

# Chemistry Update

Newsletter 316, 18 December 2019

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## Calendar of Events



### UCAS Visit Days

Dates: 14, 16, 23, 28 & 30 January

Time: 12pm—4pm

### McCamley Lecture

Speaker: Dr Ruth Webster, University of Bath

Date: Wednesday 15 January

Time: 1pm—2pm

Location: C/A101

### Chemical Interactions Coffee Morning

Date: Friday 24 January

Time: 10.30—11.30

Location: C/A122

### Chemistry Graduation Ceremony

Date: Saturday 25 January

Time: 12.45pm—2pm

### Materials Symposium

Date: Wednesday 29 January

Time: 1pm—3pm

Location: C/B101

### Equality & Diversity /

### Chemical Interactions Seminar (new date)

Speaker: Professor Kevin Cowtan

Date: Friday 28 February

Time: 1pm—2pm

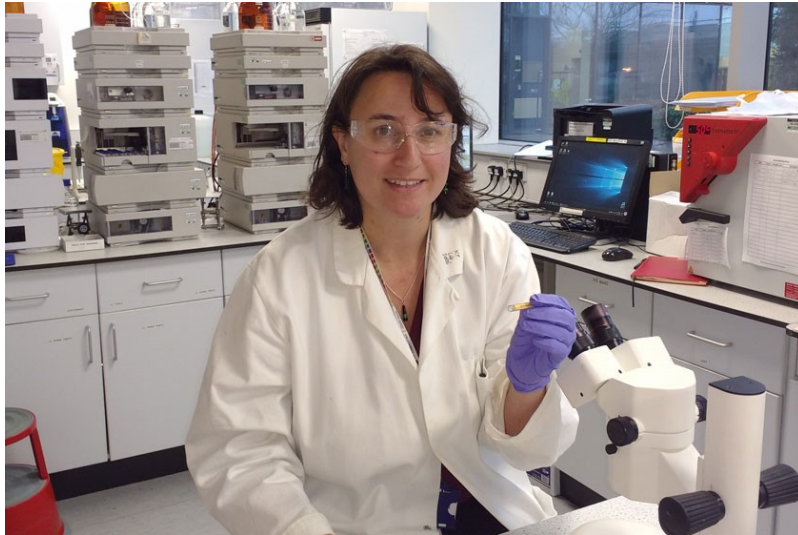
Location: C/B102

Date of Next Issue:

31 January 2020

# Dr Kirsty Penkman to lead study into the timings of the evolution and expansion of early humans in Europe

**A University of York academic is to lead a study into the timings and root causes of the evolution and expansion of early humans in Europe.**



[Dr Kirsty Penkman](#), from the Department of Chemistry and a member of the [BioArCh](#) group at the University of York, has been awarded a €2m [European Research Council](#) Consolidator Grant for the five year study.

## **Complementary**

The 'EQuaTE' project will apply two independent, but complementary, dating techniques to commonly-occurring Pleistocene fossils from sites across Europe.

The aim is to provide a secure chronological framework for the first appearance of human populations throughout Europe, and their repeated expansions and contractions in response to climate change over the last two million years.

Using recent advances in two dating techniques: amino acid geochronology (developed at York) and thermoluminescence dating of biogenic calcite (developed at Aberystwyth), the multidisciplinary and international team put together by Dr Penkman will establish a dating framework for the European Palaeolithic.

## **Frontiers**

Dr Penkman said she hoped the EQuaTE study will push back the frontiers of our knowledge of the Palaeolithic and the Pleistocene.

