

October 2008

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**View from the Dean's Office**

An international theme dominates this issue—ranging from International visitors to Kent for conference activities, through to the many visits our scientists make overseas. Our first focus supplement features our links with China—a 'tier one' country in the University's Internationalisation strategy. I cannot stress how much science is now a collaborative and international exercise—the lone 'geek' in the laboratory is long gone. Modern-day scientists need an appreciation of world cultures, languages and behaviour to operate effectively. Here at Kent, we aim to help students on this pathway by extending out international exchange opportunities (see page 17) and I would encourage all students to look for opportunities to spend time abroad.

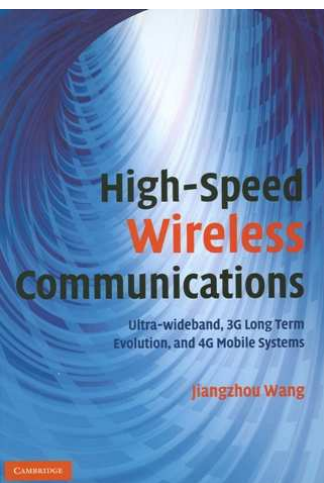
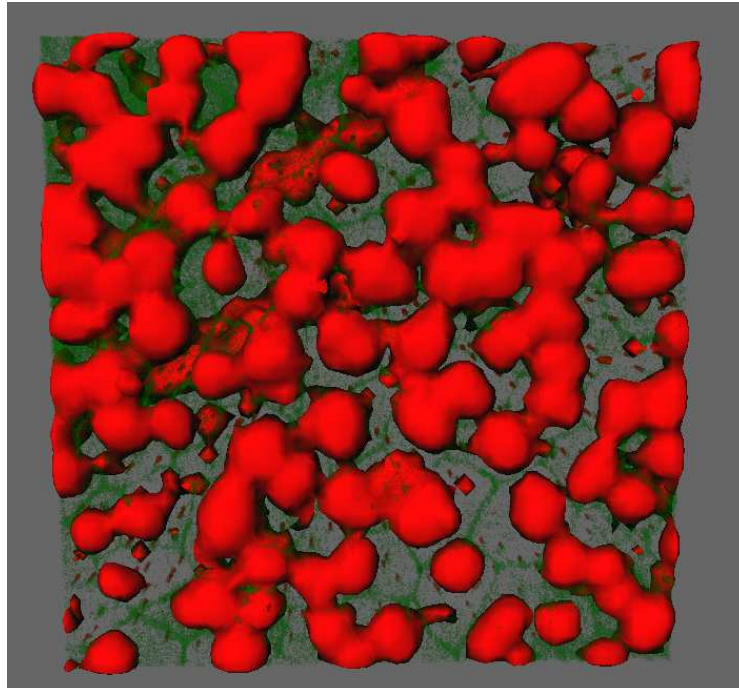
More news, I hope, in the next issue...

All the best

Peter

China Supplement—p13

**Kent**  
Open Days 4 & 11 October  
Page 2

**Cell Nuclei and Boundaries**

**Professor of Electronics publishes new book—page 5**

This month's image is from the laboratory of Professor Bill Gullick in the Department of Biosciences. This is a 3D image of a layer of cells produced by image processing of several superimposed pictures. The cell nuclei are shown in red and the boundaries of the cell are displayed in green. From these images we can visualise which proteins are inside the nucleus. (Dr Carol McClelland and Professor Bill Gullick)

## University Open Days 4th and 11th October

Visiting a university is the only way to get a true impression of life on campus and on Saturday 4th October at Canterbury, and Saturday 11th October at Medway, potential students can do just that at Kent's Open Days.

All the STMS departments will be open to visitors between 10am and 3pm on each of the open days and this is a sample of the activities that will be taking place:-

### Computing Laboratory

There will be a variety of activities happening in the computing octagon. Briefly:

10:00 - 14:00 Demonstrations upstairs in the Computing Octagon, covering a variety of research projects, LEGO robotics and the FIRST LEGO League (part of our schools-liaison work), the UK Mirror Service, and a display of final-year project posters.

10:30 - 11:30 Panel session in CoLT2: "Studying Computing at Kent".

12:00 - 12:30 Thematic talk in CoLT2 by Professor Michael Kölling, "On The Teaching of Programming In The Internet Age".

There will also be an admissions desk open 10:00 - 15:00 in the computing octagon foyer.

There will be the opportunity to look around the University's first class range of social and extra curricular facilities, and experience the welcoming, vibrant and friendly atmosphere of the Canterbury campus. The right kind of accommodation is an important issue and visitors will be able to view a wide variety of campus-based accommodation. The Careers Advisory Service will be open to help with planning the future and will also be able to give advice about the financial help that is available.

### School of Physical Sciences

The School will be giving a number of presentations and demonstrations and SPS staff and students will be there to answer any questions.

There will be a number of presentations:

10.45 - 11.15 Physics and Astronomy Programmes - Physical Sciences Lecture Theatre

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1.15 - 11.45 Cool Physics Demonstration - Physical Sciences Lab 4

12.15 - 12.45 Forensic Science Course Information - Physical Sciences Lecture Theatre

12.45 - 13.10 Forensic Science Graduate Profile by Forensic Scientist Obi Onyiah - Physical Sciences Lecture Theatre

13.10 - 13.55 Forensics Subject Presentation - Physical Sciences Lecture Theatre

There will also be demonstrations of the e-fit software between 11.30 and 14.30 in the Ingram Building and tours of the department facilities will be running at 11.45, 12.30 and 14.00 from the Ingram Building Foyer. Those wishing to view the observatory should join the special tour leaving the Ingram Building at 14.10.

## Kent Professor awarded Doctor of Science

Darren Griffin, Professor of Genetics in the Department of Biosciences has been awarded a Doctor of Science (DSc) by the University of Manchester "in recognition of published work and/or other material of high distinction resulting from research, which makes a substantial, sustained and original contribution and addition to investigation, knowledge and/or scholarship, and has established the candidate's authoritative standing in his or her subject."

This distinguished higher doctorate has been awarded twenty years after Darren Griffin completed his undergraduate studies and left the University of Manchester with his Bachelor of Science

(with honours) in Genetics and Cell Biology.

Professor Griffin joined Kent in 2004 from Brunel University. His main interests are in the study of chromosomes, principally in humans (from spermatogenesis to pre-implantation development) and birds. Other interests include allelic variation and its relationship to fatness, and studies relating to eLearning.

In 2007 he was made a Fellow of the Royal College of Pathologists and a Biotechnology and Biological Sciences Research Council (BBSRC) Career Development Fellow with a remit to exploit microarray technology for studies of copy number variation in birds and humans.



**Professor Darren Griffin**

## 1st International Workshop held in Kent



**Industrial sponsors were:-**

**Imagine Eyes (France)**

**Michelson Diagnostics (UK)**

**Multiwave Photonics (Portugal)**

**Thorlabs (UK)**

**Santec (Japan)**

**Superlum (Russia)**

**Participants at the 1st Canterbury Workshop in Optical Coherence Tomography and Adaptive Optics that was held in the Marlowe Building at Kent in September.**

Almost 100 people from as far away as Australia, Japan and Brazil made the journey to Canterbury to attend the 1st International Workshop on Optical Coherence Tomography and Adaptive Optics that was held at Kent in September.

The Workshop was developed as a direct result of a planned review of the achievements in research that has taken place at Kent, which is one of the Marie Curie Training Sites in Europe, along with the National University of Galway – Ireland,

University of Porto - Portugal, Imagine Eyes – Paris, France and Multiwave Photonics – Porto, Portugal. Presented with a plan of how the meeting could be expanded into a workshop, the meeting's industrial sponsors agreed to offer their generous support to transform the Marie Curie meeting into a large, international workshop. By opening participation on an international scale, the organisers aimed at widening scientific communication and adding to the education of the Early Stage Training researchers by involving them in an exchange of ideas with other specialists in their fields, i.e. optical coherence tomography (OCT) and adaptive optics (AO). The Workshop was co-sponsored by the Ratiu Family Charitable Foundation in the form of bursaries enabling Romanian Students to participate in the field of biomedical imaging.

