

Nano "Dog" sniffs out terrorism



Professor Maher Kalaji holding the Nano Dog

Bangor Professors are producing the anti terrorism weapons of the future

A Biosensor capable of detecting very low levels of explosives in the air has been developed by a group of Chemists at Bangor. The

sensor could be used along side sniffer dogs for screening airport passengers.

The original concept was developed by Professor Maher Kalaji and the electrochemistry and sensors group at the University's School of Chemistry.

Professor Kalaji explains... "Nanotechnology offers opportunities to develop a range of new applications. We can produce a system which constantly monitors the air for a wide range of materials. The basic concept exists; and with the partners we will extend the capability to detect more materials and detoxify the air.

"The system will provide managers of public spaces with early

detection of explosive or other agents within the space and with a means to remedy any airborne toxins."

Professor Kalaji is already applying this technology to other applications. For example a new project called "Watersafe". Bangor University are the only Academic Partner in this European funded programme. Watersafe is developing a system for monitoring toxins in the water supply system. The built-in system will not only alert water companies to contamination, be it accidental or deliberate but it will be able to automatically detoxify the water.

For further information on this research go to www.chemistry.bangor.ac.uk/water

Chemistry Matters at Bangor

ISSUE 1 Autumn 07 - Winter 2008



INSIDE

- New Staff at the School of Chemistry
- Fuel analysis means prizes not prosecutions
- Salters Festival of Chemistry Day
- Chemical Secrets event
- Bangor Graduates at work
- Nano "Dog" sniffs out terrorism
- Bangor Chemists join the Global fight against TB and Aids

£500 for every Chemistry student in 2008



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

The School of Chemistry is pleased to announce that Subject specific bursaries are available to all UK Chemistry students applying for entry in 2008. £500 will be given to every student for each year of their study with us. For further information on our bursaries and scholarships please visit <http://www.chemistry.bangor.ac.uk>

Record Funding for Bangor Chemistry research

The School of Chemistry has had a record year. They have secured over £2.3m in research funding over the last year from the Funding Councils, the EU and the Welsh Assembly Government.

The funding has been obtained in order to fund research into the following areas:

- Nanomaterials and molecular electronics
- Public space security
- Water network security
- Renewable energy sources (e.g. solar energy)
- Environmentally friendly production of precursors for drugs to treat diseases such as HIV.

The School of Chemistry at Bangor has gone from strength to strength in recent years increasing its student intake by almost 300% since 2004. "There has never been a better time to get into Chemistry." Says Prof. Maher Kalaji, Head of the School of Chemistry at Bangor. "The Chemical Industry has an increasingly ageing workforce and is finding it harder and harder to recruit skilled graduates. At Bangor, we focus on creating highly skilled and employable graduates and successes of our past students in the Industry bear testament to that. Our emphasis on research at this School means that students gain an insight into real world scenarios"

Bangor Chemists join the Global fight against TB and Aids.



Chemists at Bangor are helping to develop a cost effective test for people with HIV-Aids and TB.

Everyone knows the dangers of HIV/AIDS but a less well known fact is that South Africa is facing a pandemic of people who are infected with both HIV/AIDS and TB.

This lethal combination reduces the life expectancy of patients with HIV/AIDS from around 10

years to 4 weeks. TB is difficult to diagnose in patients who already have the HIV/AIDS virus. Prof. Mark Baird and his team at Bangor are hoping to be able to change this by producing a test that can be used by health workers world-wide to screen for TB among HIV burdened populations.

For further information on this research go to www.chemistry.bangor.ac.uk/news

Chemistry Fact of the month

Did you know that Natural Gas has no odour? The smell is added artificially so that leaks can be detected



We would love to hear your chemistry facts and trivia. Please send them in to ch-news@bangor.ac.uk and we will print the best ones in future editions.

Please remember to tell us who you are and where you are from.

www.excellentcreative.co.uk

News item Chemistry UCAS open days

- Monday 3rd December 2007
- Friday 1st February 2008
- Monday 11th February 2008
- Saturday 16th February 2008
- Friday 22nd February 2008
- Monday 10th March 2008

For further information on our Open Days please see our web site or contact us at ch-news@bangor.ac.uk

<http://www.chemistry.bangor.ac.uk/>

E-mail: ch-news@bangor.ac.uk

<http://www.chemistry.bangor.ac.uk/>

E-mail: ch-news@bangor.ac.uk



New Staff at the School of Chemistry.

Chemistry has recently appointed three new staff members to add to its team of lecturers and researchers...



Professor Geoff Ashwell has been appointed to a research position and has also taken on the role of Head of

the College of Physical and Applied Sciences at Bangor University.

He was previously at Cranfield University and his specialist area of research is concerned with molecular scale electronics and, in particular, the molecular diode. He has over 200 publications, 5 patents on film-forming materials and has edited 2 books.