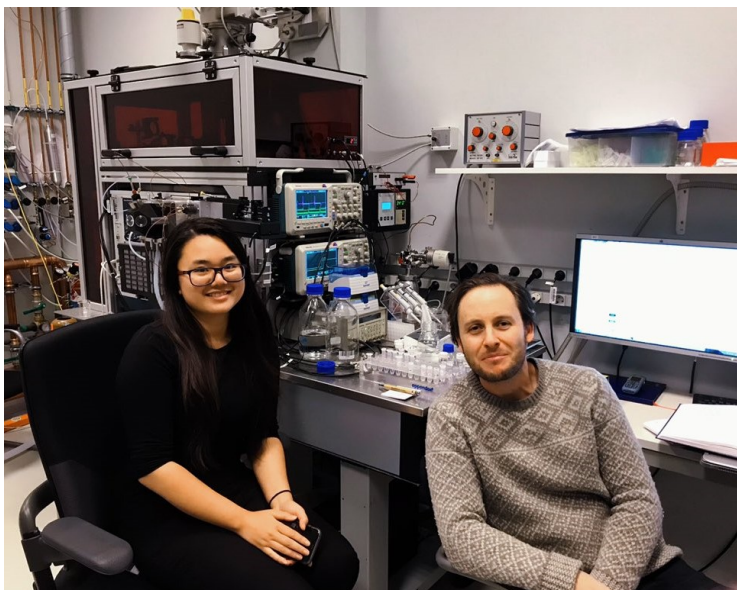
She said: "Dating the Quaternary period (the last 2.5 million years) is very challenging, and yet this is a crucial period for geological understanding, with impacts on both climate and human evolution.

"By tracking the time-signal trapped in both the organic and inorganic fractions of fossils that are widespread in archaeological and palaeontological sites, the pan-European dating framework developed through this study should provide a breakthrough in our ability to understand the past."

Dr Penkman is among more than 300 top scientists and scholars from across Europe to receive funding worth a total of €600 million from the ERC.

The ERC Consolidator Grants are awarded to outstanding researchers of any nationality and age.

## Dessent Group visit FELIX laboratory to study sunscreens by IRMPD



Natalie Wong (left) and Dr Jacob Berenbeim (right) at FELIX

In early December, Dr Caroline Dessent, along with PhD student Natalie Wong and PDRA Dr Jacob Berenbeim, travelled to Radboud University in Nijmegen, the Netherlands, to conduct experiments at the international FELIX (Free Electron Lasers for Infrared eXperiments) facility. Access to the [FELIX facility](#) is supported by the EPSRC, with two calls for access occurring each year. The FELIX laser can be interfaced with any one of twelve distinctive user stations, including molecular beam instruments and mass spectrometers.

The group used the granted beam time to perform experiments with Professor Jos Oomens, Professor Anouk Rijs, and Dr Giel Berden, to explore the structure of gas-phase complexes of sunscreen molecules via infrared spectroscopy. This research is funded by a Leverhulme Trust Research Project Grant (Illuminating Sunscreens). The group's most recent sunscreen publications entitled *"Mapping the intrinsic absorption properties and photodegradation pathways of the protonated and deprotonated forms of the sunscreen oxybenzone"* and *"Direct observation of photochemical free radical production from the sunscreen 2-phenylbenzimidazole-5-sulfonic acid via laser-interfaced mass spectrometry"* can be downloaded from the [RSC](#) and [Wiley](#) websites, respectively.



The FELIX laser hall at Radboud University, Nijmegen

Other relevant Twitter posts can be viewed at:  
<https://bit.ly/2tfGszU>

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## Online Department suggestion box



The online Equality and Diversity suggestion box has been extended to be a suggestion box for the whole Department. You can submit your thoughts/suggestions/ideas for general Departmental matters as well as matters relating to Equality and Diversity. You can find the Google form on the intranet homepage or at this [link](#).