The Workshop programme contained twelve seminar sessions with over forty speakers from all over the world and poster sessions where seventeen posters were presented. The Marie Curie

Coordinator was Professor Adrian Podoleanu in the School of Physical Sciences, who was assisted by a local organising committee of five who coordinated with an international committee of twenty-one.

Research in optical coherence tomography at Kent dates back to 1991, where some of the precursors of spectral domain OCT, Talbot bands and channelled spectrum low coherence interferometry for sensing were investigated. During the last three years, the field of non-invasive high resolution imaging has progressed considerably. One of the aims of the Workshop was to contribute towards advancing the frontier of knowledge in OCT and AO beyond the "natural" limit imposed by current technology.

Participants judged the Workshop to be a resounding success, so perhaps the advances discussed this year will become the current reality at next year's Workshop.



**Professor Adrian Podoleanu**

## Listening in for new programmes on the Radio Universe

The University of Kent has joined a unique project to explore the Universe. LOFAR is a gigantic telescope being constructed across Western Europe which will detect radio waves with metre-long wavelengths. These waves can be generated not only by extraterrestrial civilisations, if they exist, but also by galaxies, stars and the tenuous gas in-between. Most importantly, this new telescope has been set the major goal of finding the signal which heralds the first generation of galaxies in our Universe. Finding the signal and measuring the properties of the radio waves will then help distinguish between competing hypotheses.

LOFAR stands for LOW Frequency ARray for radio astronomy. It is a project to build an array of radio telescopes distributed across the Netherlands, Germany, Great Britain and France, and possibly other European countries such as Poland, Sweden, Ireland and Ukraine, with a total effective collecting area of about one tenth of a square kilometre. The processing of the data is done by a Blue Gene supercomputer situated at the University of Groningen. Our Centre for Astrophysics and Planetary Science has been given the opportunity to participate through the SEPNet initiative. Kent astronomers are playing a leading role in the astrophysics theme, which aims to build research excellence centred on radio astronomy and data processing. The first UK station will be constructed at Chilbolton in Hampshire, a site which has long been employed by Kent radio astronomers. Professor Michael Smith

commented: "SEPNET and LOFAR will strengthen the themes in which we are world leaders. In particular, here in Kent we will be searching for signals which accompany the birth of stars. There will be many opportunities for students at all levels to get involved."

The LOFAR project is an innovative effort to force a breakthrough in sensitivity for astronomical observations at low radio frequencies. It has been launched to replace instrumentation based on the old 1960s technologies of radio telescopes that used large mechanical dishes to collect signals which were then detected by a receiver for analysis. Even if scientists had continued to use the old technologies, the instruments would have needed to be one hundred times larger than existing ones, which was cost-prohibitive as a high proportion of the outlay on these telescopes is the steel and moving structure. New technology was required to make the next step in sensitivity that is required to unravel the secrets of the early universe, the physical processes in the centres of galaxies and the formation of quasars, stars and planets.

LOFAR is the first telescope of this new sort, using an array of simple omnidirectional antennas instead of mechanical signal processing with a dish. The electronic signals from the antennas are digitised, transported to a central digital processor, and combined in software to emulate a conventional antenna. The cost is dominated by the cost of electronics and will follow Moore's law, becoming cheaper with time and allowing increasingly large telescopes to be built. So LOFAR is an IT-telescope.

The antennas are simple enough but there are a lot of them - 25,000 in the present full LOFAR design. These antennas are to be arranged in clusters that are spread out over an area of many hundreds of kilometres in diameter to ensure that radio pictures of the sky are processed with adequate sharpness.

The LOFAR telescope also has the ability to separate very closely spaced objects. Therefore, the best of both worlds is achieved by building many highly sensitive arrays of antennas and spreading-out these arrays over long distances.

It has also been realised that LOFAR could be turned into a more generic Wide Area Sensor Network. Sensors for geophysical research and studies in precision agriculture have been incorporated in LOFAR already. Several more applications are being considered, given the increasing interest in sensor networks that 'bring the environment on-line.'



The High Band Antenna can be used between 120-240 MHz. The FM band is suppressed in the antenna amplifier for both antennas to minimize intermodulation products from FM transmitters. This antenna is a composite system consisting of 4x4 dual-polarization dipoles and a dual-polarization RF beamformer

## Department of Biosciences works with local school to secure £30,000 Wellcome Trust Award

Professors Mick Tuite and Martin Warren together with Dr Richard Williamson from the Department of Biosciences have been working with Dr Dave Colthurst from the Simon Langton Boys Grammar School to submit a successful application to the Wellcome Trust for a 'People's Award'. The £30,000 award will support the development of a novel research project at the school that will involve the investigation of the phosphorylation of human myelin basic protein expressed in yeast.

The project, which runs for two years initially, will allow a large number of 6th form students from the Langton school and other local schools, to become familiar with

biochemical and molecular biology techniques and also to gain an understanding of the way research is done in our laboratories at Kent.

Members of the Department of Biosciences will help the 6th formers establish the basic techniques and the school will then run 'master class' sessions for teachers and students from other local schools. Dave Colthurst spent a number of years in the Department, first as a technician before studying for his PhD under the supervision of Professor Mick Tuite. The Wellcome Trust has also stated that they would like to promote this type of interaction further as a model of 'outreach' to which they are giving increasing priority.

## Department of Biosciences – 2008 Wain Lecture

Each year, the Wain Medal is awarded to a young scientist doing exceptional research at the interface between biology and chemistry. Candidates for the award must be under the age of 40 at January 1st in the year of the award and of British nationality; the successful candidate may be working in the United Kingdom or abroad. The Medal Lecture is a public lecture held within the University of Kent and the lecturer is expected to emphasize public understanding in his/her presentation. In addition to the Medal, the successful candidate is given an Award of £1,000. The Wain Medal award is a generous endowment from the family of the late Professor Louis Wain CBE, FRS, who died at the age of 89 years in 2000. The University of Kent has established an annual Medal Lecture and Award in his memory.

This year, the 2008 Wain Medal has been awarded to Professor Ben Davis from the Department of Chemistry, University of Oxford who will present his

lecture, entitled "Life is Sweet: Sugars in Nature". It will be presented in a way that is accessible to scientists and non-scientists alike. It will take place on Tuesday 21st October 2008 in Grimond Lecture Theatre 1, starting at 6pm and is free and open to all.

Professor Davis' lecture will describe his world-leading research defining the roles that sugars play in biology and medicine. Sugars are critical biological molecules that fuel us, decorate cells, regulate the properties of proteins and can determine the progression of health and disease. Often overlooked as our attention has focused on nucleic acid and protein engineering, sugars have emerged as highly versatile biological molecules with diverse roles in microbial infection, cancer progression, inflammatory processes and cell communication.

Professor Davis' pioneering and world-leading research work focuses on carbohydrate biochemistry and its application to biotechnology and therapeutics. Professor Alan Bull from the

Department of Biosciences, Chairman of the Wain Medal selection panel, said "The translation of science into practical endpoints for the benefit of humanity was a life-long mission of Louis and is surely something that he would applaud in the outstanding research being done by Ben Davis. We can look forward to an exciting and challenging Lecture".



**Professor Ben Davis from the Department of Chemistry, University of Oxford. This year's winner of the Wain Medal.**

***The Wain Lecture takes place on Tuesday 21st October in Grimond Lecture Theatre 1 at 6pm and is free to all.***

## New Book by Kent Professor of Electronics



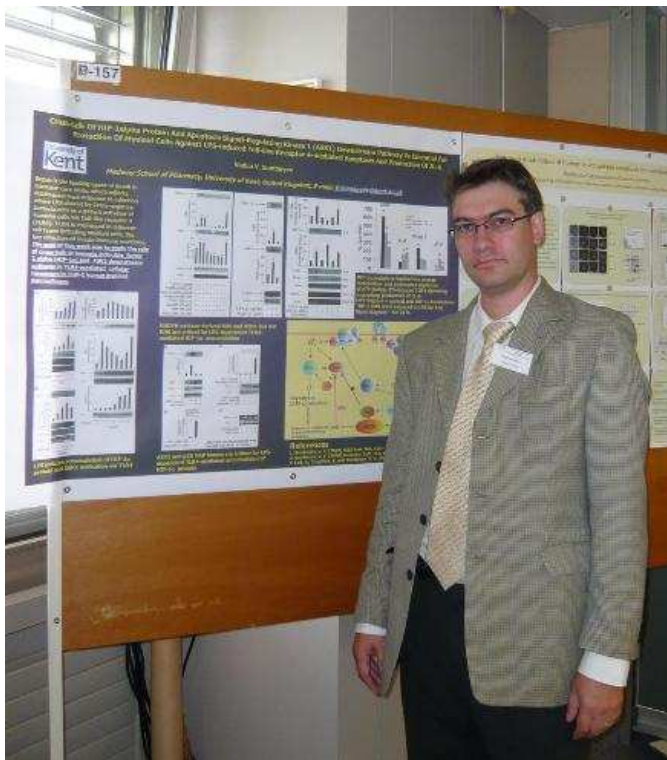
**Professor Jiangzhou Wang**

Professor Jiangzhou Wang, Professor of Electronics and Chair of the Broadband and Mobile Communications Research Group in the Department of Electronics has recently written an invaluable resource for graduate students of electronic, communications and computer engineering, as well as practitioners in the wireless communication industry.

