

## Atomic Spectroscopy Group Newsletter – December 2022

Dear All,

Welcome to the ASG Newsletter. With the end of 2022 rapidly approaching, it seems a good time to review the past year and let you know about our plans for the future. It was a busy year for the group as we were happily able to host the 20<sup>th</sup> BNASS after the pandemic delayed the 2020 event. Despite the 4 year hiatus, it was great chance to get together and present the latest research and developments in the atomic spectroscopy field. The group also continued its webinar series – The A to Z of Spectroscopy, featuring a fascinating broad range of speakers and topics. Through the year we covered G and H after A-F in 2021. The events have been well attended and we are continuing the series with “I is for Isotope” in February.

Please check the “forthcoming events” section on the [Atomic Spectroscopy Group](#) website to keep up to date with information. We also have a [LinkedIn](#) group and [Twitter](#) handle for BNASS which cover ASG events.

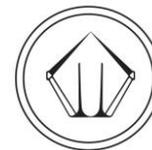
### **BNASS 2022: The 20th Biennial National Atomic Spectroscopy Symposium** **Royal Northern College of Music, Manchester, 28<sup>th</sup>-29<sup>th</sup> June 2022**

This year the [Atomic Spectroscopy Group](#) organised and hosted the [20<sup>th</sup> BNASS conference](#) in Manchester. This was a shorter event than usual to accommodate off-peak travelling in a post pandemic scenario, with a one and half day conference.

The philosophy of BNASS is to encourage the exchange of ideas and knowledge within analytical atomic spectroscopy field with a mix of established and early career speakers. BNASS is celebrating its 20th event and during its history, there have been some tremendous changes in atomic spectroscopy. These advances have been showcased at BNASS, which has built an international reputation for both the quality of the science presented and the unique style of the symposium, enabling delegates to meet and discuss issues in a social setting.

We have found ourselves in Manchester at the Royal Northern College of Music (RNCM) due to Dr Phil Riby who was an integral part of BNASS 2016 in Liverpool and 2018 in Twickenham, as well as the ASG committee. Phil was a reader in Analytical Chemistry at the University of Manchester and was excited to host the next BNASS in Manchester. Very sadly and suddenly, Phil passed away in April 2021 and his lively personality and kind nature are very much missed. He had already played a key role in setting up BNASS for 2020 before the pandemic caused the postponement. Additionally, Phil was a passionate supporter of early career scientists. Therefore, in reflection of this, we introduced The Phil Riby Award at BNASS for the best student presentation at the conference.

The event was a great success with keynote and invited talks as well as 14 exhibitors supporting the event. The conference opened with the Clinical, Biomedical and Health Applications session, followed by Speciation and Environmental, Advances in Measurement Applications and closed with Instrumental Advances. With



16 talks and 15 posters, it was a busy but interesting and wide ranging agenda covering multiple atomic spectroscopy techniques, demonstrating the wide application of the field.

We welcomed keynotes and invited talks from:

- Prof Maria Montes-Bayon, University of Oviedo, Spain, presenting: **Quantitative Biomarker Analysis via ICP-MS: A Focus on the Breast Cancer Marker (HER-2)**
- Dr Andrea Raab, TESLA (Trace Element Speciation Laboratory), Graz, Austria, presenting: **Elemental speciation – essential or only play?**
- Dr David Green, Imperial College London, UK, presenting: **Atmospheric Particulate Measurement and Source Apportionment using High Time Resolution X-ray Fluorescence and Aerosol Mass Spectrometry.**
- Dr Heidi Goenaga-Infante, LGC, UK, presenting: **Nanomaterials in life sciences: Advances in Standardization, Measurement Methods, Reference Materials and Remaining Challenges Imposed by Regulation**

Additionally, there was a special summary of the life and work of Professor Stanley Greenfield, CChem FRSC (25 March 1920 – 4 September 2019) co-ordinated and delivered by Prof Julian Tyson. See this [JAAS News Article](#) for more information.

In total 75 attendees joined us for the event, as well as a few online registrants with our streaming offering. Each poster presenter gave a three minute lightning talk and the winner of the **Journal of Analytical Atomic Spectrometry (JAAS) Poster Prize** was awarded to Ali Alzahrani from the University of Aberdeen for his poster entitled “The effects of feeding seaweed to dairy cattle on methane production and milk iodine content”. The first **Phil Riby Award** was won by David King from BGS and Nottingham Trent University as best student poster prize for his work “The preservation of total dissolved mercury from water samples using functionalised C18 solid-phase extraction”. Finally, the **JAAS prize for best oral presentation** was awarded to Arianna Leventi, from the University of Strathclyde & NML at LGC, with her talk on “Potential Of Quantitative LA-ICP-TOF-MS To Underpin Absolute SERS Quantitation In A Cancer Model”.

The social events of the Dragon’s Den were exhibitors pitched their novel devices and applications followed by an informal conference dinner consisting of curry and local Manchester drinks. This enabled a great opportunity to catch up, network and continue discussions.

Overall the event was a successful return to in person events whilst also supporting an online option. We are now looking forward to BNASS 2024 where we hope to return to the full 3-day format.

