

ANALYTICAL MATTERS



ISSUE 11– SPRING EDITION 2019

UPCOMING EVENTS

A selection of analytical events coming up in the next few months

Lab on a chip symposium

21st May, London

[more information](#)

Analytical Research Forum

25th June 2019, London

[more information](#)

Sensors and Networks for Environmental Monitoring

26th June 2019, London

[more information](#)

11th Advanced Study Course on Optical Chemical Sensors (ASCOS)

21st-28th July 2019, Italy

[more information](#)

AVAILABLE RESOURCES

Analytical Methods Committee Technical Briefs

Technical information on a wide range of analytical techniques, found [here](#)

RSC online CPD

[Log](#) your continuing professional development

Welcome to the eleventh issue of Analytical Matters, the e-newsletter of the Analytical Division of the Royal Society of Chemistry. Analytical Matters aims to showcase the wide range of analytical science activities being run across the Royal Society of Chemistry Analytical Division by the various analytical member groups as well as linking with parts of the UK analytical community beyond our membership. The RSC 2019 awards will be announced on May 7th this year, which include a number of analytical awards, so watch this space. Please send your feedback and any content for the next issue by June 30th by emailing the Editor [here](#).

With my very best wishes,

Duncan Graham FRSC

President, RSC Analytical Division



EVENTS

Analytical Research Forum 2019

The Analytical Research Forum (ARF) provides the opportunity for early career researchers from analytical communities to present their work, alongside high-profile analytical scientists. This flagship event of the Analytical Division will showcase cutting-edge analytical chemistry and applications to stimulate new research, collaboration and engagement between researchers based in academia and industry.

Our one-day format includes keynotes and invited talks, panel discussions about careers in analytical chemistry plus additional oral contributions selected by the Scientific Committee from the submitted abstracts.

The [standard registration](#) deadline is May 27th and bursaries are available for PhD students, post-doctoral researchers, and employees of SMEs to attend.

OTHER EVENTS OF INTEREST

40th BMSS Annual Meeting

25 June, Royal Society of Chemistry, Burlington House, London, United Kingdom

In 2019 the BMSS are returning to Manchester, a very fitting location, for the 40th BMSS Annual Meeting. To celebrate this milestone we have included a very special social event with live music performed by alumni of the Royal Northern College of Music.

A vibrant national mass spectrometry society is in everyone's interest... academia, industry & vendors alike, so we warmly invite you to join us for the BMSS40 party.

Meeting [registration](#) and [abstract submission](#) is now open!



Spring SciX 2020 to be hosted by the University of Liverpool



We are delighted to announce that the next Spring SciX conference will be hosted at the University of Liverpool the week commencing 6th April 2020 (exact dates confirmed shortly).

The chairs of the meeting will be Roy Goodacre and Howbeer Muhamadali, and they will be joined by local organisers, as well as an international scientific committee.

As is usual with SciX, and last year's very successful inaugural Spring SciX in Glasgow, there will be a wide variety of topics discussed and a focus on early career researchers. Topics will include, but not be limited to: developments in and application areas of Raman spectroscopy, SERS and nanoplasmonics, infrared and molecular spectroscopy, mass spectrometry methods for metabolomics and proteomics, as well as cheminformatics and chemometrics.

We hope you will join us in Liverpool next year, where cutting edge developments in analytical sciences, instrumentation, and unique applications will "Come Together".



UNIVERSITY OF
LIVERPOOL

Written by Roy Goodacre and Howbeer Muhamadali

Analytical Science Network presents

Friday 13th September 2019

9.30am - 4.30pm

Huxley Foyer, University of Brighton

BRIGHT SPARK SYMPOSIUM

This FREE event is an opportunity for early career analytical scientists both in industry and academia to present their work.

All aspects of analytical science welcome!

Contact: info@analyticalsciencenetwork.co.uk for more information.

Talk abstract deadline: 31st July 2019

Poster abstract deadline: 30th August 2019

www.analyticalsciencenetwork.co.uk

RSC FUNDING

Researcher Mobility Grant

The [RSC Researcher Mobility Grant](#) supports collaborations in research and gives early career researchers the experience of visiting other labs and expanding their networks. We have not only helped to enable and improve our member's scientific projects, but also encouraged [PhD students](#) to continue their academic careers after their studies. The first round of the Researcher Mobility Grant closes at noon on the 29th April.