His latest publication, High-Speed Wireless Communications published by Cambridge University Press, describes the theory and major application of high-speed multimedia wireless communications, covering recent developments and identifying directions for future research. Professor Wang covers UWB wireless systems, 3G and 4G mobile networks, discusses the overlay problem in UWB and how to deal with it, and presents a new space-time frequency MIMO architecture for future wireless systems, as well as featuring key topics such as hybrid ARQ, advanced channel coding, and modulation and transmit diversity. Professor Wang is also Editor for IEEE Transaction on Communications and a Guest Editor for IEEE Journal on Selected Areas in Communications. He is the author of more than 200 technical papers and three books in the area of wireless communications.

## Meet the Scientist

Dr. Vadim Sumbayev achieved his PhD Degree in 1999 from the Palladin Institute of Biochemistry, National Academy of Science of the Ukraine. After graduating, he worked as Assistant, then Associate, Professor at the Department of Biochemistry, Mechnikov Odessa National University in the Ukraine. He moved to Germany where he received a Humboldt research fellowship and worked as a Humboldt fellow in the Institute for Cell Biology, University of Kaiserslautern. When Vadim had completed his Fellowship, he spent three years in Denmark at the University of Aarhus, working as Assistant Professor at the Department of Molecular Biology at the Interdisciplinary Nanoscience Centre. In December 2006, he joined the Medway School of Pharmacy as a Lecturer in Biochemistry.



**Dr Vadim Sumbayev, Lecturer in Biochemistry, The Medway School of Pharmacy at the 16th Euroconference on Apoptosis held in Bern, Switzerland in September 2008**

*"How did you first get into science?"*

When I was about to finish my primary school I read Herbert George Wells' novel, "The Invisible Man". I thought about the power of the science and the many wonderful things one could do being a scientist. After that I said to myself that I will become a scientist. This decision was steady enough and shortly I became very interested in Biology and Chemistry. Later my great interest in Biochemistry came and finally I decided to become a biochemist.

*"What is the focus of your current research?"*

My current research is focused on the signalling mechanisms involved in inflammatory/innate immune responses induced by Toll-like receptors (TLRs). TLRs are the key pattern recognition receptors that allow cells to specifically detect pathogens by recognising structural components shared by many bacteria, viruses and fungi. TLRs lie at the core of resistance to disease, initiating most of the phenomena that occur in the course of infection. We are interested in the intracellular signalling events induced by interaction of TLRs with their pathogen-associated ligands. In particular, we work on the cross-talk of mitogen-activated protein (MAP) kinase-dependent apoptotic pathway and hypoxic signal transduction in TLR-induced inflammatory responses and programmed cell death (apoptosis).

*"Can you tell us about your current research group, what the group is working on and the purpose of the research?"*

In 2007, my group was joined by a PhD student, Miss Sally Nicholas. Before coming here, Sally worked in Columbia University in New York (USA), where she was awarded her MSc degree. Also, I greatly appreciate the technical assistance of Mrs. Karen Coughlan and Mr. Harjinder Lall: we are currently working on the role and cross talk of hypoxia-inducible factor 1 (HIF-1) and MAP kinase-dependent apoptotic pathway in TLR 4, 7 and 8-induced inflammatory responses followed by programmed death (apoptosis) of the effector cells. TLR4 is responsible for recognition of LPS shared by the Gram-negative bacteria. TLRs 7 and 8 detect viral single-stranded RNA (ssRNA). Such viruses as human immunodeficiency virus, hepatitis C virus or influenza virus contain ssRNA and therefore TLR7/8 are responsible for induction of innate immune reactions to these viruses. We have recently discovered the mechanisms of activation of hypoxia-inducible factor 1 by TLRs 4, 7 and 8 and have shown the role of this factor in the expression of pro-inflammatory cytokines and adaptation of the effector cells to stress induced by the pathogen-associated ligands. We have also found that MAP kinase cascades are important for activation of hypoxic signalling events during TLR-mediated inflammatory responses, while HIF-1 in many cases participates in tracking of the activity of apoptosis signal-regulating kinase 1 (ASK1) – the upstream kinase of MAP kinase-dependent apoptotic cascade. Understanding of these mechanisms might show potentially novel therapeutic targets and strategies for direction of innate immune responses to pathogens.

*"How has research in your area changed over the past few years?"*

Since the field in which I am working is rapidly developing, the steps ahead are quite often visible. Lots of techniques for isolation and handling of primary human and mammalian leukocytes were established and improved, which allow running the research using primary human cells. A number of signalling proteins and high molecular weight signalosomes were discovered. Furthermore, animal (mice) models, where genes involved in pro-inflammatory reactions are specifically knocked out, were designed. In some cases, when the knockouts are not viable, the technologies to obtain primary cells with target deletion of certain genes were established. All this allows high quality and informative investigations of molecular mechanisms of inflammation and innate/adaptive immunity.

*"What do you consider is the most significant accomplishment in research in your area in the last few years?"*

I think that the discovery of Toll-like receptors and NOD-like receptors as well as their role in the innate/adaptive immunity is the most significant accomplishment within the last 10 years. This discovery gives the key for understanding of the strategies used by the immune system to detect pathogens and those used by pathogens to escape the immune attack.

*"What kind of challenges do you see lie ahead in your specialism in the future?"*

I am sure many years will pass until we understand the molecular mechanisms of host-pathogen interactions. However, the best way of success is the interdisciplinary research, which means bringing together different areas of expertise and skills.

## Monthly Health Article

## Malaria—the Misery of Millions

Malaria is a disease that produces frightening statistics; it causes severe illness in over half a billion individuals every year and kills between 1-3 million of these, many of whom are young children. It is a vector-borne disease caused by the parasite *Plasmodium*, which is transmitted by infected mosquitoes. The disease is thought to have been around for over 50,000 years and is believed to have exhibited a strong selection pressure on a number of human disorders including sickle-cell anaemia and the thalassaemias, as these conditions are associated with reduced incidents of clinical malarial symptoms. Over 40% of the world's population is at risk from the disease, including some of the poorest countries on the planet, and consequently it has been a major hindrance to their economic development. No wonder, therefore, that the disease is a primary target of the World Health Organization and major charities such as the Gates Foundation.

The problem with malaria is that there is no simple treatment – it is not like a bacterial infection that can be targeted with antibiotics or a virus illness that can be prevented by an appropriate immunization programme. The causative agent of malaria adopts a complex lifestyle that sees the parasite move between the blood stream and the liver, and in both cases is able to cleverly hide itself in liver and blood cells so that it remains under the radar of the immune detection system. The earliest antimalarial drug was quinine but this was quickly superseded by chloroquine. However, with increased resistance to chloroquine appearing, other drugs are currently being sought. One of the most effective of these is artemisinin, a Chinese herb. This drug is given only in combination with other antimalarial drugs

so as to reduce the likelihood of resistance. Interestingly, both the quinine and artemisinin-based drugs work in a similar fashion, which relates to the metabolism of the parasite. The organism obtains its food by breaking down haemoglobin, the major protein of the red blood cell. However, in so doing, it releases free haem – the prosthetic group of the protein that is responsible for binding oxygen (and because of its red colour is often referred to as one of the pigments of life). Free haem is very toxic to cells, so the parasite converts the free haem into something called hemozoin. Both these drugs prevent the formation of hemozoin and thereby kill the organism. For this reason, the formation of hemozoin is referred to as *Plasmodium's* Achilles' heel.