# Report on XX NOST-Organic Chemistry Conference

Thanks to generous support from the RSC Organic Division, Dr Will Unsworth and Dr Rebecca Melen (Cardiff University) were able to attend the 20th NOST Organic Chemistry Conference (XX NOST-OCC), held on 4-7 December 2019 in Udaipur, India. Udaipur, which is situated in Rajasthan in the north west of India, is known as the 'city of lakes', and famously was the setting for the James Bond film 'Octopussy'. The NOST (National Organic Symposium Trust) meetings are arguably the most important organic chemistry conferences held in India. Attendance is restricted to invited academics, publishers and industrialists only, with talks given by the very best Indian academics and selected international speakers. There were around 80 delegates at this edition of the meeting, with around 10-15 international attendees from the UK (also including Dr James Bull and Professor Hon Wai Lam), France, Germany, Australia and the USA. Will and Rebecca both gave invited talks (on the topics of ring expansion reactions and Lewis acidic boranes respectively) and thoroughly enjoyed interacting with all the other delegates and hearing about cutting edge Indian science. As well as research lectures, the meeting also featured a panel discussion on 'Women in Organic Chemistry', which was supported by the RSC. While it was clear that Indian organic chemistry community has some way to go to match the gender equality practices we are used to in York, the fact that this panel discussion happened at all is a sign that hopefully things are moving in a more positive direction. The hospitality, venue and organisation of the meeting were all outstanding (as was the food!), and the NOST committee and local organisers are warmly thanked for putting on such an exciting and engaging meeting.



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## New starters

**Dr Amanda Noble**, Postdoctoral Research Associate (line managed by Dr Martin Fascione)  
Room: C/B031; Ext: 2594; Email: [amanda.noble@york.ac.uk](mailto:amanda.noble@york.ac.uk)

Hello!

## Construction of new structural biology facility in progress

Construction of a new structural biology facility is in progress (see photos below). Due for completion in the new year, the Eleanor & Guy Dodson building will be home to York's new cryo-electron microscope. Since the excavation of foundations for the isolated instrument rooms in September, construction of the exterior is now almost complete.



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## Dr Glenn Hurst presents at Times Higher Education Live

On 27-28 November, Dr Glenn Hurst was invited to return to the Times Higher Education Live conference following being shortlisted in the 'Most Innovative Teacher of the Year' category in the 2018 awards.



The event was held at the Royal Leonardo Tower Bridge Hotel in London where the theme of the conference was 'Changing the story'. The conference celebrated UK higher education's myriad strengths as well as asking how our world-leading universities can more effectively set the agenda and deal with perceived scepticism about their role and value to society. The event provided a platform to scrutinise university leadership from the UK and abroad, debate the facts behind the headlines of how our sector is described in the mainstream media together and debate the top stories and significant challenges for the sector.

Glenn delivered a presentation and participated in a panel discussion centred around 'Educating Generation Z'. There was an opportunity to explore what this generation wants from our universities, exploring their learning behaviours and how institutions can respond to deliver the most effective learning experiences. Specifically, Glenn outlined how he has used systems thinking approaches in a collaborative and student-centred fashion while making innovative use of technology-enhanced learning resources and platforms to enhance the student learning experience.



## WACL visit to atmospheric simulation chamber in Romania



Iasi is home to one of the oldest Universities in Eastern Europe

Dr Terry Dillon and PhD student Caterina Mapelli of the Wolfson Atmospheric Chemistry Laboratories (WACL) are visiting the atmospheric simulation chamber at Iasi, Romania from 6-21 December.

The trip is part of an EU funded project to study the atmospheric breakdown of new green solvents, notably the GCCE flagship molecule "TMO" (tetramethyloxolane). Caterina and Terry previously investigated the kinetics of TMO degradation in the York laser laboratories. Experiments in Iasi will allow them to determine product yields and hence assess air-quality impacts.

### New arrival

Dr Julia Sarju Mandle (Associate Lecturer) and husband Dr Richard Mandle (PDRA) are delighted to announce the birth of their baby girl, Liv (Olivia Margaret Sarju Mandle). Liv was welcomed into the world on Tuesday 24 September and is doing fantastically.





