



Dr Andrew Davies

Welsh Medium Fellowship Award

Dr Andrew Davies has been awarded the Welsh medium teaching fellowship for 2009-2012. Over the last three years the School of Chemistry has made great inroads in implementing innovative bilingual teaching in its degree programme. The School has recently been chosen to spearhead the National Strategic Development plan for bilingual Chemistry education in Wales. The award of a Welsh medium teaching fellowship will enable the School to accelerate the development of bilingual Chemistry teaching provision at Bangor.

Chem Football

The School of Chemistry fielded a team for the annual inter-departmental 5-a-side indoor football tournament held at Maes Glas. With vocal support from the crowd, Chemistry contested each game well but failed to convert hard work into goals. As always, the Chem 125 team enjoyed competing and in the year of the Schools 125th anniversary were the one of the best dressed teams on the day!



Team Chem125

Detecting Explosives

Dr Chris Gwenin and the Electrochemical and Biosensors Group at the School of Chemistry have developed a biosensor that is capable of detecting and identifying very low levels of explosives in the atmosphere.

The detection of explosives or any other airborne particles is crucial in areas such as medical and environmental analysis. There are two principal obstacles associated with the detection of explosives: firstly, the very low vapour pressure, (the amount of airbourne material) given off by the explosives. This directly affects the amount of explosive available in the air for collection. The second issue relating to detection is to avoid false positives; these occur if a compound other than the one you are trying to detect reacts at the sensor surface.

Given that a sensor is required to detect very low levels of a substance and be reliable enough to not trigger an alarm unnecessarily (as evacuating public spaces is extremely costly) Bangor Chemists looked to the selective ability of nature, and functionalised the sensor surface with an enzyme. Enzymes increase the rate of a chemical reaction and they do this selectively. The team isolated an enzyme that was capable of reacting with the explosive compounds of interest and have incorporated it into the new sensor.



Picture: As well as detecting substances in public places this research is designed to be used to help decontaminate buildings where explosives may have been stored in the past.

News in Brief:

Louise Simpson recently gained her NEBOSH qualification in Health and Safety. A laboratory technician at the School Louise specialises in NMR, AA and ICP analysis.



Louise Simpson

NEW BOOK

As part of the 125th celebrations we have written a commemorative book entitled "Celebrating 125 years of Chemistry at Bangor University"

The book has been published online by blurb.com; a link to the book can be found on our web site: www.bangor.ac.uk/chem125 The web site also features lots of pictures of the Chem125 event.



www.excellentcreative.co.uk

Chemistry Matters at Bangor

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PRIFYSGOL BANGOR UNIVERSITY

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UCAS DAYS

This year's Chemistry UCAS days will be held on:

- Monday 7th December 2009
- Friday 29th January 2010
- Monday 8th February 2010
- Saturday 13th February 2010
- Friday 19th February 2010
- Monday 8th March 2010

UCAS days are a great way to get a feel for the school of chemistry and offer you the chance to meet staff and students. Visitors will see presentations from the admissions tutor and Head of School as well as tours of the facilities and hands on demonstrations. Lunch is also provided.

For further information or to book your place please contact chem.ucas@bangor.ac.uk or call +44 (0) 1248 388433.

Chemistry Receives Landmark Award



Ysgol Cemeg School of Chemistry Rhagoriaeth ers 1884 | Excellence since 1884

The Royal Society of Chemistry has honored the School of Chemistry at Bangor with a Landmark Award. This is the first for Bangor, and the first award of its kind for Wales. The award was presented in October 2009 by Professor David Phillips, President Elect of the RSC. Professor Merfyn Jones, Vice Chancellor, received the award on behalf of Bangor University. The RSC has recognised Chemistry by awarding their Chemical Landmark Plaque with specific reference to both Professor Ted Hughes' critical research in Physical Organic Chemistry and the 125 years of excellence in Chemistry at Bangor.

Hughes, who was also a past Head of School, developed an active research programme. His best known work was the development of a method for isolating isotopically enriched water from natural water by continuous fractional distillation. This technique yielded ¹⁸O enriched water that could be used to trace the fate of particular oxygen atoms in a substrate molecule undergoing reaction and thereby elucidating the mechanism of the reaction.

The long-standing relationship forged between the RSC and the School of Chemistry has been extremely important, benefitting all aspects of Chemistry from teaching and research to schools events and public lectures.

Many of the RSC Local Section officers and Committee members are Bangor Chemistry Staff and Students. Serving on the RSC committee has also proved invaluable for many students. The RSC has not only enriched the student experience here at Bangor but has helped to excite hundreds of school children about Science.



The landmark award is received by the Vice Chancellor of Bangor University, Prof. Merfyn Jones.

Graduate Receives Prestigious Award

Nicola Rowlands, who recently graduated with a first class honours degree in Chemistry, has been presented with an award for the best graduating BSc Chemistry student by the SCI (Society of Chemical Industries) Liverpool and North West Group. "Nicola's third year project on the Isolation of Natural Products from the Welsh Onion was extremely thorough" said Dr Paddy Murphy, her supervisor "and she was an exceptional student, gaining high marks in all her assignments and exams. I am very pleased that Nicola has received this award." Nicola was given free membership to the SCI for one year and a cheque for £100.