An interesting fact about *Plasmodium* is that it has clearly evolved from algae and has many plant-like qualities, including the presence of primitive chloroplasts. This opens the possibility that the

parasite could also be susceptible to a number of herbicides.

Our research into *Plasmodium* brings together an interest in a number of the points raised above. We have a fascination in understanding how organisms are able to make molecules like haem, and in providing molecular detail on the enzymes that are required to piece the biosynthetic components together. Although *Plasmodium* is able to obtain haem from the breakdown of haemoglobin, it still has to make its own personal supply of the molecule and thus has its own haem biosynthetic pathway. We are studying a number of these enzymes with a view to designing molecules that will prevent them from working properly (inhibitors). We are particularly excited about one of these enzymes as it is also a known herbicide target. We are looking forward to a fruitful three-year research program with Pfizer, who are our partners in this project.



Mosquito image courtesy of Geocities.

<http://www.geocities.com/stopbreedingmosquitoes/mosquito6a.jpg>

Martin Warren is Professor of Biochemistry and joined the Department of Biosciences from Queen Mary, University of London, in July 2005. His research is primarily focused on metabolism and complex metabolic pathways, and how organisms are able to make molecules such as haem and vitamin B12. Other research interests include inherited retinopathies and medical mysteries such as the madness of King George III. In January 2008 he took up a five year BBSRC (Biotechnology and Biological Sciences Research Council) Professorial Research Fellowship on synthetic biology and metabolic engineering. He runs a research laboratory with six post-doctoral fellows and six postgraduate students.



## Seminars – October

Date	Day	Time	Subject	Lecturer and Title	Location
3	Fri	3pm	Pure and Applied Maths	Tania Goncalves (Kent), Discrete Poincare Lemma	Maths LT
6	Mon	2.30pm	Pure and Applied Maths	Kay Magaard (Birmingham), Constructive Recognition of Lie Type Groups	Maths LT
6	Mon	4pm	Biosciences	Dr. Simon Andrews - (School of Biological Sciences, University of Reading), From global gene control to novel gene function: an acid-induced iron transport system in <i>E. coli</i> O157	Biosciences LT1
6	Mon	4pm	Theoretical Computer Science Group (Computing)	Andy King (Kent), House-keeping meeting	S110B
10	Fri	3pm	Pure and Applied Maths	Donald Preece (Kent), Daisy chains with three generators	Maths LT
13	Mon	2.30pm	Pure and Applied Maths	Rudolf Tange (York),	Maths LT
13	Mon	4pm	Biosciences	Dr. Ines Barroso - (The Wellcome Trust Sanger Institute, Cambridge), Life after genome-wide association studies	Biosciences LT1
13	Mon	4pm	Theoretical Computer Science Group (Computing)	Dr Olaf Chitil (Kent), Comprehending Finite Maps for Algorithmic Debugging of Higher-Order Functional Programs	S110B
14	Tues	4pm	Computing	Will Harwood (Citrix Research), Economics of Automated Testing	Brian Spratt Room
14	Tues	2pm	Applied & Interdisciplinary Informatics Group (Computing)	Fernando Otero (Kent),	S110B
17	Fri	3pm	Pure and Applied Maths	David Corfield (Kent, Philosophy), Narrative and the rationality of mathematical research programmes	Maths LT
20	Mon	2.30pm	Pure and Applied Maths	John McKay (Montreal,)	Maths LT
20	Mon	4pm	Biosciences	Dr. Hiro Ohkura - (The Wellcome Trust Centre for Cell Biology, Institute of Cell and Molecular Biology, University of Edinburgh), Spindle formation in female meiosis	Biosciences LT1
21	Wed	6pm	Biosciences	2008 Wain Medal Lecture Professor Ben Davis (Department of Chemistry, University of Oxford), 'Life is Sweet: Sugars in Nature'	Grimond LT
27	Mon	2.30pm	Pure and Applied Maths	Antonio Moro (Loughborough), Hodographic Vortices	Maths LT
27	Mon	4pm	Biosciences	Dr. Claudiu Supuran - (Dipartimento di Chimica, University of Florence, Italy), Carbonic anhydrases: novel applications for inhibitors and activators	Biosciences LT1
28	Tues	4pm	Computing	Edward Clarke Conley (Cardiff University School of Medicine),	Brian Spratt Room
28	Tues	2pm	Applied & Interdisciplinary Informatics Group (Computing)	Natalio Krasnogor (Nottingham),	S110B
31	Fri	3pm	Pure and Applied Maths	Andy Wheeler (Kent),	Maths LT

### Geometry and Physics

Differential Geometry and Physics—meets on Wednesday 11.00 to 12.00 in the McVittie Library.

Clare Dunning, Andy Hone and Steffen Krusch will talk about selected topics in Differential Geometry and applications to Physics. We'll introduce some concepts from Topology and also address various topics in Quantum Physics.

Algebraic Geometry—meets on Wednesday 11:00 to 12:00 in DS1.

Starts this term with Andy Hone talking on Hamiltonian Mechanics. Later in the term Hamid Ahmadinezhad and Gavin Brown will talk on Topics in Birational Geometry and Mori Theory.

Contact Dr Gavin Brown (G.D.Brown@kent.ac.uk) if you would like to be on the mailing list

## Recent Published Papers

### Department of Electronics

S.K.Wood, D.H. Akehurst, O. Uzenkov, **W.G.J. Howells**, K.D.McDonald-Maier. "A Model Driven Development Approach to Mapping UML State Diagrams to Synthesizable VHDL" (2008) IEEE Transactions on Computers: Special Issue on Programming Models and Architectures for Embedded Systems, **57** Issue 10, pp. 1357-1371, ISSN 0018-9340, DOI 10.1109/TC.2008.123

**J.Z. Wang**. "High-Speed Wireless Communications" (2008) Cambridge University Press, ISBN 978-0-521-88153-1.

G. Herrmann, **S.K. Spurgeon**, C. Edwards. "Stability and Performance Recovery within Discretised Nonlinear Control Systems" (2008) Automatica, **44**, 1045-1054.

J. Shao, **Y. Yan**. "Digital-Imaging-Based Measurement of Diesel Spray Characteristics" (2008) IEEE Transactions on Instrumentation and Measurement, **57**, 2067-2073.

Y.Q. Zhou, T.S. Ng, **J. Wang**, K. Higuchi, M. Sawahashi. "OFCDM: A Promising Broadband Wireless Access Technique" (2008) IEEE Communications Magazine, **47**, 38-49.

**H.J. Zhang**, Q. He, **Y. Yan**. "A New Nondestructive Technique for Measuring Pressure in Vessels by Surface Waves" (2008) Applied Acoustics, **69**, 891-900.

### CONFERENCES

**A.J. Atah**, "Combining Normalised Voice Features for Use in Efficient Template-Free Biometric Security System" 2008 International Conference on Image Processing, Computer Vision & Pattern Recognition (ICCV'08), Las Vegas, Nevada, USA.

## Medway School of Pharmacy

M. Barzegar-Jalali, K. Adibkia, H.Valizadeh, M.R. Siah Shadbad, **A. Nokhodchi**, Y. Omid, G. Mohammadi, S. Hallaj-Nezhadi, M. Hasan. "Kinetic analysis of drug release from nanoparticles (2008)" J. Pharm. Pharmaceut. Sci. **11**, 167-77

A. Jouyban, O. Azarmir, Sh. Mirzaei, D. Hassanzadeh, T. Ghafourian, W. E. Acree Jr., **A. Nokhodchi**. "Solubility Prediction of Paracetamol in Water-Ethanol-Propylene Glycol Mixtures at 25 and 30 C Using Practical Approaches" (2008). Chem. Pharm. Bull. **56**, 602-606.

M. Maghsoodi, **Ali Nokhodchi**. "Preparation of spherical crystal agglomerates of naproxen containing disintegrant for direct tablet making by spherical crystallization technique" (2008) AAPS Pharm. Sci. Tech. **9**, 54-59.

