



SAS Members In Memoriam

Longtime SAS members Robert (Bob) Hannah and Jack L. Koenig passed away on 16 January 2021 and 26 January 2021, respectively. Stay tuned for the next Newsletter to have more details about these two men who left their mark on the field of spectroscopy and greatly contributed to the advancement of SAS.



Bob Hannah (left) and Jack Koenig (right)

SAS NY/NJ Webinar: 18 February 2020

Please join the NY/NJ chapter of SAS for exciting presentation by Professor Karen Faulds, University of Strathclyde, presenting, "Development of SERS and SESORRS for Multiplexed Bioanalysis".

Dr. Karen Faulds is a professor in the Department of Pure and Applied Chemistry at the University of Strathclyde and an expert in the development of surface enhanced Raman scattering (SERS) and Raman techniques for novel analytical detection strategies and in particular multiplexed bioanalytical applications. She has published over 145 peer reviewed publications and has filed five patents. She has been awarded over £20M in funding as principal and co-investigator from EPSRC, BBSRC, charities, industry, and governmental bodies. Her group's research has been recognised through multiple awards including the Nexxus Young Life Scientist of the Year Award (2009), Royal Society of Chemistry (RSC) Joseph Black Award (2013), Craver Award (2016) and Charles Mann Award (2019). She is a Fellow of the Royal Society of Chemistry (2012), the Society for Applied Spectroscopy (2017) and the Royal Society of Edinburgh (2018). She has been named as one of the Top 50 Women in Analytical Science (2016), Top 10 Spectroscopist (2017) and Top 100 Influential Analytical Scientists (2019) by The Analytical Scientist. She has given over 90 invited talks at national and international conferences.

She was elected as the first female and youngest Chair of the Infrared and Raman Discussion Group (IRDG) in 2014, which is the oldest spectroscopic discussion society in the UK. She is an appointed member of the Royal Society of Chemistry (RSC) Chemical Biology Interface Division Council and a member of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) Governing Board and a member of the International Steering Committee of the International Conference on Raman Spectroscopy (ICORS). She is the Strathclyde Director of the EPSRC and MRC Centre for Doctoral Training in Optical Medical Imaging joint between the Universities of Edinburgh and Strathclyde, serves on the editorial board of RSC Advances and Analyst and the editorial advisory board for Chemical Society Reviews and Analytical Chemistry.

Multiplexed and Sensitive Bioanalysis Using SERS and SESORS

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Abstract

Surface enhanced Raman scattering (SERS) is an analytical technique with several advantages over competitive techniques in terms of improved sensitivity and multiplexing. We have made great progress in the development of SERS as a quantitative analytical method, in particular for the detection of DNA. However, the lack of quantitative data relating to real examples has prevented more widespread adoption of the technique. Detection of specific DNA sequences is central to modern molecular biology and also to molecular diagnostics where identification of a particular disease is based on nucleic acid identification. Many methods exist and fluorescence spectroscopy dominates the detection technologies employed with different assay formats. Another advantage of SERS over existing detection techniques is that of the ability to multiplex which is limited when using techniques such as fluorescence. We have clearly demonstrated the ability to identify and quantify the presence of a mixture of three pathogenic DNA sequences in solution using data analysis techniques. Here we demonstrate the development of new bioanalytical assays based upon SERS which have been used successfully for the detection of bacterial pathogens using modified SERS active probes. Biomolecule functionalized nanoparticles have been designed to give a specific SERS response resulting in discernible differences in the SERS which can be correlated to the presence of specific pathogens. In this presentation the simultaneous detection and quantitation of 3 pathogens within a multiplex sample will be demonstrated. We have also recently published the use of nanoparticles functionalized with resonant Raman reporter molecule for the visualization of a 3D breast cancer tumor models using Spatially Offset Raman combined with SERRS (SESORRS).

Mark your calendars for 12:00 EST, 18 February 2021

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

Or call in (audio only)

+1 908-409-1059, 443202814# United States, Elizabeth

(833) 733-5876, 443202814# United States (Toll-free)

Phone Conference ID: 443 202 814#

Audio for this meeting can be heard in the Microsoft Teams client. Please check your audio device settings before you join the call. If you see phone numbers above, you can use them to join the meeting's audio if necessary.

Pittcon 2021 SAS Member Representation

As most of our Newsletter readership know, Pittcon 2020 was one of the last in-person scientific meetings to happen last year. This year, given the still cautious pandemic environment, Pittcon is completely virtual, but that does not mean that SAS is taking a break from presenting science! Several SAS members will be presenting throughout the week, most with contributed or invited talks, and a few even with short courses. Please use the links provided in the table below to find out more details for each presentation. Note that these presentations noted here were provided by the SAS members, and is not to be considered a comprehensive list of SAS members presenting at Pittcon this year. SAS appreciates the efforts of our membership to keep spectroscopy at the forefront of analytical chemistry at Pittcon. All listed times are Eastern Standard Time.