#### **Organising Committee**

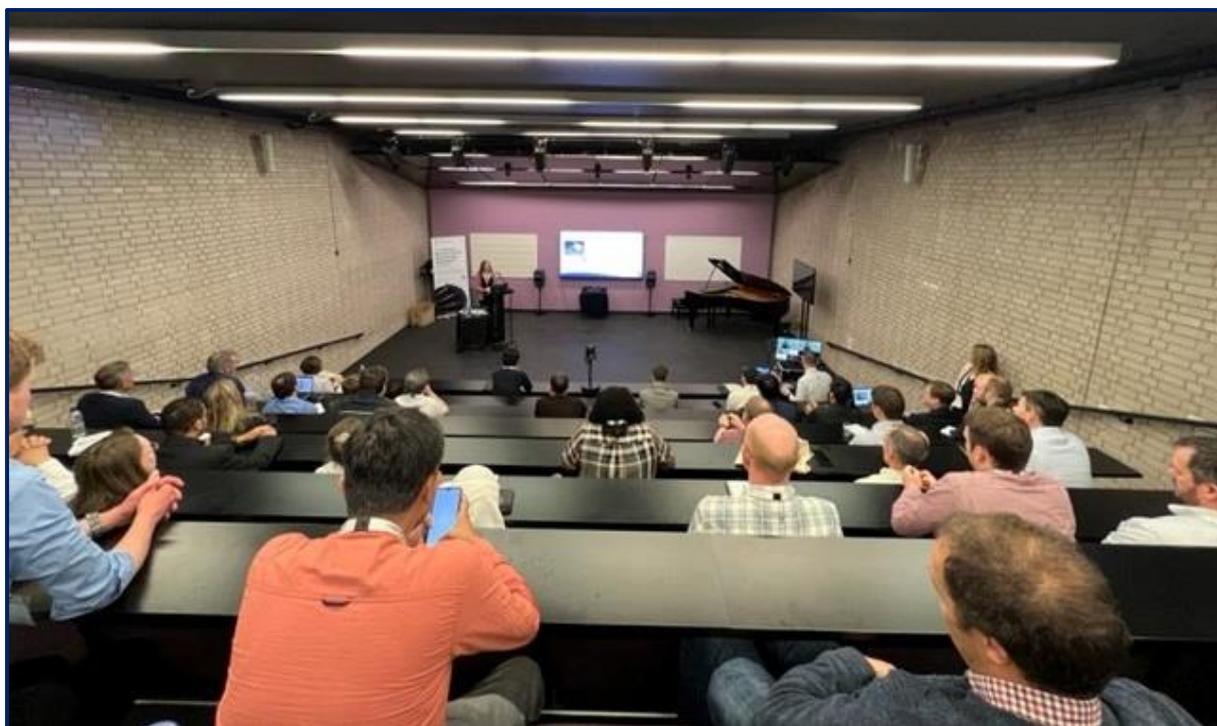
**ASG Chair:** Dr Sarah Hill, National Measurement Laboratory, LGC, Teddington

**Treasurer:** Dr Jackie Morton, Biological Monitoring, Health & Safety Executive, Buxton

**Bursary Coordinator:** Dr Lizzie Griffin, University of Aberdeen, Aberdeen

**Programme Booklet Coordinator:** Dr Adam Laycock (UK HSA)

**ASG Committee:** Dr Andy Fisher, Plymouth, Dr Simon Chenery (BGS), Dr Elliot Hamilton (BGS), Prof Steve Hill (University of Plymouth)



With thanks to our sponsors:



## The A to Z of Spectroscopy Webinar Series

With the pandemic continuing to restrict our events, we started the seminar series in 2021 to enable opportunities to researchers from all backgrounds to present their work. The “A-Z of Spectroscopy” has made it to “H” so far...

- **A is Arsenic** covered the analytical challenges, exposure from food intakes, atmospheric deposition and biomonitoring
- **B is for Biomonitoring** included experience and learnings from large population studies, occupational exposure to hexavalent chromium and tracking causes of elevated Pb levels in blood using isotope analysis
- **C is for Chromatography** highlighted the applications of combining separations with atomic spectroscopy covering nanomaterial analysis with HPLC-ICP-MS, speciation of selenoproteins, HPIC-ICP-MS for quantification of spent nuclear fuels and chromium speciation in soils
- **D is for Developments** covered new advancements with instrumentation enabling unique applications such microplastic analysis using single event mode ICP-MS, nanoparticle detection for multi-elements using ICP-TOF-MS and laser ablation combined with ICP-TOF-MS for asbestos fibre detection and paleoclimate research
- **E is for Early Career Scientists** was an opportunity for three researchers to showcase their PhD and postdoctoral research. The event covered the analysis of metal-based anticancer complexes with a range of techniques such as ICP-MS, synchrotron XRF and X-ray tomography, utilising new sample introduction technology for microsamples for ore genesis and exploration, and method development



for accurate and precise elemental analysis within academia and industry (discussing mercury and technology critical elements)

- **F is for Food** covered the challenges of elemental analysis in foods, accurate determination of inorganic arsenic in rice and essential and non-essential elements in natural food supplements
- **G is for Geochemistry** presented three different talks covering rocks to ice by LA-ICP-MS, using spectroscopy techniques for spent nuclear fuel management and the impact of geochemistry on health
- **H is for Health** highlighted the importance of atomic spectroscopy for health and disease research through the analysis of copper for Wilson’s disease, the role of metallomics and using zinc levels and isotope signatures for breast cancer detection

The recordings are available for catchup through the RSC YouTube channel via this [link](#). The series will be continuing in 2023 with “**I is for Isotope**” on the 21<sup>st</sup> February at 3pm UK time. You can register now for the webinar – please click the “Book Now” link on the [event page](#). Please check the “Forthcoming Events” section on the [Atomic Spectroscopy Group](#) website for further information or watch out for the e-alerts.

## And finally...

The ASG would like to thank you for your support and attendance throughout our events. The webinars will continue but we also hope to run some further in-person events in 2023, following from the success of the International Year of the Periodic Table half day seminar. We want to run events that are relevant to you and provide opportunities for learning and networking so we would really like to hear from you! It would be highly appreciated if you could take a few minutes to complete [this survey](#) to help us tailor our events.

From the ASG Committee, we wish you a happy holiday time and best wishes for 2023.