**A. Nokhodchi**, H. Nazemiyeh, A. Khodaparast, T. Sorkh-Shahan, H. Valizadeh, J.L. Ford. "An In Vitro Evaluation of Fenugreek Mucilage as a Potential Excipient for Oral Controlled-Release Matrix Tablet" (2008) Drug Dev. Ind. Pharm. **34**, 323-329.

Javad Shokri, Mahbobeh Shahsavari, Parinaz Ahmadi, Parisa Rashidi, A. Rajabi-Siahboomi, **Ali Nokhodchi**. "Swellable elementary osmotic pump (SEOP): An effective device for delivery of poorly water- soluble drug" (2008) Eur. J. Pharm. Biopharm. **68**, 289-297.

Maryam Maghsoodi, Omid Taghizadeh, Gary P. Martin and **Ali Nokhodchi**. "Particle design of naproxen-disintegrant agglomerates for direct compression by a crystallo-co-agglomeration technique" (2008) Int. J. Pharm., **351**, 45-54.

**Ali Nokhodchi**, Javad Shokri, Mahbobeh Shahsavari, Parinaz Ahmadi, Parisa Rashidi, Mohammed N. Momin. "Factors affecting the release of nifedipine Factors affecting the release of nifedipine from a Swellable elementary osmotic pump (SEOP)" (2008) Drug Delivery **15**, 43-48.

## Institute of Mathematics, Statistics and Actuarial Science

P. Besbeas and B.J.T. Morgan. "Improved estimation of the stable laws" (2008) Stat. Comput., **18**, 219-231.

C. Dunning, K. E. Hibberd and J. Links. "Some spectral equivalences between Schrödinger operators" (2008) J. Phys. A: Math. Theor., **41**, 315211.

**Morgan, B.J.T.** and **Ridout, M.S.** "A new mixture model for capture heterogeneity" (2008) Applied Statistics, **57**, 433-446.

Palmer, K.J., **Ridout, M.S.** and **Morgan, B.J.T.** "Modelling cell generation times by using the tempered stable distribution" (2008) Applied Statistics, **57**, 379-397.

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## Recent Published Papers

### Department of Biosciences

**Hall, Rebecca A,** Vullo, Daniela, Innocenti, Alessio, Scozzafava, Andrea, Supuran, Claudiu T., **Klappa Peter,** and **Mühlschlegel, Fritz A.** (2008) "External pH influences the transcriptional profile of the carbonic anhydrase, CAh-4b in *Caenorhabditis elegans*". *Molecular and Biochemical Parasitology*, **161**,140-149.

**Mogensen, Estelle, Mühlschlegel, Fritz A.** (2008) "CO<sub>2</sub> Sensing and virulence of *Candida albicans*". *Human and Animal Relationships*, 2<sup>nd</sup> Edition; The Mycota VI - Springer Verlag 2008.

## Computing Laboratory

G.L. Pappa and **A.A. Freitas.** "Discovering new rule induction algorithms with grammar-based genetic programming" (2007) In O. Maimon and L. Rokach (eds), *Soft Computing for Knowledge Discovery and Data Mining*, 77-196, Springer.

**A.A. Freitas.** "A review of evolutionary algorithms for data mining" (2008). In O. Maimon and L. Rokach (eds), *Soft Computing for Knowledge Discovery and Data Mining*, 61-93, Springer.

R. Runnalls. "A Kullback-Leibler Approach to Gaussian Mixture Reduction" (2007) *IEEE Transactions of Aerospace and Electronic Systems*, **43**, 989-999, July 2007.

**U. Fuller, C.G. Johnson,** T. Ahoniemi, D. Cukierman, I. Hernán-Losada, J. Jackova, E. Lahtinen, T.L. Lewis, D. McGee Thompson, C. Riedel, and E. Thompson. "Developing a Computer Science-specific Learning Taxonomy" (2007), *ACM SIGCSE Bulletin*, **39**, 152-170, December 2007.

**P.H. Welch,** N.C.C. Brown, J. Moores, K. Chalmers, and B. Spath. "Integrating and Extending JCSP" (2007) In Steve Schneider, Alistair A. McEwan, Wilson Ifill, and Peter H. Welch, (eds) *Communicating Process Architectures*, **65** of *Concurrent Systems Engineering*, pp. 349-370, Amsterdam, The Netherlands, July 2007. WoTUG, IOS.

**P.H. Welch,** Susan Stepney, Fiona A.C. Polack, **Frederick R.M. Barnes,** Alistair A. McEwan, Gardner S. Stiles, Jan F. Broenink and Adam T. Sampson, (eds). "Communicating Process Architectures 2008" (2008), **66**, *Concurrent Systems Engineering*, Amsterdam, The Netherlands, September 2008. WoTUG, IOS Press.

**P.H. Welch** and Jan B. Pedersen. "Santa Claus - with Mobile Reindeer and Elves" (2008). In **Peter H. Welch,** Susan Stepney, Fiona A.C. Polack, **Frederick R.M. Barnes,** Alistair A. McEwan, Gardner S. Stiles, Jan F. Broenink and Adam T. Sampson, (eds), *Communicating Process Architectures 2008*, **66**, *Concurrent Systems Engineering*, pp. 455-456, Amsterdam, The Netherlands, September 2008. WoTUG, IOS Press.

**P.H. Welch,** Alistair A. McEwan, Steve Schneider, and Wilson Ifill, (eds) "Communicating Process Architectures 2007" (2007), **65** of *Concurrent Systems Engineering*, Amsterdam, The Netherlands, July 2007. WoTUG, IOS.

**P.H. Welch** and **Frederick R.M. Barnes.** "A CSP Model for Mobile Channels" (2008), in **Peter H. Welch,** Susan Stepney, Fiona A.C. Polack, **Frederick R.M. Barnes,** Alistair A. McEwan, Gardner S. Stiles, Jan F. Broenink, and Adam T. Sampson, (eds), *Communicating Process Architectures 2008*, **66**, *Concurrent Systems Engineering*, pp. 17-33, Amsterdam, The Netherlands, September 2008. WoTUG, IOS Press.

**Mudassar Iqbal, Alex A. Freitas, Colin G. Johnson,** and Massimo Vergassola. "Message-passing algorithms for the prediction of protein domain interactions from protein-protein interaction data" (2008)*Bioinformatics*, **24** (18):2064-2070, September 2008.

**Colin G. Johnson.** "Multi-level neutrality in optimization" (2008), *Proceedings of the 2008 IEEE World Congress on Computational Intelligence*, pp. 2604-2609. IEEE Press, June 2008.

### CONFERENCES

**C.G. Johnson.** "A Genetic Algorithm for Coverage Problems" (2007). *Proceedings of the 9th annual conference on Genetic and evolutionary computation (GECCO '07)*, London, England. ACM.

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## Recent Grants Awarded

### Department of Biosciences

Dr Chris Smales has been awarded £323,538.58 for a project entitled 'Integrating upstream host cell line selection and development with improved downstream processing' by the BBSRC.

Professor Darren Griffin has been awarded £54,260 for a project entitled 'Genomic and transcriptomic studies into the molecular biology of fatness' by Pfizer Ltd

Dr Chris Smales has been awarded £30,000 for a project entitled 'Enhancing recombinant mRNA translation via interaction with the 3'-UTR for improved recombinant protein yields' by Lonza Biologics plc.

Professor Bill Gullick has been awarded £21,850 for a project entitled 'Determination of Cancertinib Activity against the Canine EGF Receptor, HER2 and HER4 Receptor Tyrosine Kinases' by Pfizer Ltd.

Professor Darren Griffin has been awarded £2500 for a Vacation Scholarship by the Genesis Faraday Partnership.

### Computing Laboratory

Simon Thompson has been awarded £73,596 for a KTP project with Erlang by Momenta.

Simon Thompson has been awarded £35,264 for a KTP project with Erlang by Erlang Training and Consulting.

### Department of Electronics

Winston Waller and John Batchelor have been awarded £80,826 for a KTP project No. 006986 with Martec Limited (linked to 10401) by Momenta (on behalf of the Technology Strategy Board).

Peter Lee and Winston Waller have been awarded £67,044 for a KTP project with C-Scope International Limited (UoKTP 152C) by Momenta.

Peter Lee and Winston Waller have been awarded £44,000 for a KTP project with C-Scope International Limited (UoKTP 152C) by C-Scope International Limited.

