

Welcome



Welcome to our latest Chemistry Newsletter.

I hope you find these short articles interesting. If you have any questions about Chemistry at Birmingham, please do not hesitate to contact us.

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Maria Stroe

4th-year undergraduate, Max Plank Institute of Immunobiology and Epigenetics, Summer Internship, Freiburg, Germany

The best thing about a chemistry degree at Birmingham is that it allows you to change your focus once you begin to discover your interests. As a Chemistry with Pharmacology student, I have always been fascinated by the biology side of the course and therefore decided to gain some laboratory experience in this particular aspect of the subject. I applied for a Deutscher Akademischer Austausch Dienst (DAAD) Research Internship in Science and Engineering Scholarship, and this Summer, became one of the lucky students who would get a glimpse of scientific research in Germany through this scheme.

As part of the DAAD research programme, I spent most of the Summer months in Freiburg, as an intern at the Max Plank Institute of Immunobiology and Epigenetics. There, I was part of an epigenetics lab, working on a project involving brown fat cells, which are of high therapeutic interest as they may one day provide a cure for obesity. My work was entirely biology-based. I learnt a great deal about basic techniques such as PCR, Western blot, cell culture and gene cloning, but also how to handle and work with mice. What I loved most about this experience was the amazing atmosphere in the lab, not only the chemistry between the people working

Shani Osborne

Chemistry with Industrial Experience (MSci) graduate, selected to attend a Summer School on energy in Switzerland at a European Campus of Excellence.



The three-week Energy Summer School in Switzerland was attended by 30 students from around Europe. The first and third weeks were spent at the Paul Scherrer

Institute (PSI) with the middle week at the ETH in Zurich. PSI is a research facility where we had lectures and workshops on solar energy, fuel cells and hydrogen storage, as well as the chance to visit the synchrotron on site. The ETH is one of two government-funded universities in Switzerland and there we had lectures and workshops on gas, steam and wind turbines. Guest speakers led discussions on a diverse range of global energy issues. Visits to the solar and nuclear fusion facilities at the EPFL, a wind and solar farm, a hydro plant in the mountains, a nuclear fission plant and waste-storage facility, was a great experience and increased my knowledge of the issues and technology of energy. I made many friends during the three weeks and look forward to meeting up with them in the future. This experience has really prepared me for the PhD I have just begun in Professor Pikramenou's group at the University of Birmingham, where I am working in the area of solar energy.

there but also their friendliness and how eager they were to help me master the new skills. Nearly every other person came from a different country, so I was also exposed to many different cultures from which I picked up new and interesting customs. Freiburg itself is a very warm (in both senses of the word) student city, located in the Black Forest and marked by lively beer gardens, lots of sausage dishes and of course, the famous Black Forest Gateau! Situated very close to the border with Switzerland and France, places like Strasbourg, Basel and Colmar are only one hour away – one day after work we actually went to Strasbourg just for a party, coming back home late in the night!

Winter 2013



Emily Doyle

2nd-year Undergraduate
RSC Three Counties Show

Accompanied by Dr Mark Read and in conjunction with the RSC, I represented the Chemical Sciences at the Royal Three Counties Show this Summer. The showground in Great Malvern isn't your usual venue for chemistry; the fields of livestock, steam engines and a large 'Medieval Village' made for a refreshing change from the lab environment. This certainly was outreach in its purest form – most of the attendees had not come expecting a chemistry demonstration and in some cases had simply been ushered into our tent by the intermittent (but heavy) rain. However, we won them over: both families and larger school groups participated in our highly interactive – and on occasion, explosive – chemical demonstrations, ranging from flame-proof balloons to invisible fire extinguishers and including that firm favourite, 'elephant's toothpaste'. Although the participants were mainly children, a number of parents and teachers were satisfyingly puzzled by the 'waterproof sieve' trick – a simple yet effective demonstration of water's surface tension. The day was exhausting but highly enjoyable and we all left smelling of vinegar and peroxide, feeling we had sparked an interest in a number of minds young and old.

I am very grateful for having had such a rewarding Summer internship and cannot wait to go back there to visit everyone and see how the project I was working on has progressed. Whilst many students choose to undertake research experience in their second year, I did it in my third year, so my message would be that it is never too late to gain more experience, enhance your skills and CV and meet lots of interesting people!



