

SciX 2020 Program Preview

SciX conferees WILL be sharing their science this fall, with the same level of enthusiasm that they always do! The SciX 2020 team is hard at work this spring to plan a fantastic conference. The SciX 2020 program is rapidly coming together, even as the world adjusts to the reality of the COVID-19 pandemic. SciX extended the oral abstract submission date to May 31 to provide authors with some additional flexibility and response was positive. The Poster Submission date is still planned for July 31, leaving plenty of time for late-breaking content to be presented. The conference theme, Art and Archaeology Analysis, will be featured throughout, kicking off with the Keynote presented by Dr. Rachel Popelka-Filcoff, Kimberley Minderoo Foundation Chair in Archaeological Science at the University of Melbourne.

With over 100 organized sessions, multiple prestigious awards plenaries, and daily poster sessions, conference attendees will have the breadth of science they have come to expect. A number of new features will be introduced, including Poster Slams and a Technology Innovation competition for exhibitors. Based on attendee requests, there will be a session focused on hemp/cannabis analysis. Also, the editorial board of *Spectrochimica Acta Part B: Atomic Spectroscopy* will share their favorite papers of the year, organizing a “best of” session highlighting this content. Honoring the memory of great scientists in our community is a bittersweet opportunity. In 2020, we will honor the contributions of Dr. Clara Craver and Professor Ramachandra Dasari with special technical sessions. As always, the conference draws to an exciting close with the highly competitive FACSS Innovation Award session, where nominees go head-to-head, presenting their science in competition for the FACSS Innovation Award.

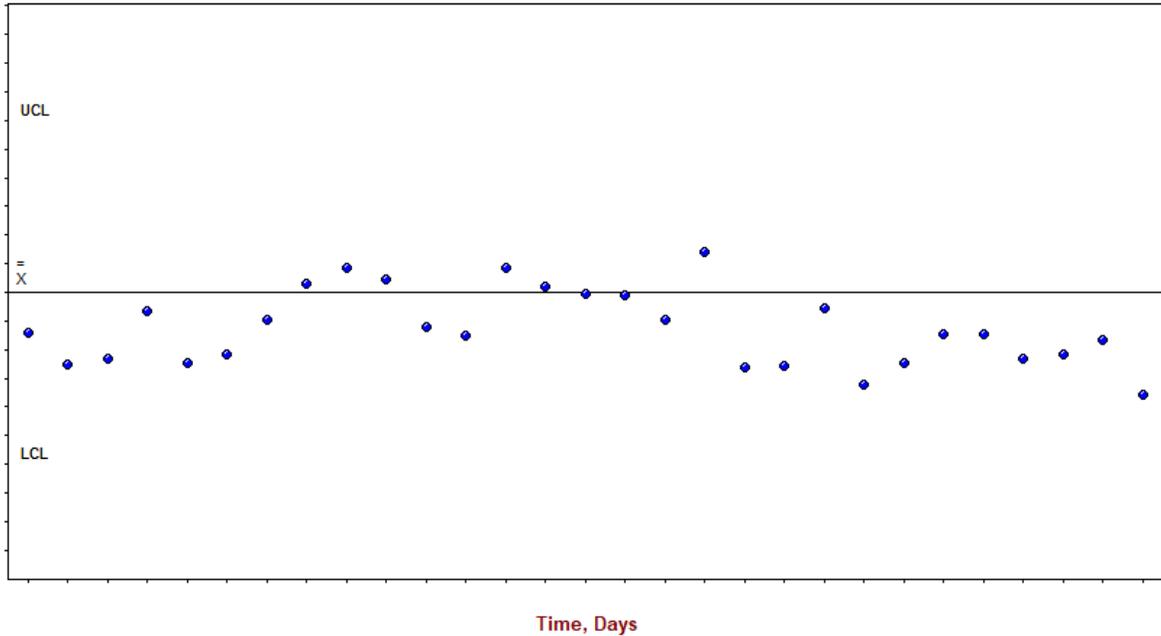
*Contributed by the 2020 SciX Team,
Mary Kate Donais, Linda Kidder Yarlott, Karen Esmonde-White*

Tip of the Month: Daily Performance Verification Checks

Career spectroscopists work on multiple projects simultaneously. They collect and interpret spectra, develop, and validate methods, and then use these methods to optimize formulations and processes, ensure quality, and/or solve problems in business. Whether you are working in early research, R&D, or quality assurance, the need to work smarter is a fundamental goal we all share. When using your spectrophotometer, in the laboratory or in manufacturing, it is helpful to know if the instrument is working properly throughout the workday to ensure the integrity of the data collected.