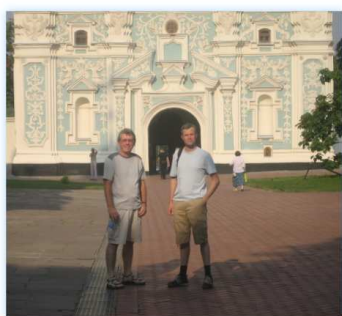
Winston Waller and John Batchelor have been awarded £39,810 for a KTP project No. 006986 with Martec Limited (linked to 10400) by Martec Limited.

### School of Physical Sciences

Dr Maria Alfredsson, Dr Gavin Mountjoy and Professor Alan Chadwick have been awarded £74,944 for a KTP project No. 007000 with Hilger Crystals Ltd (linked to 10403) by Momenta (on behalf of the Technology Strategy Board).

## Travelling Scientists

### Yeast Conference in the Ukraine



Mick Tuite, Professor of Molecular Biology, and Research Fellow, Dr Campbell Gourlay from the Department

of Biosciences, recently attended the recent 12th International Congress on Yeasts held in Kiev in the Ukraine as invited speakers. Campbell spoke in the 'Yeast Apoptosis' session and Mick was both chair and speaker in the session on 'Yeast Models of Human Diseases and Drug Testing'. Some 350 researchers from across the globe attended and there were a wide range of sessions on all things yeast.

### Microbiology in Japan

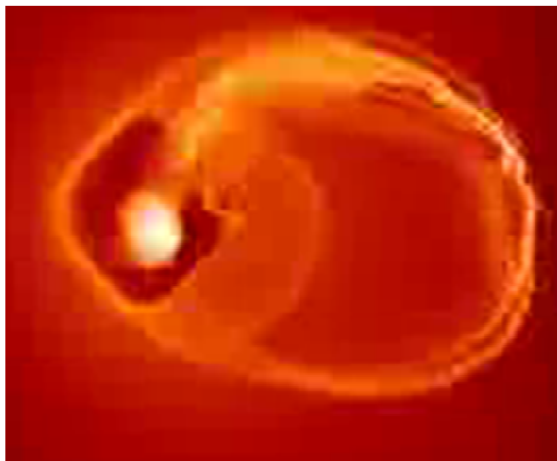


Fritz Mühlischlegel, Professor of Medical Microbiology in the Department of Biosciences attended the 7th International Conference

on Cryptococcus and Cryptococcosis that was held in Nagasaki, Japan from the 11th to the 14th of September, 2008. This triennial meeting has contributed to the development of the studies of Cryptococcus and Cryptococcosis, and has provided both clinical and scientific researchers with deeper and wider knowledge on biomedicines.



## Starshine through a break in the clouds



The evolution of stars made a staggering process in the first part of the twentieth century.

Being described as a hot ball of gas supported by nuclear fusion, the adult life of a star just depends on its original mass and chemical composition. The

developmental stage is, however, not so easy to predict. The baby star puts on considerable weight and the young star has strong outbursts. These events are hidden within protecting clouds. By moving from visible light to infrared wavelengths, we can penetrate these outer layers. By also being lucky and observing a young star through a break in the clouds, we may just occasionally see the young star shining through. This image displays a computer simulation of what we may expect to see: the rims of a cloud reflecting the light from a bright star. The simulation was done using a hydrodynamic code ZEUS, adapted for molecular clouds, following the events as material breaks through the cloud

forming a pathway for us to see inside.

Further images from this simulation are on Professor Smith's homepage. This is part of a collaboration with the Max Planck Institute for Radio Astronomy in Bonn, where observations carried out by their interferometry group of a massive forming star named AFGL2591 displays a strikingly similar morphology.

For more details contact Prof Michael Smith or consult:

<http://astro.kent.ac.uk/mds/turbulence.html>

**Professor Michael Smith,**  
**Professor of Astronomy,**

**School of Physical Sciences**

<http://astro.kent.ac.uk/mds/mdsmith.htm>

## Café Scientifique Ye Olde Beverlie, St Stephen's Green, Canterbury Tuesday 14th October 2008

**Dr. Arnaud Wisman:**

### **How do we regulate the awareness of our own mortality?**

Why is it so hard for people to coexist in peace? Why do people need to feel good about ourselves? Why do people want to have children? Why do people try to control their bodies and, why is sex a taboo in most cultures? And finally, what has our awareness of mortality to do with all these big questions. In my talk I will provocatively and optimistically argue that all these big questions can be answered inspired by Experimental Existential Psychological theories and the help of rigorous experimental methods derived from cognitive and social psychology.

University of  
**Kent**

[www.kent.ac.uk](http://www.kent.ac.uk)

## Café Scientifique in 2008

Nov 11, 2008

Dr. Martyn Amos (Manchester Metropolitan University): Genesis Machines

Dec 9, 2008

Professor Martin Warren, Department of Biosciences: The Medical Mystery of King George III

Edited by Joanna Walpole  
University of Kent  
Marlowe Building  
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01227 82 7833  
For back issues follow the link:-



For the month of October, we focus on China and the links and activities that the University of Kent has established in this part of the world.

Throughout China, Kent has exchange partnerships and/or collaborative agreements with the following institutions:-

- Beijing Foreign Studies University, Beijing
- China University Training Centre, Beijing
- Tianjin University, Tianjin
- South West University of Political Science and Law, Chongqing
- City University of Hong Kong, Hong Kong
- Hong Kong Baptist University, Hong Kong



## Kent Professor of Chemistry attends World Polymer Congress in Taipei

In late June - early July, Emeritus Professor Dick Jones, former Head of the School of Physical Sciences, was in Taipei for meetings of the Polymer Division of the International Union of Pure and Applied Chemistry (IUPAC) and the 2008 IUPAC World Polymer Congress.

As a titular member of IUPAC, Dick is Chair of the sub-Committee on Polymer Terminology. He is also an Executive Editor of the journal 'Polymer International' published by John Wiley & Sons which, this year endowed the first of what will be biennial awards of the Polymer International-IUPAC prize for creativity and industrial application in polymer science. Dick has played a major role in the establishment of the award which has been set at \$5,000 plus all expenses and is also chairman of the award panel which has been drawn from distinguished polymer scientists from across the globe.

During the closing ceremonies of the Congress, Dick was extremely pleased to present the award to this year's winner, Associate Professor Zhenan Bao of Stanford University in the United States.

Purely by chance, the Congress took place during the week that direct flights between China and Taiwan were introduced, to great fanfare on both sides. There still remain many problems to be overcome to ease professional contact for the scientists and engineers of the 'two Chinas' but, as one Congress organiser remarked to Dick, "the public face can be very deceptive, we actually love each other under the table."



Professor Jones congratulating Associate Professor Bao, the President of the IUPAC Polymer Division, Professor Chris Ober, and the UK Manager of John Wiley and Sons, Dr. Ray Boucher, look on.



**Jingyu Wang, Researcher in the School of Physical Sciences**

Jingyu Wang is a researcher in the Applied Optics Group in the School of Physical Sciences. He comes from Tianjin, China, from where he studied for his BA at Tianjin Medical University. With his

## Research with a Marie Curie Early Stage Researcher Fellowship

interest in Biomedical Engineering and imaging technology, he was offered a place on an MSc course at the University of Dundee. He then joined Kent in January 2007 as a researcher. Jingyu has just received funding to start on a new project in December which is entitled HIRESOMI, an acronym for Training In Methods And Devices For Non-Invasive High Resolution Optical Measurements And Imaging and is funded by a Marie Curie Early Stage Researcher Fellowship. Jingyu will be working on a Full-field Optical Coherence Tomography (OCT) system, exploring the

applications of OCT imaging and measurement with the help of a high-sensitivity Charge-Coupled Device camera (Andor DV887) which could be used in the measurement of cornea curvature and in processes to achieve better depth resolution. Under the co-supervision of Professor Adrian Podoleanu, the Head of the Applied Optics Group in the School of Physical Sciences at Kent, and Professor Christopher Dainty in the National University of Ireland in Galway, Jingyu will be working on the project until late Autumn of next year.