Monday, 8 March 2021

Michael Epstein

[50 Years of Trace Element Standard Reference Materials \(SRMs\) at NBS/NIST](#)

Session Number: W01-01, 8:30 AM-9:00 AM

Tuesday, 9 March 2021

Deborah Peru

[An Introduction to Quantitative Spectroscopic Analysis \(Part 1 of 2\)](#)

(Full Day Course—Parts 1 & 2 are required together)

Course Number: SC5708A, 8:30 AM-12:30 PM

Part 2 of 2 (Parts 1 & 2 are required together)

Brooke Kamrath, Corresponding Author

[Soil Mineral Analysis by Particle Correlated Raman Spectroscopy \(PCRS\): Method Optimization](#)

Session Number: G07-03, 9:10 AM - 9:30 AM

Adam Hopkins

[Trace Level Contaminant Detection and Identification in Foods using a Portable SERS Platform](#)

Session Number: L54-07, 3:45 PM-4:05 PM

Wednesday, 10 March 2021

Richard Crocombe

[Miniature Near-infrared Instruments: Technologies, Opportunities, and Challenges](#)

Session Number: G12-06, 10:25 AM-10:45 AM

Gloria Story

[Applications of Alien Vision](#)

Session Number: A13-04, 10:40 AM-11:15 AM

Nanning Cao

[NIRS in the Contemporary World for Food and Agriculture](#)

Session Number: G12-07, 10:45 AM-11:05 AM

Brooke Kamrath, Corresponding Author

[Forensic Paint Analysis with Simultaneous Optical Photothermal Infrared \(O-PTIR\) and Raman Microspectroscopy](#)

Session Number: L26-08, 11:05 AM-11:25 AM

Jerome Workman

[Near-infrared Analysis: What Is Unique About This Analytical Technique and What Challenges Remain To Make it Even Better?](#)

Session Number: G12-08, 11:05 AM-11:25 AM

Christian Huck, Corresponding Author

[Near-infrared Spectroscopy of Natural Products Including Miniaturized Instruments and Novel Methods of Spectral Analysis](#)

Session Number: G12-01, 8:30 AM-8:50 AM

Christian Huck, Corresponding Author

[Emerging Possibilities for Near-infrared Spectroscopy: Spectra Simulation, from Fundamental Chemistry to Applications](#)

Session Number: G12-02, 8:50 AM-9:10 AM

Heinz Siesler

[Handheld Near-infrared Spectroscopy for Everyday Life Applications: Reality versus Empty Promises](#)

Session Number: G12-03, 9:10 AM-9:30 AM

Thursday, 11 March 2021

Alan Marshall, Corresponding Author

[Fourier Transform Ion Cyclotron Resonance Mass Spectrometry: What's Ahead?](#)

Session Number: A10-02, 9:15 AM-9:50 AM

Jun Zhao

[Stability and Precision Optimization of a Process Raman Analyzer](#)

Session Number: L38-05 10:05 AM-10:25 AM

Friday, 12 March 2021

Neal Gallagher

[Chemometrics and Big Data in Cultural Heritage](#)

Session Number: S06-0, 8:30 AM-11:40 AM

[Targeted Anomaly Detection in Hyperspectral Imaging for Cultural Heritage Applications: Finding a Needle in a Haystack](#)

Session Number: S06-04, 10:30 AM-11:05 AM

Adam Hopkins

[Cannabidiol Oil Quality Control with Near-infrared Spectroscopy](#)

Session Number: L53-03, 2:10 PM-2:30 PM

In addition to these, SAS's technical section, the Coblenz Society, will be hosting the 2021 Williams-Wright Award Symposium on Thursday, 11 March at 8:30 AM when Ian Lewis will give his talk upon receiving his award. His symposium also has exciting talks by other speakers including Neil Overall, John Wasyluk, Nobel Vale, and Andrew Whitley. The symposium is scheduled for Thursday, 11 March starting at 8:30 AM (EST).

Looking for Volunteers!

Are you a new graduate, fresh into your budding career and looking for a way to give back to SAS?

Are you a new graduate, fresh into your budding career and looking for a way to network with fellow spectroscopists?

Are you a more senior member, close to or starting retirement, looking to stay connected to SAS and the spectroscopy world?

Are you a regular member who wants to get more involved with SAS, but not be in the spotlight? We have several volunteer opportunities below.

Newsletter Committee

The Newsletter Committee puts together the monthly newsletter, which is our long-form member communication. Typical investment is 2-4 hours per month, writing short articles and getting important information to our members.

Social Media Committee

The Social Media committee is in charge of our social media—LinkedIn, Facebook, Twitter, etc.—and helps create interest in SAS through scheduling posts about all things SAS and spectroscopy related. Typical investment is 2-4 hours per month and is a great way to build your brand in the sciences.

Early Career Interest Group

The newly formed Early Career Interest Group supports the professional development of early career scientists through award schemes, travel grants, as well as opportunities in leadership, outreach, networking, volunteering, and employment. We are seeking two-four volunteers of all career experience levels willing to invest three-six hours per month to help implement new and innovative programming.

Do you have something spectroscopy-related you want to discuss in the newsletter? Or something that will help our membership such as career tips or application tips? Please let us know by emailing luisaprofeta@gmail.com.

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