## Technicians at The Royal Society

A delegation of technicians from York, Graeme McAllister (Chemistry), Nikki Savvas and James Fox (Biology), along with Simon Breeden and Lucy Hudson (Ops Manager, Biology) travelled to the Technician Commitment Signatory Event, held at the wonderfully historic headquarters of the Royal Society in London on 4 December. As part of a series of sector updates, Graeme and James presented the University of York's Technician Commitment progress to over 100 delegates from 40 institutions.



Information about TechYork events and progress on the Technician Commitment at York can be found at [www.york.ac.uk/staff/working/tech-york](http://www.york.ac.uk/staff/working/tech-york).

Please email any suggestions for learning and training events to [techyork@york.ac.uk](mailto:techyork@york.ac.uk).



## Chemistree

**Our Teaching Labs Christmas tree - the Chemistree - now a departmental tradition, is here again.**

This colourful photo by Helen Burrell, who also put up the tree, was posted on the Department's [Instagram account](#) earlier this month and has become one of our most viewed posts ever with 180 likes, and a reach of 910 in under 24 hours.

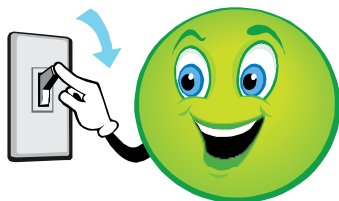
# Green Impact

## Please switch-off over Christmas

The Chemistry Environmental Performance Group would like to wish everyone a happy and safe holiday.

Over the Christmas break, please can you ensure the following is turned off (preferably turn off at the wall):

- Computers
- Printers
- Monitors
- Lights
- Photocopiers
- Any equipment that does not need to be kept running over this period



Please turn down the heating to the minimum settings where possible (radiators, thermostat controls and thermostatic radiator controls). Please also turn off any air conditioning as well.

You can access your office PC (if it is managed) or an equivalent virtual PC and work remotely by following the links on the University of York's [‘Work off campus’ page](#). If you just want to use your personal device, you can also log in to the [Virtual Private Network \(VPN\)](#). You can either install the Pulse Secure software or just use the more limited Web VPN. This allows you access to most webpages plus the central file stores, York Information Management systems and more.

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## Save your Christmas stamps!

Used stamps are collected and given to the Royal National Institute of Blind People (RNIB). The charity sells the stamps to generate revenue for their work.

Any and all stamps welcome!

Find a collection envelope located at **Chemistry reception**.



## Green tips for Christmas

- ◇ **Heating** - try not to turn the heating up too much - wrap up in a jumper/blanket instead and wear layers.
- ◇ **Recycling** - recycle as much as you can - you might even be able to recycle wrapping paper (check on your Council's website - may need to remove sellotape) or use up old Christmas cards for scrap paper.
- ◇ **Food waste** - try not to cook more than you need or try to use up left over food the next day or store in the fridge or freezer.
- ◇ **Water** - try to wash up rather than using the dishwasher (and turn the tap off between each use). Only boil as much water as you need in the kettle.
- ◇ **Oven** - don't open the oven door if possible as this wastes energy. Cook more things at the same time by using smaller oven trays, for instance.
- ◇ **Fridge** - don't open the fridge too often (leave the door open for a longer period of time while you take out the items you need is more efficient than opening and closing the door several times).
- ◇ **Driving** – try to reduce the number of trips you have to make, for example try to combine outings, go shopping fewer times. Also, in the cold weather, try not to keep your car running when you start it up in the morning (it is more efficient to go straight away – de-ice your car before you turn the engine on).





## Cape Verde Atmospheric Observatory equipment audit

The Wolfson Atmospheric Chemistry Laboratory (WACL) GC-FID system was audited at the GAW global Cape Verde Atmospheric Observatory (CVAO) station from 27 November to 3 December. Dr Rainer Steinbrecher, Senior Scientist from World Calibration Centre for Volatile Organic Compounds (WCC-VOC), carried out the audit. The WCC-VOC is hosted by the Karlsruhe Institute of Technology, Institute for Meteorology and Climate Research (IMK-IFU) in Garmisch-Partenkirchen, Germany. This is the first time that the GC-FID system has been audited since it was upgraded in 2013.