Scientific Meetings Grant

[Apply](#) for up to £2000 to support your scientific meeting, including (but not limited to) scientifically enhancing your own existing meetings (international speaker expenses, for example) or fully supporting a "no frills" research meeting or workshop. Applications are judged every 3 months and the next closing date is: 31 May 2019.

Travel Grants for PhD Students and Early Career Scientists

Members travelling to attend RSC-run conferences or workshops may be entitled to a non-competitive grant of up to £200 and Members may also apply to the Analytical Division for a competitive travel grant to attend any scientific conference or workshop anywhere in the world. Grants are available to cover domestic (up to £200), continental (up to £400) and intercontinental (up to £800) travel to meetings where applicants give oral or poster presentations (we will also consider applicants not intending to present if their attendance will be a significant benefit to their career). Please note that these grants are intended for travel only and applicants should not apply for conference registration, subsistence or accommodation expenses. [Applications](#) are assessed on a monthly basis.

IYPT Grants

Grants up to £500 are available to support members, ChemSocs and Learn Chemistry Partnership schools to organise activities taking place throughout the year and celebrating IYPT 2019.

To apply for a grant up to £500 please [submit an application](#) through our online application system. Applications are now open and will remain open throughout the year. We run a rolling application process and the next deadline is 12 noon on Monday 15 April 2019.

Analytical Division Regional Activities

10th Scottish Symposium on Environmental Analytical Chemistry, 12th Dec 2018, Wolfson Medical School Building, University of Glasgow.

Dr Gillian MacKinnon from the Scottish Universities Environmental Research Centre (SUERC) opened the symposium on behalf of the Royal Society of Chemistry Scottish Analytical Division. Dr Kieran Tierney, University of Strathclyde and Dr John MacLachlan, Glasgow Caledonian University chaired the oral sessions and Dr Christine Davidson from the University of Strathclyde acted as co-organiser with Dr MacKinnon.

The programme consisted of nine oral presentations covering a wide range of environmental analytical topics from the impact of legacy pollution on antimicrobial resistance in estuarine sediments to utilising AF4-UV-MALS-ICP-MS, spICP-MS and STEM-EDX for the characterization of metallic nanoparticles in gas condensates. There were also nine poster presentations covering relevant areas of environmental analytical chemistry. Forty delegates attended mainly from Glasgow and Aberdeen and we were delighted to welcome researchers from Manchester and Bangor for the day. It was good to see that many of the Scottish universities involved in environmental analytical research were represented.

Our invited speaker, Professor Richard Evershed, Director of the Biogeochemistry Research Centre at the University of Bristol and the NERC Life Sciences Mass Spectrometry Facility, gave a fascinating talk on “Milking the residues: molecular and stable isotope signals from human prehistory.

The prize for best poster presentation which was judged by peer-assessment by the delegates on the day, was awarded to Martin Mueller from the University of Aberdeen for his work on the “Sulphur compounds in Allium plants and data mining for sulphomics”. The prize for best oral presentation was awarded to Felipe Sepulveda from SUERC for his talk on “Co-remediation of Pb and PAHs with fungi in urban soil”. The quality of the student presentations, both oral and poster, was excellent and made judging very difficult. We were also delighted to award Professor John Marshall, treasurer of the Scottish Analytical Division his 40 years’ service Gold Pin from the RSC.