Nicola Rowlands

Recycling Wittig Waste – Computational Steering in Synthesis and Catalysis



Dr Gregory Chass

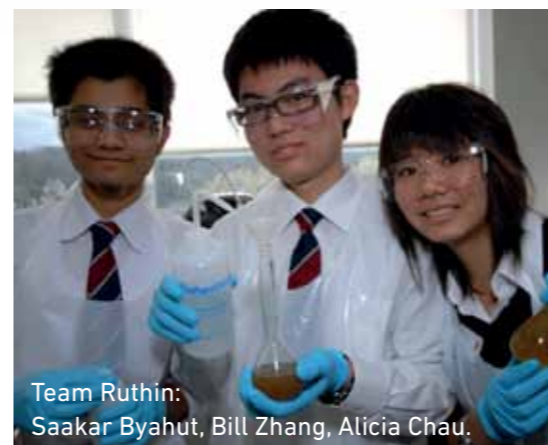
Dr Gregory Chass and his colleague Dr Christopher O'Brien (U. Texas, Arlington, USA) have made a breakthrough for a historic problem in chemical synthesis. The industrially and academically important Wittig reaction currently produces large amounts of the waste, triphenylphosphine oxide. O'Brien and Chass have figured out how to eliminate this waste, without the need for complicated side processes, by making the reaction catalytic. The advance could benefit the performance of the Wittig reactions on an industrial scale, where established ways of recycling triphenylphosphine oxide tend to be costly or impractical. This success is partially based on using predictive computer models. The team has published their findings in the high impact chemistry journal *Angewandte Chemie (Int. Ed.)* 48 (2009) 6836, being deemed a 'hot article' of 2009. The work has also been covered by *Nature Chemistry* as a research highlight (*Nature Chemistry* (2009), doi:10.1038/nchem.395) and *Chemical & Engineering News* (07 Sept, 2009, 87(35)). For further information please see: <http://pubs.acs.org/cen/news/87/i36/8736news3.html>

Quantum Trajectories Conference in Bangor 12th – 14th July 2010

Dr Keith Hughes, School of Chemistry lecturer, is hosting an international conference entitled Quantum Trajectories that will bring together researchers from a range of disciplines to discuss new computer-based approaches and formulations of quantum trajectories. For further details please see: <http://quantum-trajectories.bangor.ac.uk>

Ruthin School Wins National Final

The National Schools Analyst Competition in Plymouth was won by Ruthin School, who had previously won the regional heat of the Schools Analyst Competition in Bangor this year. Dr. Mark Hannant, Head of Chemistry at Ruthin School said, "Thank you very much for providing students with the opportunity to enter this competition. The university lab experience far exceeds anything we can offer in a small school. Our team thought the regional heat was very challenging and enjoyed having access to analytical hardware. I am sure that this victory will have a great influence upon the future academic choices made by our team members. I look forward to returning to Bangor with a new team for next year's competition." Many congratulations to Ruthin.



Team Ruthin:
Saakar Byahut, Bill Zhang, Alicia Chau.

Lecturer to Visit MIT Boston USA

Dr Anna Croft will be visiting the Schools of Chemistry and Biological sciences at MIT, (recently ranked the best institution for science and technology in the world) in Boston for 8 months where she will be collaborating with Howard Hughes Medical Research Investigator, Professor Catherine Drennan. The work will focus on SAM radical enzymes, which are necessary for the function of plants, the production of biotin (vitamin B7), and enable the survival of pathogenic bacteria such as *Clostridium difficile*, which result in more hospital deaths each year than MRSA. This fundamental research may lead to applications

in the areas of pharmaceutical and herbicide development, and in the environmentally friendly production of vitamin B7. "I am very excited to have been offered this opportunity to collaborate with MIT, an institution that has had strong links with Bangor University for many years." said Dr Croft. MIT and Bangor have been exchanging knowledge and expertise since the 1970s when Prof. Paul Gray, a past Chancellor of MIT, spent a sabbatical period in Bangor. More recently the Drapers have provided funding for research active staff and students to visit Boston, which has led to the publication of joint papers.



Dr Anna Croft

125 Years of Chemistry at Bangor University



Schools events

Bangor University and the School of Chemistry celebrated their 125th anniversary in 2009. As a founding department of the University, the School arranged an extensive series of events to celebrate the anniversary. With the support of the RSC, the School was able to expand its annual schools events programme to host an event for each key stage. Primary School children were wowed with a travelling chemistry show and secondary pupils visited the School of Chemistry to take part in experiments based on pharmaceuticals and dyeing. Local companies were engaged to give "Chemistry - your Future" careers presentations to students.

Sir John Meurig Thomas



The year culminated in a two-day celebration of chemistry, when Chemistry opened its doors to both schools and the public for hands on demonstrations and chemistry fun. The final event was for staff, students and alumni who attended a ChemSoc hosted "Tea in the Tower", followed by a prestigious lecture given by past member of staff Sir John Meurig Thomas. The 200-strong audience was treated to a lecture on Sustainable Catalysis, as well as an after-dinner talk on Sir John's "Memories of Bangor".