely to be January 2012.
Watch out for information from the Research Office!

Visiting Fellowships
The primary aim of this scheme is to promote visits by highly distinguished researchers which will enrich the research landscape across the disciplines at Warwick & contribute to the University’s international reputation as a centre of research excellence & innovation.

Closing date: 20 Feb 12

Early Career Fellowships
These aim to provide career development opportunities for those who are at a relatively early stage of their academic careers but with a proven record of research. Please let Rachel Corke know if you wish to apply.

Closing date: 08 Mar 12
www.leverhulme.ac.uk

www.innovateuk.org

The IET Postgraduate Scholarship
is open to doctoral researchers undertaking research in any country. It has a value of £10k & a tenure of one year.

Closing date: 28 Mar 12
www.theiet.org

www.leverhulme.ac.uk

www.innovateuk.org