Northern Ireland Heat of Schools’ Analyst Competition

The Northern Ireland heat of the Schools’ Analyst competition was held recently at Stranmillis University College Belfast, marking twenty-six years of this popular sixth-form chemistry event. The event, organised by the local members of the Analytical Division, showcases the important role of analytical chemistry in the food, pharmaceutical and environmental industries. This year’s experiments required students to determine the concentration of the active ingredients in three household products and compare their results to the amount specified on the packaging. The analysis began with an acid-based back titration to determine the mass of calcium carbonate present in Tesco Indigestion Tablet. Acid – base titration was again used in the second experiment to establish the hydrochloric acid content of Harpic 100% Limescale Remover. The final analysis used colorimetry to determine the mass of sodium hypochlorite present in Milton’s Sterilizing Fluid. All participants, representing 12 schools from right across Northern Ireland, were deemed by the judges to have attained the required level of accuracy and precision in their analyses and were presented with a certificate and a £10 book token. The winning school, Rathmore Grammar Belfast won £100 worth of book tokens for their chemistry department, with Friends’ School Lisburn (£60) coming a close second and Lumen Christi College Derry placed third (£40). The team from Rathmore Grammar will now go on to represent Northern Ireland in the national final at Manchester University on 19th-20th June. We wish them well!

For further details about the Northern Ireland competition please contact J.McCullagh@stran.ac.uk

2019 #RSCPoster Twitter Conference

The #RSCPoster Twitter Conference is an online event held entirely over Twitter to bring members of the scientific research community together to **share** their research, **network** and **engage** in scientific debate.

The 2019 edition of #RSCPoster was the biggest and best yet, taking place for 24 hours starting at 09:00 AM GMT, 5 March 2019. In it's fifth year, #RSCPoster boasted a full compliment of subject categories spanning the chemical sciences and related fields, supported by 33 passionate Subject Chairs and 20 dedicated General Committee members (find out who they were in [this blog post](#)).

Reaching throughout the twitter chemical sciences community and beyond, #RSCPoster 2019 involved:

- **Over 500 registered poster delegates**
- **3186 Contributors**
- **9759 Tweets**
- **Audience of over 2 million**
- **14 million total impressions**

Find out more about the 2019 #RSCPoster event in the lead-up blog post: [here](#), and see some highlights from the day: [here](#).

The analytical section (#RSCAnalytical) poster first place went to [@drupad_t](#) from the University of Manchester on his research "Smell-led detection of Parkinson's Disease by monitoring volatiles compounds in sebum using GC-MS." Second place went to [@price_jn](#) from Loughborough University on his research into "Compounds at the click of a button"- exploring the role of automation in the lab. The first prize was sponsored by the Analytical Science Network (ASN) with Jack Rice the Analytical Division ASN representative saying "The #RSCPoster Twitter conference is an innovative way to run a conference and disseminate research. We see sponsorship of the competition as a great way to support early career analytical scientists in a new format." The Analytical Methods Committee sponsored the second prize.

COMMUNITY OUTREACH ACTIVITIES

Raising the profile of analytical science within AstraZeneca and broader industry - from good to great

Analytical chemistry/analytical science is at the heart of every medicine we discover and develop and the impact throughout the pipeline and portfolio is unquestionable. However, this impact is often underestimated in terms of the innovation and challenge and this is reflected in the image of analytical science in UK universities. Many studying for degrees, which include an analytical science component,

do not see the value of a career and are not inspired by the discipline. This image problem does impact industry in that the number of people applying for roles in analytical science, be they sandwich student or graduate roles, is not always as great as that for synthetic chemistry roles for example. This reduces the diversity of educational background from which we recruit as applicants tend to be from a limited number of UK universities. In response to this challenge, a group within AstraZeneca (AZ) in Macclesfield launched the analytical science outreach initiative in late 2017 with several key goals.

The goals

- Communicate our analytical science to inspire an increased number and a diverse range of people to apply for the associated roles within AZ (initial focus on AZ Macclesfield Campus).
- Describe the great pipeline, career opportunities and the diversity of career pathways and to promote what an exciting and fun time it is to work within AZ.
- To illustrate the innovative and challenging analytical science that is required to deliver a project portfolio with an increasing level of molecular diversity.
- AZ is recognised by the students and their academic institutions as the most attractive career option for an analytical scientist (and other scientific disciplines).
- AZ directly benefits through the CPD of our colleagues who are delivering the initiative in the areas of communication skills, coaching and network development.

