Chemistry Department well represented in the 2017 House of Commons STEM for Britain Competition

Out of 500 submissions nationally students Georgina Girt, Charlotte Pughe and Jodie Coulston (L to R) have been shortlisted to showcase their excellent research in the House of Commons as part of the STEM for BRITAIN awards.

Jodie Coulston will be presenting her poster entitled “Nucleation and growth phenomena of silver in physical developer for latent fingerprint development” in the Physical Sciences Session. Charlotte Pughe will be presenting her poster entitled “A tale of nanomagnetics: Freezing the atomic spins” in the Physical Sciences Session. Georgina Girt will be presenting her poster entitled “Synthesis of teixobactin analogues: Small cyclic peptidomimetic drugs to combat antibiotic resistance” in the Biological and Biomedical Sciences Session. Professor Paul Cullis has been asked by the Parliamentary and Scientific Committee and the RSC to be one of the national judges of the Chemistry Posters in the Physical Sciences Session, a role that he has fulfilled since 2009.
An international research team led by Professors Emma Raven and Peter Moody from the University’s Institute of Structural and Chemical Biology has made a breakthrough advance by trapping an intermediate in the mechanism of enzymes called heme peroxidases and determining its structure using a beam of neutrons from the heart of a nuclear reactor. The advance was announced in *Nature Communications* (link [here](#)). The Leicester team members say they are delighted by their finding which could change the way we understand how these enzymes work through ‘wonderful collaborations’ with scientists at European facilities such as the Institut Laue-Langevin (ILL) in Grenoble and FRM-II in Munich, as well as the Diamond Light Source in Oxfordshire and the EPR centre at Manchester University.

Professor Raven said: “The exact nature of these enzyme intermediates has been the subject of a long-standing controversy and conflicting interpretation of indirect evidence. At last we have been able to see these directly, and so this really is the ‘holy grail’ of heme enzyme research.”

This work was headlined in the Institut Laue-Langevin (ILL) 50th birthday celebrations.
Dr Shengfu Yang in the NanoChemistry Group has discovered ferromagnetism in chromium, an element that is normally ferromagnetic. It seems that the ferromagnetism is due to the abundant unbalanced surface spins created in the chromium nanoparticles as they grow via a frustrated aggregation process in superfluid helium.

This finding suggests that antiferromagnetic elements, such as chromium and manganese, can be incorporated into novel nanomagnets with improved magnetic properties if properly tailored (Advanced Materials 29, 1604277, 2017 see [here](#)).

Dr Kal Karim wins British Muslim Award

On Wednesday 25 January Dr Kal Karim was presented with an award for Services to Science and Engineering. Launched in 2013, the awards celebrate the successes, achievements and contribution of Britain’s Muslims to British society.

“I was humbled and delighted to have won the award for Services to Science and Engineering at the British Muslim Awards” said Kal. “This is the accumulation of many years of hard work but is also a collective effort of Leicester Biotechnology Group and many colleagues who have supported me throughout my career. I am hoping that the award will inspire students, particularly those from BME backgrounds, and will help them nurture their enthusiasm and talent to be successful in pursuing a career in science and engineering”.

UCAS season began on Saturday 11th February with a full house of just under 40 applicants and around 50 guests. We are running 5 UCAS visit days this year. Whilst the Saturday 11th February date has proven to be the most popular booking at present, the remaining days are filling up nicely too.

This year the schedule has changed from 1:1 meetings with staff to small group meetings (maximum of 4 students per group).

The Department is bucking the national trend in applications, showing a significant increase in applications.

Many thanks to all of staff involved including the Admissions Tutor, Richard Blackburn, and Admissions Chair, Eric Hope, and all UCAS visit day ambassadors and lab helpers.
Outreach News

Dr Barbara Villa Marcos and her team of staff and ambassadors have been busy with outreach work over the past few months:

22nd November: Chemistry of Fireworks event for around 30 year 10 students at Sir Jonathan North Community College as part of their Chemistry Week.

30th November: 14 students (Years 1-3) from the Leather department at Northampton University came to visit us in collaboration with ChemSoc. We ran a couple of experiments with them (Fingerprinting and polarimetry).

12th December: The Chemistry of Esters event, 20 year-12 students from Hinchingbrooke School visited the department.

13th December: 14 Year 13 students from Biddenham School came to the department on a Spectroscopy visit.

15th December: The department hosted the RSC Top of the Bench Competition. Dylan and Barbara ran a “Chemical Magic” demo as part of the event. 14 schools from Leicestershire participated, with 56 students in total from years 7-9.

Jan-Feb: We have started outreach activities for the RSC-funded widening participation (WP) project that we started in 2014. For the last month we have worked with 200 students in year 8 and 180 students in year 9. Each pupil has participated in three different sessions so far. 20 undergraduate students (years 1-4) and 7 postgraduate students have participated so far this year.

A bake sale in the department on Monday 12th December raised £150 for Parkinson’s UK, a charity which provides research into and support for those diagnosed with Parkinson’s.

Bakes included gingerbread men and Christmas trees, a Star Wars themed Christmas cake, mince pies, Christmas cupcakes and a chocolate orange torte.

Many thanks to all who supported the event.

Dr Elena Piletska has been selected to sit on the investment assessment panel for the Biofilms Innovation Knowledge Centre (IKC), helping to manage an investment of approximately £12.5M. In addition, Elena has been appointed by COST as the External Expert for the evaluation of proposals submitted for the Open Call OC-2016-2. We wish Elena well in these roles.

Dr Richard Blackburn was invited to the University of Lincoln’s Chemistry department to deliver a seminar on his research and teaching at Leicester. He gave a talk on ‘Natural Products: synthesis and applications for drugs, sensors & teaching’.

In November the Athena SWAN Self-Assessment Team, chaired by Dr Alison Stuart, submitted a Silver Athena SWAN application. We will hear whether or not the submission has been successful later in the year. Thanks to the committee, chair and other staff members for all their hard work.