## Distinguished Visiting Fellowship Award



**Professor Zhenhui Tan of Beijing Jiaotong University**

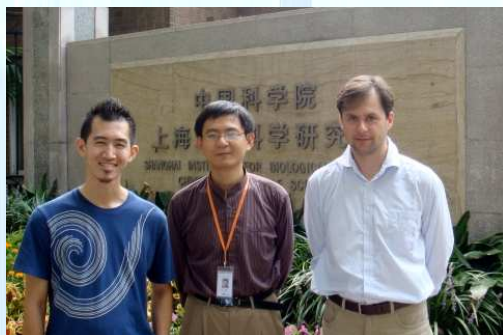
Professor Jiangzhou Wang of the Department of Electronics has been awarded a Distinguished Visiting Fellowship Grant by the Royal Academy of Engineering to support a visit from Professor Zhenhui Tan of Beijing Jiaotong University (BJTU), a prestigious university in China. Professor Tan was a former Vice-Chancellor of BJTU and is a distinguished figure in the field of wireless

communications. He will visit three universities (University of Kent, University of Southampton and Imperial College London) and deliver a seminar at each university reporting on Higher Education and the national research strategy in China. Professor Tan's visit, which is scheduled to start on the 1<sup>st</sup> November 2008, will be hosted by the Department of Electronics at Kent.

**Jiangzhou Wang, Professor of Electronics at Kent**



## Collaborative Research in Shanghai



**Charles Chen (left), Dr Xinguang Zhu (centre) and Dr Dominique Chu (right)**

Dr Dominique Chu, academic Fellow in the Computing Laboratory will spend the month of October in Shanghai where he will be working with Dr Xinguang Zhu on collaborative research in multi-level selection of plant metabolisms at the CAS-MPG Partner Institute for Computational and Theoretical Biology. Founded in 2005, the CAS-MPG Partner Institute is a joint venture of the Chinese Academy of Sciences (CAS) and the German,

Max Planck Society (MPG). The concept of the partner institute was conceived following advances in biotechnology where the creation of new large-scale data-sets requires better integration of data-analysis, hypothesis-formation and experiments.

One of Dr Chu's main research interests is evolutionary models of biological systems and in particular, he is currently focusing on developing computational simulations that make it possible to "replay the tape" of evolution. A major objective of next month's research will be to develop models that address a number of questions of multi-level selection in the environment of plant systems biology.

Dr Xinguang Zhu recently joined the CAS-MPG Partner Institute at the beginning of August from the University of Illinois at Urbana-Champaign as Head of Group and Principal Investigator in the research area of Plant Systems Biology. Both Drs Chu and Zhu are joined in the picture by Charles Chen, another researcher from the University of Illinois who is also visiting the Institute.

## Pure Maths and Pretzels

Dr Gavin Brown, Senior Lecturer in Pure Mathematics in the Institute of Mathematic, Statistics and Actuarial Science will spend 3 weeks at Fudan University in Shanghai in September. He will be the guest of Professor Meng Chen, the major algebraic geometer working in China today.

Their cooperation started in 2007 when Lei Zhu, then a graduate student of Professor Chen's and now a post-doctoral student in Shanghai, visited Kent for 3 months to work with Gavin.

Professor Chen and Dr Brown will work on 'complex 3-folds of general type', 6-

dimensional generalisations of the surface of a pretzel (not the apéritif kind!).



**Dr Gavin Brown, Snr Lecturer in Pure Maths**

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## ISICA 2008 (China) invites Dr. Alex Freitas to present keynote speech

Dr. Alex Freitas, Reader in Computational Intelligence from the Computing Laboratory, has been invited to give a keynote speech at The Third International Symposium on Intelligence Computation and Applications (ISICA 2008), to be held in Wuhan, China, in December, 2008.

The title of his talk will be: 'Automating the design of data mining algorithms with genetic programming'. Alex's research is interdisciplinary and his current focus is on the development of new bio-inspired algorithms for data mining which draw from examples in nature such as evolutionary algorithms, swarm intelligence, and artificial immune systems.

**Dr Alex Freitas, who will be presenting his keynote speech 'Automating the design of data mining algorithms with genetic programming'**



He also does research in bioinformatics, particularly protein function prediction with data mining methods. He is a member of the Centre for Biomedical Informatics and the Applied and Interdisciplinary Informatics Group based at Kent.

## Beijing Physiology Conference 2008

Professor Alistair Mathie, Professor of Pharmacology and Director of Research and his colleague, Research Associate, Emma Veale, both from the Medway School of Pharmacy are travelling to Beijing to attend the Beijing Joint Conference of Physiological Sciences 2008 - BP2008, between October 19 and 22nd. This year's theme is "Physiology in medicine: Bridging bench and bedside" at which Alistair and Emma will be presenting a paper entitled: "Functional characteristics and regulation of mouse THIK1 two-pore-domain potassium channel." Following the presentation of the paper at the



**Emma Veale**

conference, it will be published in the near future in the Chinese physiology journal, 'Acta Physiologica Sinica.' The aim of the joint conference is to provide opportunities for scientific and cultural exchanges and collaborative interactions among physiological scientists of various countries and brings together experts in the field of physiology from the USA, Australia, Canada, China and the UK.



**Professor Alistair Mathie**

## Invitation to Chinese Embassy in London

Professor Fritz Mühlischlegel, Reader in Microbiology in the Department of Biosciences, attended the Chinese Embassy in London on the 25th September having been invited to celebrate the 59th anniversary of the founding of the People's Republic of China. Fritz was the guest of the Chinese Ambassador, Her Excellency Madame Fu Ying, who is an alumna of Kent University studied for an MA in International Relations at the University, 1985-86 and started her diplomatic career in 1978. She has been the Chinese Ambassador Extraordinary and Plenipotentiary to the UK since April 2007. .



**Professor Fritz Mühlischlegel**

## Hong Kong computing exchange programme - AWESOME!

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The first computing students to benefit from the placement exchange programme between Hong Kong and Kent have just completed their industrial placement year abroad. And they have great things to say about it. Close on their heels are four new students, who have already taken up placements for the new academic year. The exchange scheme provides a great opportunity for UK and Chinese students to experience life and work in a country very different from their own.

Kent placement students, Joe Heaney and Richard Cohen, who are studying the Computer Science with a Year in Industry degree programme, recently returned from Hong Kong. Joe worked for the investment bank JP Morgan, in a software development team building financial reporting software for countries in the Asia-Pacific region. Richard worked on the trading floors of the Global Markets and the Futures IT sections at The Hong Kong and Shanghai Banking Corporation (HSBC). Richard said:

"I worked as part of a team that managed and maintained Futures technology across the Asia Pacific region. This involved supporting the trading applications used by the Futures traders and brokers, as well as also supporting the backend server-side components which route orders, deliver fill reports and stream live market data to and from the global Futures Exchanges."

"The best thing about my placement was the opportunity to live and work in Hong Kong. The business environment is exciting and fast paced, the people are extremely welcoming and the cuisine of the region is absolutely phenomenal. I had an awesome time."

"I did find the working hours to be intensive, especially for what was effectively my first 'real' job. My team was expected to report for work at 7:30 AM each morning, and as trading continues throughout the day we often remained in the office during lunch hours before finally leaving at 6:30 PM. Surrounded

**Richard Cohen, who studied Computer Science with a Year in Industry and spent his placement year working in Hong Kong. "The best thing about my placement was the opportunity to live and work in Hong Kong... I had an awesome time."**



**Tyler Cheng, a computing student from CityU, during lunch time at IBM (UK) Ltd, his industrial placement company.**

**"This programme widened my horizon and gave me the chance to know more about UK culture and the students."**



by constant activity it did not seem like a straight eleven hour shift, however at times it was both overwhelming and exhausting."

"I would recommend the year in industry to anyone - especially the Hong Kong scheme to those who wish to work in the financial sector. Not only is it a chance to work in the heart of one of the world's most active financial districts, but it is a chance to travel, to experience a new culture, to make you stand out to potential employers and to get paid. You can't really go wrong."

The exchange programme is between the Department of Computer Science at City University, Hong Kong (CityU), and the Computing Laboratory at the University of Kent. It was initiated during a visit by Professor Simon Thompson, Director of the Computing Laboratory, to CityU in 2007. Since then, both departments have succeeded in building an impressive programme which provides placements with leading financial companies in Hong Kong and with IBM (UK) Ltd, at Hursley, near Winchester. The programme is highly supportive: students receive visits from their home institution, have regular contact with placement organisers from both universities, and are assisted in finding accommodation for the placement period.