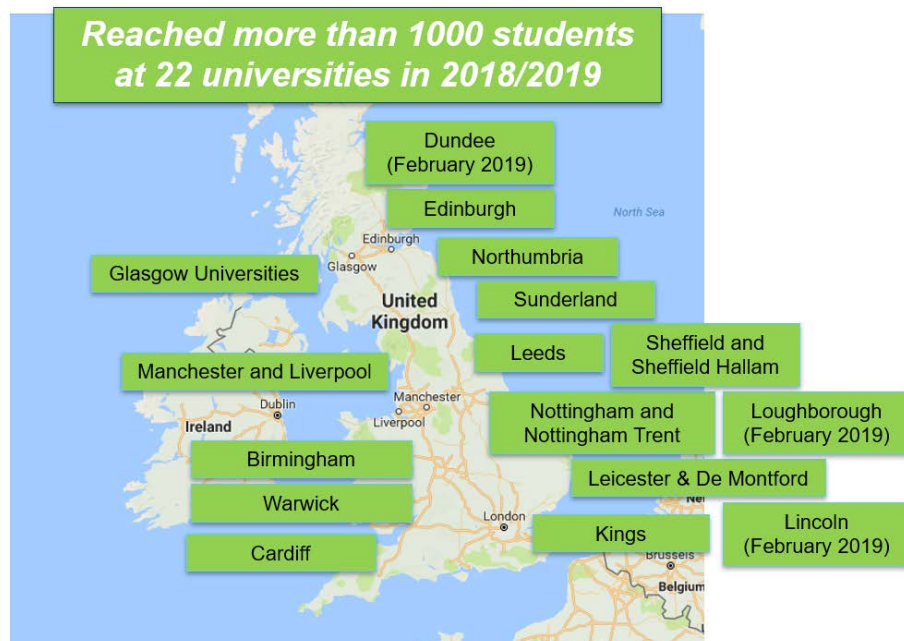
The goal of the outreach workshop

To bring context to the analytical science we do, a problem-solving workshop was developed. In the workshop the students are presented with a scenario that requires broad analytical science thinking and are asked to apply their course learning to propose solutions. The workshop brings a real-world context to the fundamental science taught at university and demonstrates how we apply analytical science in an innovative fashion.

Impact to date

The outreach initiative has been embraced by UK academia and the requests for involvement continue to grow, which demonstrates the value to students and their institution's alike.

There has been clear impact on reputation, profile and image and we are monitoring the number and diversity of applications for roles.



Feedback from the students

“Lecture gave a different perspective of AZ and the many areas of chemistry and sciences involved”.

“Application of analytical in the real world was great”.

“Very engaging, relevant and informative. AZ seems like a good prospective company to work for in the future”.

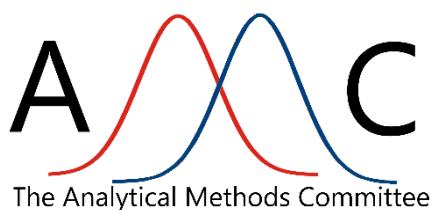
Feedback from AZ colleagues:

“The outreach programme was good for my personal development. I found myself much more confident when presenting my work”.

“It’s been great to rebuild the personal connection between myself and the University, at the same time as making the connection between the University and AZ. It’s really built my confidence in terms of public speaking/presenting”.

“Delivering the workshop has given me a greater appreciation of the gaps that exist between academic education and industrial requirements. This has already had a direct impact on the way I have onboarded a recent graduate”.

Article written by: Dr Tony Bristow, Principal Scientist for Measurement Science, Chemical Development, AstraZeneca, Macclesfield, UK.



Looking to gain chartered status? The Analytical Methods Committee (AMC) provide Technical Briefs, ideal for supporting continuing professional development.

The Analytical Methods Committee (AMC) is the Committee of the Analytical Division (AD) that handles matters of technical importance to the Analytical Science Community. Made up of expert Sub-Committees and designated representatives, the broad aim of the AMC is to participate in national and international efforts to establish a comprehensive framework for appropriate quality in chemical measurement, often working alongside with numerous accreditation services and governing bodies, such as DEFRA and UKAS.

To do this, we assist in the development and establishment of suitable performance criteria for methods and instruments; advise on the use and development of appropriate statistical methods and are deeply involved in identification and promulgation of best analytical practice, including aspects relating to sampling, instrumentation and materials.

