



## SAS eNews



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### SciX 2023 Short Courses

The Society for Applied Spectroscopy and the Coblenz Society are each committed to the mission of education. Education can be provided in a number of ways including journal articles, webinars, and live short courses.

The two societies are producing a number of short courses at SciX 2023. Those courses cover a range of more than twenty subjects including, technical, industry problem-solving, and professional development topics.

The course list is provided below. Full description of the courses can be found at the [FACSS SciX 2023 Short Courses](#) page.

*Contributed by Ellen Miseo*

Course number	Course title	Length	Instructor(s)
CSAS 101	Introduction to Infrared, Raman, and Near Infrared Spectroscopy	½ day	James de Haseth
CSAS 102	Searching Infrared and Raman Spectra	½ day	James de Haseth
CSAS 103	Problems with FT-IR Spectra and How to Avoid Them	1 day	Ellen Miseo/Jenni Briggs/ Jeff D'Agostino
CSAS 104	Modern Raman Microscopy for Applications in the Material and Life Sciences	1 day	Alexander Rzhevskii
CSAS 105	Process Analytical Technology: Out of the Lab and into the Line	1 day	James Rydzak
CSAS 107	Introduction to Quantitative Spectroscopy for Near Infrared and Raman Instrumentation	1 day	Debbie Peru
SAS 109	Practical Guide to Atomic Absorption and Emission Spectroscopy	½ day	Dula Amarasiwardena

SAS 110	Introduction to ICP-MS: Fundamentals, Best Practices and Tips and Tricks	½ day	Dula Amarasiriwardena
CSAS 112	The Role, Function and Proper Use of the Microscope in Microspectroscopy	½ day	Dale Purcell
CSAS 113	Spectral Interpretation of Vibrational Spectra	2 days	Peter Larkin/Mary Carrabba
CSAS 116	ABC to PMP: A Project Management Crash Course	½ day	Luisa Profeta
CSAS 117	Laser Fundamentals for Spectroscopy	½ day	Rob Chimenti
CSAS 118	Technologies and Applications for Miniature Optical Spectrometers and Spectroscopic Sensors	½ day	Richard Crocombe
CSAS 119	How to Make Connections: Networking at Conferences and in Higher Education	½ day	Alexis Weber
SAS 120	Bioanalytical Methods for Biopharma: Fluorescence	1 day	Linda Kidder/Alan Ryder
SAS 121	Introduction to Data Analytics for the Analytical Chemist	1 day	Mary Kate Donais
SAS 122	LA-ICP-MS: Elemental Analysis of Incremental Tissues as an Indicator of Past Pollution Events	½ day	Dula Amarasiriwardena
CSAS 123	Practical Raman Spectroscopy	1 day	Tim Prusnick/Sarah Shidler
CSAS 124	What's in the Box — How Do Spectrometers Work	½ day	Alex Scheeline/James de Haseth
SciX 125	Foreign Material Identification and Root Cause Analysis in Materials Manufacturing	½ day	Jinping Dong
CSAS IRDG 126	Multivariate Analysis for Beginners: Pre-processing and Data Analysis of Raman/IR spectra in the Matlab Environment	½ day	Cassio Lima
SAS 127	Introduction to Microsystems: A Platform for Transforming Analysis Instruments to Sensor Scale Devices	½ day	Yasser Sabry
SciX 128	FTIR and Raman Spectroscopies Applied in Cosmetic and Beauty Industry	½ day	Samuel Gourion-Arsiquaud/ Larry Senak

## SciX 2023 Social Event

The SAS Early Career Interest Group (ECIG) is pleased to announce that they will be co-hosting a social event with the student section on the Monday night, 9 October, of SciX 2023. This event will take place after the Exhibition Hall's Opening Reception. More details to follow soon!

*Contributed by SAS ECIG*

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## SAS Delaware Valley Section Virtual Seminar

The SAS Delaware Valley Section is pleased to announce their upcoming meeting that will be held on Tuesday, 8 August 2023, at 7:00 pm via Zoom. To register, click [here](#) or send an email to [russell.dave@gmail.com](mailto:russell.dave@gmail.com). The Zoom link will be sent to registered participants on 7 August.