CityU exchange students, Tyler Cheng and Raymond Chan, spent their placement year in the UK. They began by attending lectures for second year computing students at Kent where they were able to practice their English. They then took up positions at IBM (UK) Ltd, where they worked on web-based projects. Tyler Cheng said:

"This programme widened my horizon and gave me the chance to know more about UK culture and the students. I have also learnt a lot from the students in UK because their learning attitude is much more positive than the Hong Kong students."

A one-year industrial placement - taken between the second and final years of a degree programme - is chosen by the majority of Computer Science students at Kent. The "sandwich" year gives students first-hand experience of fitting what they have learned at Kent into current industrial practice, as well as equipping them with "softer" skills, such as time management and negotiation skills. What is more, their performance in their final year reflects this, with a 7 percentage point premium over students who have not taken a placement.

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## Biosciences in China

Over the last four years, Mick Tuite, Professor of Molecular Biology and Fritz Mühlischlegel, Professor of Microbiology have been working with Chinese colleagues to establish links between the Department of Biosciences and research groups in China. In this article, they describe their experience of changing attitudes towards the scientific research in China.

Thanks to a generous grant from the BBSRC (Biotechnology and Biological Sciences Research Council) we have been able to make two extended trips to China in order to set up new links with research groups in Beijing, Shanghai and Hong Kong. These visits, supported by a £20,000 'China Partnering Award' (CPA), have allowed us not only to make direct contact with a number of fellow Chinese molecular biologists, but has also provided us with the financial support that allowed us to invite Chinese scientists to visit Kent. The focus of our two busy visits (in 2004 and 2007) was on the various Institutes run by the Chinese Academy of Sciences (CAS) since the scientists in these well-supported research establishments represent the very best of Chinese science. Originally our main target was to establish a lasting scientific partnership between the Department of Biosciences and the CAS Institute of Microbiology in Beijing but we made the most of the opportunity afforded us by the BBSRC award, to visit other CAS Institutes in Beijing and in Shanghai as well as major Universities in both cities including the very impressive Jiao Tong University in Shanghai. On the second trip we also stopped-off in Hong Kong.



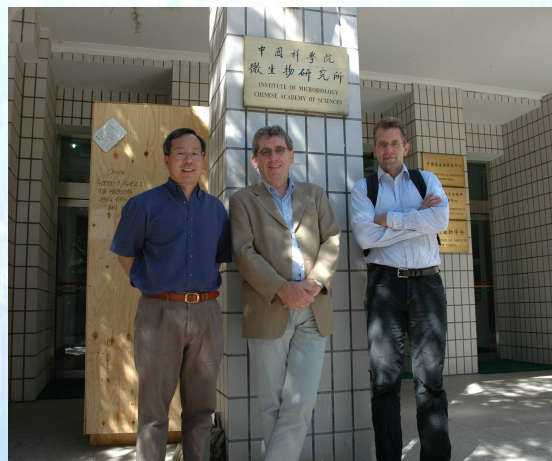
**Professor Fritz Mühlischlegel**

Our long term goal was – and continues to be – to develop active collaborative research programmes in the field of integrative biology of microorganisms, in particular fungi. In setting out to establish such collaborative programmes, emphasis has been placed on joint projects in the areas of protein structure and function, communication and cell signalling



**Professor Mick Tuite**

and gene expression in relation to microbial pathogenesis, areas in which the Kent and CAS institutes – particularly the CAS Institute of Biochemistry and Cell Biology in Shanghai where particularly strong links have been made – have considerable but complementary interests. Our colleagues from the CAS Institute in Shanghai moved into a brand new purpose built multi-storey research centre that was erected at an amazing speed in-between our two visits.



**Dr Wei-Jun Liang (left), Prof Mick Tuite (centre) and Prof Fritz Mühlischlegel (right).**

Any trip to China, be it academic in nature or simply for a vacation, presents many challenges to the first time visitor – as we both were. It is therefore fortunate that we were accompanied on both trips by Dr Wei-Jun Liang. At the time the first visit (September 2004), Wei-Jun was working as a senior postdoctoral researcher in Biosciences funded by a project grant we had managed to get the BBSRC to award us. By the time the second visit came round in September 2007, Wei-Jun had moved on to an academic post as Senior Lecturer at the University of Bournemouth but he still agreed to accompany us. Having someone like Wei-Jun who is familiar with the Chinese academic system ensured that the limited time we had available to us

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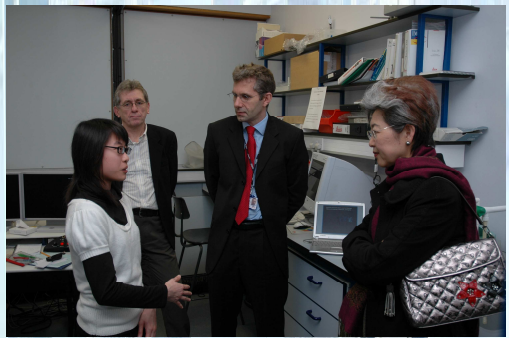
### Biosciences in China...cont

on these trips was used effectively. Importantly, Wei-Jun was also able to guide us through the potential 'minefield' that is the menu in traditional Chinese restaurants and thereby prevented us from ordering various unmentionable organs or dog (although we did manage to order, and eat, fried donkey, raw ducks' tongues and bullfrog soup!).



#### Experiencing a variety of culinary delights!

During the 2007 visit to Hong Kong and Shanghai we met with Dr Jimmy Tsang from the University of Hong Kong. Jimmy, now an Associate Professor, did his PhD at Kent in the mid-1980s with Dr David Hardman and Professor Alan Bull as his supervisors. Jimmy has fond memories of his time at Kent. Notably Jimmy also lectured one of our current PhD students, Man-Shun Fu (funded by a University of Kent studentship), during her undergraduate studies in Hong Kong. On the 2007 trip we were also accompanied by Dr Gary Robinson, Kent's Biosciences-based Technology Transfer Manager. Gary took the opportunity provided by the visit to investigate, amongst other things, intellectual property protection and exploitation strategies used by our host Chinese institutions.



**Mick Tuite and Fritz Mühlischlegel, together with Chinese PhD student Man-Shun Fu, meet with the Chinese Ambassador Fu Ying during her visit to Biosciences earlier this year.**

The major problem we encountered in setting up long term links with Chinese research groups was an apparent and overriding desire of their researchers and students to work and/or collaborate with US-based groups rather than with UK/European-based research groups. When asked why this was, it became evident that there was a perception that the USA more fully and openly embraces Chinese culture than is the case in the UK and Europe. There was also a strong feeling among the Chinese scientists we met with, that it is now much harder for them to get entry visas even for short-term visits to undertake research in the UK. These points were discussed extensively during our various meetings with Shanghai scientists in 2007 and we were subsequently able to take up this point with the Chinese Ambassador Madam Fu Ying, during her visit to Kent in March 2008. That said, several Chinese scientists visited Kent during the 4-year period funded by the BBSRC-CPA. Our contact with China and its bioscientists has left us with the clear impression that China is investing heavily in science, especially biological and biomedical sciences, which in part is being driven by major health scares such as SARS, AIDS and Avian 'flu. Although the last two decades have seen a mass exodus of the best young Chinese bioscientists to the USA and elsewhere, the improving state of the Chinese science infrastructure is now attracting these scientists back to their homeland. The young postgraduate students – and there seemed to be at least a dozen PhD students in every lab we visited - were very impressive, showing high skill levels and a total commitment to their research. China is undoubtedly an 'emerging force' in the international biosciences arena and the changes in attitude and confidence between our 2004 and 2007 visits were striking.

Stop Press...  
The Dean and the Pro-Vice-Chancellor External Affairs will be visiting both Hong Kong University and City University, Hong Kong on the 13 and 14 October to discuss potential collaboration activities. This will build on the existing student exchange scheme that the Computing Laboratory already have with City University. Anyone who has any good ideas for collaboration should waste no time in contacting the Dean— Email: [p.jeffries@kent.ac.uk](mailto:p.jeffries@kent.ac.uk)