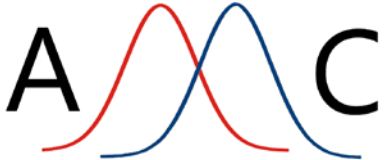
The AMC produces Reports and regular Technical Briefs (TBs) on a wide range of analytical topics, published in the RSC journal *Analytical Methods*. We are also proud to support the overall AD aim of supporting Continuing Professional Development (CPD) with our TBs which can be used towards CPD certification.

Find more information and our Technical briefs at www.rsc.org/AMC
or follow us @RSC_AMC

AMC Technical Briefs

New Analytical Methods Committee (AMC) Technical Brief, No. 86, [Revision of the International System of Units \(Background paper\)](#) has been released.

AMC Technical Briefs
are produced by the Analytical Methods Committee (AMC) - the branch of the Analytical Division that handles matters of technical importance to the analytical science community.
Find out more at: www.rsc.org/amc



The Analytical Methods Committee

The abstract reads as follows: International System of Units (SI) is the only globally agreed practical system of measurement units. Stemming from the Metre Convention of 1875, which established a permanent organisational structure for member governments to act in common accord on all matters relating to units of measurement, the SI was formalised in 1960 and defined by the 'SI Brochure'. The foundation of the SI are the set of seven well defined base units: the metre, the kilogram, the second, the ampere, the kelvin, the mole, and the candela, from which all derived units (such as metres per second) are formed. On 16 November 2018 the 26th General Conference on Weights and Measures (CGPM) met, at an open meeting at the Palais des Congrès, Versailles, to discuss and vote on the re-definition of four of the SI's seven base units: the mole, the ampere, the kelvin, and the kilogram. This change, effective from World Metrology Day (20 May) 2019, is perhaps the most fundamental change

in the SI since its inception. For the first time the SI will be defined entirely in terms of fundamental physical constants, instead of requiring the maintenance of a physical artefact. This technical brief explains why this re-definition came about. No practical implications of the change are envisaged for analytical chemistry in the short term and improvements in measurement may take some time to realise.

AMC Appointments

The AMC also announced the appointment of Dr Aya Abdalla (University of Brighton) as the AMC Publicity Officer, who is replacing Dr Zoe Ayres in the role. The AMC thank Dr Zoe Ayres for her contributions to the AMC.

2019 LS Theobald Lectureship

Congratulation to Dr. Lucia Borgio how has been awarded the 2019 LS Theobald Lectureship. The Lectureship is awarded to someone who has made significant contribution to analytical chemistry in an area of interest to the work of the Analytical Methods Committee (AMC, a committee of the RSC Analytical Division) and its sub-committees.

Lucia is a Senior Scientist (Object Analysis) in the Conservation Department of the Victoria and Albert Museum in London. After completing her first degree in Palermo she undertook her PhD studies at University College London. Her thesis on the use of Raman microscopy in the study of pigments on art objects included some ground-breaking and much-cited work on the non-destructive characterisation of historic paintings and manuscripts and led to the publication of an authoritative library of FT-Raman spectra of pigments. An internationally known figure in heritage science, she now applies a wide range of analytical techniques to the study of museum objects, thereby assisting with their care, conservation and understanding. Recently, in conjunction with colleagues at the National Gallery, she has identified and characterised a previously unknown green pigment used in Chinese pottery. Lucia is very conscious of the importance and value of heritage science in exciting interest in science by young people and non-specialists and has given many talks and demonstrations on her work to schoolchildren and other members of the public. A Chartered Chemist and Fellow of the RSC, she has been a very active Chair of the Heritage Science Expert Working Group of the AMC (and hence a member of the AMC itself) since 2014, and in that role has created a series of Technical Briefs aimed at a general audience: the public dissemination in science is a major enthusiasm, and we very much look forward to her Theobald Lecture to be given later in 2019 or early 2020.