Dr. Gregory Chass joined the School of Chemistry as a research lecturer, arriving from his previous positions at the University of

Toronto and Beijing Normal University, where he worked as a visiting professor. Gregory's research experiences spans 3 continents, having worked with several prominent research directors. His work includes the developing accurate computer simulations for designing new materials, molecules and explaining how some biologically active compounds work.



Dr Martina Lahmann has been recently appointed as a lecturer working at the Organic Chemistry/Life Science interface (Chemical Biology). Her expertise is in organic synthesis and sugar chemistry. Martina received her Diploma and PhD at the University of Hamburg before carrying out post-doctoral research at Göteborg University, Sweden achieving the Docent degree in 2005. After a year in the Arrhenius Laboratory at Stockholm University, Martina joined us at Bangor in September 2007.

Salters Festival of Chemistry Day.

As part of an initiative of the Salters Institute, the School of Chemistry hosted a fun filled day of chemistry. Fourteen teams of 11-13 year olds from across North Wales took part in a competition where they had to use their analytical chemistry skills to win prizes.

This festival is one of a series of fifty-five festivals which are taking place at Universities throughout the UK and Ireland. The aim of the festivals is to promote the appreciation of chemistry and related sciences among the young.

Cash prizes for the winning schools totalling £350 are awarded at each festival and all participants receive fun prizes and certificates.

Winning pupils from Ysgol Tryfan Bangor



Fuel analysis means prizes not prosecutions.

Fuel was analysed at Bangor University's Chemistry laboratories recently, to see how much 'Red' diesel it contained.

16 teams of 16-17 year olds from schools across North Wales, were competing in the Royal Society of Chemistry Schools Analyst Competition.

"The Competition brings the pupils to the University's laboratories. They tackle a realistic scenario, using high-tech equipment, and sampling what a future career in chemistry could entail," said Prof Maher Kalaji, head of Bangor University's School of Chemistry.

"We're delighted to host the event and grateful to Gaia Technologies plc and Royal Society of Chemistry Analytical

Division for once again sponsoring the event."

The Winners of the Competition were Llandrillo College students Maria Woodward, Nelson Jenkins and Brian Mayers. The School received a Personal Computer and a presentation vase, with each team member also receiving a glass trophy.

The Ysgol Syr Hugh Owen team came second, winning a glass trophy and computer printer for the school.

In third place were the St Gerards Team who took a glass trophy and scanner back to their school.

Bangor will be hosting the National finals of this event in June 2008.



Pupils from Howells School Denbigh



Pupils from Hawarden School

Chemical secrets event

Can you identify the molecule that provides the scent of an orange or pinpoint the exact molecule that contains the medical properties in a medicine? A level chemistry students who attended the "Chemical Secrets" chemistry workshop at Bangor now can.

Chemical Secrets is a bilingual chemistry event for A level students in Wales and is a joint initiative between Bangor's School of Chemistry, Cardiff University and Techniquet. Students receive hands-on experience that is directly relevant to their A level syllabus as well as an insight into the importance of chemistry in our daily lives.

We have many events aimed at both teachers and students planned for 2008 and have listed them below:

Chemistry Show, Theatre Gwynedd

13th March 2008 7pm for families

Salters Festival of Chemistry
Schools Analyst Competition
National Schools Analyst Final
National Chemistry Teachers
Conference, Llandrindod Wells
Chemical Secrets

14th March 2008 1:30pm for Schools

18th March 2008

15th April 2008

23rd – 24th June 2008

9th July 2008

September 2008

exact date to be confirmed

For further information on any of our events please contact ch-news@bangor.ac.uk



Pupils from Ysgol Bryn Elian



Bangor Graduates at work.

Student profiles – Jenny Clarke

Jenny is the Chemical Industry Young Ambassador for 2007. She obtained her BSc and MSc in Environmental Chemistry from Bangor and is a Health and Safety executive specialist with Eastman Chemical Company based in North Wales.

Jenny was originally from London but came to Bangor on the strength of the reputation of the School of Chemistry as well as for the welcoming atmosphere and the easy access to the Mountains and Sea.

Jenny is involved in the North Wales and Liverpool committees for the SCI and the RSC and is passionate about inspiring future young scientists to work within the chemical industry.



Jenny said: "Bangor's environmental chemistry course was just what I was looking for as it contained not only key chemistry modules, but also allowed me to study modules in other departments such as the School of Biological Sciences, the School of Environment & Natural Resources, and the School of Ocean Sciences. This enabled me to work with and meet other students and staff from other departments. I was particularly impressed by the diversity and varied style of teaching within the department. The chemistry department as a whole has many opportunities for further research and study as a postgraduate either as an MSc or PhD in all different areas of chemistry. Overall the relaxed and friendly social life combined with the excellent academic department, and beautiful surrounding to work and live in has made me really enjoy life in Bangor."

<http://www.chemistry.bangor.ac.uk/>

E-mail: ch-news@bangor.ac.uk