One of the ways you can easily verify the instrument is ready to work, is to take a measurement of a stable standard and record the peak height, intensity, or absorbance on a daily basis (or more frequently) of a single band over time. Keeping track of the results is a great way to create a quality control chart of long-term instrument performance. You will eventually have enough data to calculate an upper control limit (UCL) and lower control limit (LCL) at the 95% confidence interval. Characterization of instrument performance, in this way, will become enormously valuable whenever your customers questions results.

Reference Standard Response



There are many materials that you can use to verify the instrument is healthy and many of you have already implemented some of these reference materials for daily checking. If you are looking for a daily check sample, Table I contains several suggestions for some of the commonly used materials. It also may be useful to implement a reference standard composed of a key raw material that you may be using in your business, provided it stable (i.e., has a shelf life longer than two to five years) and is not prone to change due to temperature or humidity fluctuations.

For quantitative applications, you can also use a stable calibration standard and track the concentration predicted over time. I also suggest speaking with your vendors as they may be able to recommend a particular material and band position to monitor for tracking instrument performance.

Implementing a daily instrument performance verification check is particularly important when the equipment used is subject to external stresses over time (e.g. fiber optic probes) or when light sources tend to fluctuate (e.g. lasers).

Technique	Reference material
Ultraviolet	Nicotinic acid; holmium oxide
Visible	Didymium glass; holmium oxide
Fluorescence	Polymer doped with organic fluorescent compounds, acetic acid, caffeine
Near-infrared	Calibration standard or raw material that can be sealed and stored for several years, block of polystyrene, or you can use a NIST-traceable mixed organic standard (liquid or solid)
Mid-infrared	Polystyrene film, acetone
Raman	Barium sulfide, calcium phosphate, water, cyclohexane

Table I. One of the ways you can easily verify the instrument is ready to work, is to take a measurement of a stable standard and record the peak height, intensity or absorbance on a daily-basis (or more frequently) of a single band over time. Keeping track of the results is a great way to create a quality control chart of long-term instrument performance. You will eventually have enough data to calculate an upper control limit (UCL) and lower control limit (LCL) at the 95% confidence interval. Characterization of instrument performance, in this way, will become enormously valuable whenever your customers questions results.

References

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[https://www.antpedia.com/standard/pdf/H10/1610/ASTM%20E1840-1996\(2007\).pdf](https://www.antpedia.com/standard/pdf/H10/1610/ASTM%20E1840-1996(2007).pdf)

Contributed by Deborah A. Peru

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Quarantine and the Spectroscopist

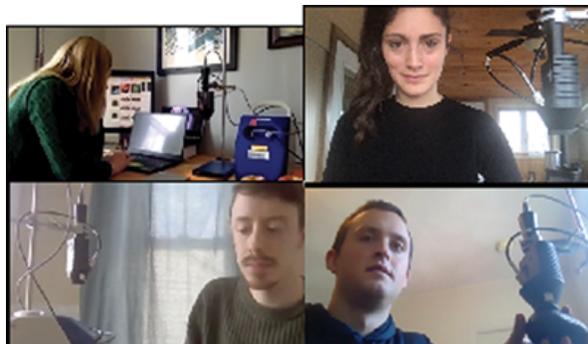
As Experienced by Ellen Miseo, TeakOrigin

For a start-up, the disruption caused by COVID-19 is significant. But being a start-up means that we can also be more flexible than a larger company and since our business model is based on mobile spectroscopy, we are able to continue to work. The timeline that we saw was very interesting. On March 13, 2020, we were notified that the building we are in was closed to non-essential workers. Since our work is lab based, our team went in on March 16. At that time, in a discussion that was conducted using social distancing, we all agreed that anyone who could work from home would, by rearranging our work. We agreed that there would be no more than two people in the lab at any one time. So that week seemed to proceed at a reasonable pace.

On March 23, 2020, Governor Baker suggested a stay at home for all non-essential employees. We had a series of comparison and aging experiments planned to understand better the characteristics of storage on some of our foods. As such, two team members went in and packed instruments as well as sampling care packages.

Everyone picked up an instrument between March 24 and 26 and we had a session over Zoom where everyone set up their instrument and tested it out.

Then, we started our experiment where we looked at six categories of produce over ten days using home storage conditions. More experiments are planned for the next few weeks.



So TeakOrigin is still working. Some of our planned work that required travel won't happen in the near future, but the team is still productive. But we are all hoping to get back into the lab soon.