© Theo Cottle

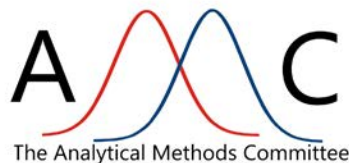
Announcing the

2019 RSC LS Theobald Lecturer

DR LUCIA BURGIO

Senior Scientist (Object Analysis), Victoria & Albert Museum, London
Honorary Research Fellow (Chemistry), University College London

Awarded for her significant contribution to analytical chemistry in an area of interest to the work of the Analytical Methods Committee



COMMUNITY UPDATES

Analytical Chemistry Trust Fund

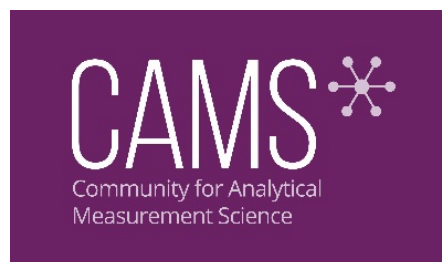


**ANALYTICAL
CHEMISTRY**
TRUST FUND

ACTF, an independent charity (Reg. No. 268893) was established in 1974. It is closely associated with the Analytical Division of the Royal Society of Chemistry. Its primary task is to support analytical science in the UK and abroad. It uses the returns from its capital investments to spend a significant sum supporting PhD programs, summer studentships, research fellowships and support for analytical conferences as well as educational initiatives. For further details please see the Analytical Chemistry Trust Fund [webpage](#).

Official Launch of CAMS

In March, the executive board and industry advisory board for CAMS “The Community for Analytical Measurement Science” were launched. At these meetings, co-funding to support new postdoctoral fellowships and lectureships were agreed (more detail below). The Measurement Science Research Institute will launch in April and the formal public launch of CAMS will happen on the 27th June at RSC Burlington House. Details and how to register will appear on the CAMS website <https://cams-uk.co.uk/>.



CAMS Key Activities:



Bringing the analytical community together



Providing world-class analytical training



Facilitating innovation industry-led research

Since our last update on CAMS, we have been very busy engaging with the Analytical Measurement Science community below are some key highlights:

- Sixteen companies (industry and Instrument Companies) have confirmed/are in the process of signing up as CAMS members.
- At the CAMS Executive Board and Industry Advisory Board inaugural meetings on the 27th March at RSC Burlington House Dr Mark Seymour (Syngenta) was elected Chair of the Industry Advisory Board and Prof. Melissa Hanna-Brown elected as Chair of the Executive Board.
- The recent call for CAMS/ACTF Lectureships and Post Docs attracted 26 applications from some 20 Universities in the UK and Ireland, with many of the Universities offering strong support packages for the applied co-funded positions. The CAMS executive approved (on the recommendation of the Industry Advisory Board) the awards of four Lectureships and three Post-Doctoral positions.

- The first meeting of the MSI (Measurement Science Institute) - comprising of the Universities who have joined CAMS will meet on the 29th April – and will include representatives from 10 Universities across the UK and Ireland. At this meeting, election of a chair, widening membership participation to as many Universities as possible and the process for working with industry members will be key areas of focus.
- The first of the BEIS funded Basic Skills “e-learning packages” developed by Learning Science and LGC are currently being trialled ahead of launch.
- The CAMS Analytical Webinar series will start in May.
- The CAMS Website has been averaging 400 hits per month and along with the Twitter and LinkedIn portals are now publicising analytical meetings, analytical vacancies and best practice guides.

Members of the Analytical Community are most welcome to contact CAMS with details of any analytical events that need publicity. In addition, CAMS are open to welcoming contributions of training or best practice guides or webinar material.

Individuals or organisations interested in CAMS membership should please contact the secretariat at secretariat@cams-uk.co.uk

SERVICES

Newcastle University Analytical Department NMR Spectroscopy Services

Make NMR Spectroscopy as part of your quality production line routine, whilst saving money but maintaining quality. NUAD can provide high quality services and advice for a competitive price compared to large analytical companies. The team have decades of experience in both analytical and synthetic chemistry, including air sensitive handling/preparation of NMR samples. Contact us now via our [website](#) for a free personalised consultation, or check out our [LinkedIn](#) page.