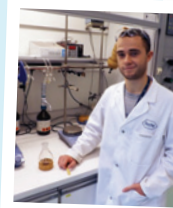
The School of Chemistry's Research Awareness Event 2013 – Chris Robertson

This popular event has been running since 2011, and is organised by postgraduates. The aim is to showcase the research currently being undertaken in the School. The event is always well attended by final-year Master's undergraduates, postgraduates, postdoctoral researchers, as well as academic and support staff. This year we transformed the second floor of the Haworth Chemistry Building into an exhibition hall, which included a bar and music lounge. The event coincides with the arrival of the new intake of postgraduate students and provides a great introduction to the diverse research activities going on in the School and helps to make the new postgraduate students feel part of the department.

During the event, fuelled by pizzas and other snacks, all present had the opportunity to examine the 30 posters produced by each research group and appreciate the wide range of research going on across the School. The Tea Room was transformed into a bar area, where volunteering 'bar-tenders' served up drinks, which helped with networking. Four new canvas prints produced by the winning artists from the School's *Science and Art* competition, were also unveiled. To complete the entertainment, the adjacent room was transformed into a karaoke venue using equipment which was funded through the School of Chemistry's International Christmas Food Market. As the night progressed we saw a large number of young researchers receive standing ovations after delivering their most honest (and often comical) efforts to sing just like their favourite artists. A good evening was had by all so roll on next year!

Alex Fawcett

4th-year undergraduate,
Roche Summer Internship,
Basel, Switzerland



This Summer, I was awarded an amazing opportunity to spend four months as a Medicinal Chemist at F. Hoffmann-La Roche in Basel, Switzerland. Roche is one of the world's largest research-focused healthcare companies, which specialises in pharmaceuticals and diagnostics.

During my stay, I worked alongside a lab-head developing new drug compounds although was lucky to have friends from other parts of the company who allowed me to see Process Chemistry, High-Throughput Screening assays and some of the biology that takes place on site. My day-to-day work primarily consisted of organic synthesis followed by compound purification. After characterising my compounds by NMR spectroscopy and mass spectrometry, I submitted these for biological testing. At the end of my stay, I summarised my research efforts in a presentation of my key findings to a large group of peers and supervisors, which was very well received.

These four months of industrial experience have undoubtedly improved my practical skills, which will be a major asset for completing my Master's project. The experience has also increased my confidence and ability to apply the knowledge of organic synthesis I have gained at Birmingham to new situations.

Working for Roche has also allowed me to gain a first-hand insight into the pharmaceutical industry and global business. It has clarified my ultimate career aspirations and helped me to identify the exact route I need to take to achieve my goals.

Basel lies in central Europe at the borders of Switzerland, France and Germany. Unsurprisingly this creates a very multicultural atmosphere, which meant I regularly socialised with people from 11 different countries. Evenings spent drinking by the Rhine were common, as were trips to Switzerland's beautiful lakes and mountains at Lucerne and Lugano.

Apart from learning useful skills and focusing my career ambitions, I have met some great people and visited some amazing places. I would highly recommend anyone interested in organic chemistry to apply for one of Roche's internship programmes.

Birmingham PhD Student chosen by RSC to speak at International Conference

Marie Betou

PhD student, 8th J-NOST conference

Marie Betou, a 4th-year PhD student in Dr Richard Grainger's research group, recently presented her work at the 8th Junior National Organic Synthesis Trust (J-NOST) conference in Guwahati, India. For the past 5 years, the Royal Society of Chemistry Organic Division has chosen approximately 8 UK PhD students to speak at the J-NOST conference, encouraging them to build links with Indian chemists at a comparative stage of their career, as well as represent both the RSC and the younger members of the UK organic chemistry community. Marie presented her talk entitled 'Semipinacol rearrangement of *cis*-fused β -lactam diols into keto-bridged bicyclic lactams', which is the subject of her PhD studies.

I had an amazing experience at the conference and appreciated the warm welcome given by the Indian Institute of Technology in Guwahati. I really enjoyed discussing chemistry with other young researchers and also took the opportunity to explore the country for a few days and was really interested in the Indian wildlife, food and culture. India is definitely a country I'd like to visit again.



The Science of Chocolate

ChemSoc recently welcomed Dr Audrey Matthews from De Montfort University to give a talk on the Science of Chocolate, during which she discussed how chocolate is good for one's health as well as how its various crystalline forms (polymorphs) determine its texture. Whilst the whole audience engaged in sense experiments, some lucky volunteers were invited to participate in taste experiments.