*Massing Laser-Induced Plasmas with Atomic Absorption to Understand LIBS' Achilles Heel?* Presented by Dr. Jonathan Merten, Arkansas State University Department of Chemistry and Physics

**ABSTRACT:** Laser-induced breakdown spectroscopy (LIBS) allows rapid, portable, microdestructive elemental analysis without sample preparation. However, the lack of sample preparation and the frequent unavailability of appropriate matrix-matched standards mean that the technique is often relegated to semiquantitative tasks. Historically, investigators have used thermal emission spectroscopy to better understand the laser-ablation process and the resulting plasmas, all in hopes of improving the technique's figures of merit and general robustness. Unfortunately, emission spectroscopic signals represent a convolution of multiple complex and interrelated chemical and physical processes in the plasma. This makes it difficult to use thermal emission to tease out the dynamic relationship between sample makeup, ablation processes, plasma extent, and plasma stoichiometry. Absorption spectroscopy, on the other hand, allows absolute quantitation of the plasma's integrated optical depth and can be used to "mass" the plasma element by element. As a result, interpretation of absorption data is somewhat more straightforward. Absorption is, however, an active technique that requires careful attention to the requirements of the Beer-Lambert Law in what is a challenging optical reservoir. As a result, only a few laboratories have made atomic absorption measurements in laser-induced plasmas. I employ and have further developed a technique that we refer to as pseudocontinuum source atomic absorption spectroscopy and have used this to study the absolute masses of analytes in an evolving LIBS plasma. I will discuss both the technique and results highlighting the importance of dynamic chemical reactions in the plasma and their implications for quantitative analysis.

*Contributed by SAS Delaware Valley Section*

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## SAS Early Career Interest Group Member Joins "All Things Photonics" Podcast

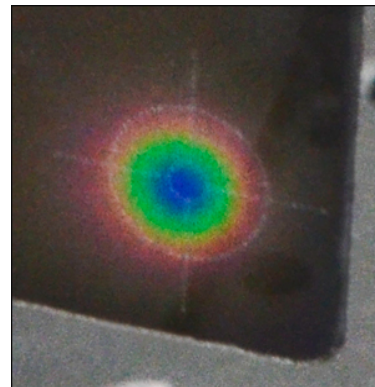
The Early Career Interest Group (ECIG) committee is excited to announce that fellow committee member, Sam Mabbott, recently participated in the "All Things Photonics" podcast. During the 13 June 2023, edition of the podcast, Sam joined a panel discussion that focused on NSF's Precise Advanced Technologies and Health Systems for Underserved Populations initiative, also known as "PATHS-UP". In the podcast, the panel discussed the commercialization of Raman instruments as tools for point of care. Please support Sam and the "All Things Photonics" podcast by checking out this interesting discussion. The podcast can be found under the podcast section of [photonics.com](http://photonics.com) or [here](#).

*Contributed by SAS ECIG*

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## Discovering the Fascinating Science Behind a Mid-IR Laser Alignment Tool

As part of my day job, I occasionally align optics with a mid-infrared laser as the light source. As I do not have a well-trained goldfish handy, which incidentally can see in infrared, visible, and ultraviolet, I have to resort to using a special mid-IR detector card to track my beam. I recently discovered that this detector card works on the same principle as LCD screens and mood rings! Thermochromism is the property of substances to change color due to changes in temperature. Organic thermochromic liquid crystals are used in applications where a precise and consistent response to temperature changes is desired. This however reduces the range of temperatures that liquid crystals of a particular composition will respond. The response of thermochromic



crystals can be calibrated to precise temperature values and therefore also make excellent thermometers. Leuco dyes, while operating in a much wider range of temperatures, have less accurate temperature response. These are a good indicator of whether the object is either "hotter than", "colder than", or "just about" the threshold temperature. As these are relatively inexpensive, these find applications in security printing, toys, battery testers, smart packaging, and such.

If you have interesting images, write-ups, advice, or anecdotes related to your research or the field of spectroscopy, send them to [SASNewsletter@s-a-s.org](mailto:SASNewsletter@s-a-s.org) to be considered for the next issue.

*Contributed by Shruti Ghanekar, SAS Newsletter Committee Member*

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## **Effective Career Development Through Successful Mentor and Network Relationships**

The Early Career Interest Group (ECIG) would like to thank everyone who responded to our recent survey about topics for future webinars. Many respondents stated that they would be interested in hearing a webinar on mentoring. As a reminder to long-time ECIG members, and as a first-time message to newer ECIG members, our very first webinar in September 2021 focused on mentoring. This webinar entitled, "Effective Career Development Through Successful Mentor and Network Relationships", is still available for viewing through *Spectroscopy Online*. If you are interested in watching this insightful webinar, please click [here](#) and fill out the registration form to access the video.

*Contributed by SAS Early Career Interest Group (ECIG)*

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**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 [konnorkjones@gmail.com](mailto:konnorkjones@gmail.com).**

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