Three audit cylinders (NPL 30 component ozone precursor mix, 100 ppb VSL oVOC Research mixture and ambient air standard) were shipped from Germany to the station two weeks prior to the audit. [Dr Shalini Punjabi](#), WACL Research Technician, is in charge of the CV GC-FID system and accompanied the auditor during the process. She ran these standards on the dual channel GC-FID system, processed data and showed the auditor all QA and QC procedures that are followed at the station in order to achieve high quality VOC data. Luis Neves, site manager at the station, gave a tour of the container laboratories to the auditor and also spoke about his role towards maintenance and performing daily checks of the instruments.



Left to Right: Dr Rainer Steinbrecher, Dr Shalini Punjabi and Luis Neves

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## YorkTalks • Wednesday 8 January 2020

From food banks to face transplants; from carbon capture to palliative care. Join us at [YorkTalks 2020](#) for bite-size insights into the amazing diversity and strength of York's research.

# CO<sub>2</sub>Chem Network Events

20<sup>th</sup> to 23<sup>rd</sup> January 2020

Sheffield United Football Club, The 1889 Suite, Bramall Lane, Sheffield S2 4SU

CO<sub>2</sub>Chem Winter School – Exploring CDU - 20<sup>th</sup> to 22<sup>nd</sup> January 2020

CO<sub>2</sub>Chem Reception and Annual Dinner - 22<sup>nd</sup> January 2020 (evening)

3rd CO<sub>2</sub>Chem Annual Status Conference - 23<sup>rd</sup> January 2020

## Context

Carbon dioxide has been an important chemical feedstock for decades. There is growing interest in expanding this utilisation, including for chemicals, polymers, building materials and fuels. Development and deployment of these modern applications is accelerating around the world. Unlocking the new potential of Carbon Dioxide Utilisation (CDU) is a multi-disciplinary challenge and requires connectivity between discovery, scale-up and deployment. Future energy pathways dictate deployment strategies, while regulatory and fiscal regimes influence process viability. The CDU agenda links closely to those of climate change, energy security, circular economy, industrial renaissance, resource management and sustainable consumption.

*Academics, industrialists  
and policy makers  
working to explore  
the utilisation of carbon  
dioxide as a chemical  
feedstock.*

## Aim of the Winter School

The CO<sub>2</sub>Chem Winter School will explore the CDU agenda, including socio-economic and environmental underpinnings, central research challenges and latest drivers, progress and opportunities. The course suits post-graduates and early career researchers from across the engineering, physical and biological sciences – helping you to contextualise your current research, develop high impact lines of new enquiry, and engage and influence, or indeed forge careers, beyond academia. The CO<sub>2</sub>Chem Reception and Annual Dinner is an opportunity for meeting and networking with CO<sub>2</sub>Chem members. The early evening reception will include addresses from opinion formers representing industry, academia and government. Standard registration will run until the 13th January 2020.

## Aim of the Annual Status Conference

The CO<sub>2</sub>Chem 3rd Annual Status Conference offers a showcase of research from CO<sub>2</sub>Chem members based in the UK and beyond. The conference is an opportunity to explore the full scope of CDU research. This year, the themes of Frontier Development, Products and Process, Industrial Applications, Technical Assessment and Policy will be discussed.

These events are grant supported as part of a EPSRC Grand Challenge Network. Interest from potential sponsors or media partners are most welcome. Exhibition space will be available during the status conference. Please contact [info@co2chem.com](mailto:info@co2chem.com) with any queries and for terms/availability.

For further information <http://co2chem.com/events>



**EPSRC**

Engineering and Physical Sciences  
Research Council

CO<sub>2</sub>Chem is an EPSRC funded  
Grand Challenge Network



**CO<sub>2</sub>Chem**

The CO<sub>2</sub>Chem Network  
UK Centre for Carbon Dioxide Utilisation  
The University of Sheffield  
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