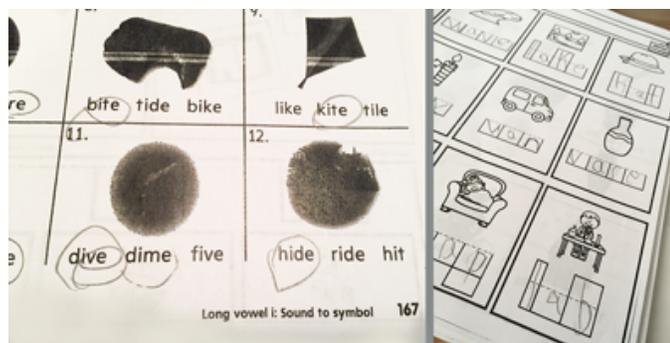
As Experienced by Luisa Profeta, Field Forensics, Inc.

Florida is still under a "Safer at Home" order with only essential businesses being open unless a business can function from home for nearly a month now. The schools shut down on March 13, 2020, remaining closed through the end of the academic year, May 29.

Compared to some of my colleagues, I'm not in the laboratory as much anymore on a regular basis, so complying with the safer-at-home order has not been a major issue with continuing with my primary functionalities of supporting my customers' technical needs, training customers on product use and application, answering technical questions for sales inquiries and helping to research new product ideas based off of customer requirements.

COVID-19's major disruption for my job has been cancelled travel to not only scientific conferences (as a Co-Chair for the Next-Generation Spectroscopic Technology conference at SPIE.DCS), but also trade shows that my company exhibits at and we connect with our end users at annually. Most of the major airlines are making sure frequent fliers like myself are taken care of well into 2021—but the loss of meeting with your customers one-on-one? That's a significant setback.

I am now thrown back into my graduate school days of trying to be a productive researcher while being a teaching assistant (a.k.a., the teacher's aide for all of the videos, worksheets and books sent home in waves). My husband is an essential worker and out of the house 11 hours a day Monday–Friday, leaving the burden of schooling a second grader, a kindergartener and a preschooler on my shoulders while executing all of the previous aforementioned tasks! In fairness to my kindergarten-aged son, I don't blame him for finding confusion in answering his worksheets (see left picture above). At least teachers are instilling what a lab is at this precious age!



Left: If you can figure out these two Thomson atomic plum pudding models, you're smarter than a kindergartener. Right: Getting some STEM recognition, even in kindergarten.

Since my kids are not yet self-sufficient, my third full-time job is being the personal chef for a Gordon Ramsey-like evaluation team.

Is this ideal for a spectroscopist? Not particularly. Is it impossible to manage? At times yes, but I am eternally grateful my boss understands the predicament, and I have a reasonable support-group of other working kindergarten moms who are just as clueless that that black blob was also “dive or hide” too!

Editor’s Note: Transitioning to a Fully Digital SAS Newsletter

In the era of moving away from print media, the Society for Applied Spectroscopy has worked to provide the monthly newsletter to the membership both in digital and hardcopy format. Friends and family joke that I’m “old fashioned” myself given I much prefer a print-format book to a Kindle or my paper copy of C&E News to the digital version they send me each week (which I immediately delete). As I become an over-educated kindergarten teacher at the time of this writing, I prefer the “hands-on” nature of my son’s worksheets over the digital worksheets my second-grade daughter is constantly filling out for her schooling requirements. I was most definitely “that student” who enjoyed cutting out and weighing my NMR peaks for hydrogen peak-ratio analysis during my Instrumental Analysis class as an undergraduate!

However, I do concede that electronic media is often more timely, reduces waste (how many C&E News are not recycled each year?), and can be more cost-effective, especially for volunteer-driven professional societies. It’s been in the works for several months now, even preceding my time as SAS Newsletter Editor; but *SAS is finally working towards moving to a fully digital SAS Newsletter format!* Many of us involved in SAS leadership hope that in transitioning to a fully electronic format members will find multiple benefits, including, but not limited to:

1. **More timely content.** On average with the print edition, we are publishing newsletter content nearly three months after authorship, which makes it difficult for local sections to make announcements for events and even more so for national/international-reaching conferences. Likewise, it makes re-cap editions, for Pittcon and SciX less relevant for those members who weren’t able to attend those meetings in person.
2. **Easier to read.** The peer-reviewed content of *Applied Spectroscopy* should be dense and detailed. The Newsletter should be easy for members to peruse for critical information and catching up on SAS happenings. A digital format allows for easier reading of content that members want to see without searching through a maze of text.
3. **Easier to Contribute.** Members will find that their contributions are not waiting in the pipeline for an extended period of time. It is our hope that this will increase member contribution pieces such as “Tip of the Month” or SAS outreach efforts.

It is our hope that in the next month we’ll be rolling out the fully digital, non-print SAS Newsletter for the membership, so keep your eyes on the lookout and please send any feedback directly to myself at the email below.

Luisa T.M. Profeta,
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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 luisaprofeta@gmail.com.

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