Society for Applied Spectroscopy President's Reflections 2019: Rob Lascola

At the beginning of my term as SAS President 2019, I asked you to "[e]xamine your involvement in SAS and find something you would like to help with, create, or improve." I'm pleased to look back over the year and recognize that many of you have responded to that request. Consider the following list of activities and initiatives. Some were in the works prior to 2019. Some are not yet in their final form. But all have an element of something new-energy, ideas, and/or directions—that SAS needs to meet our purpose to support the field and practice of spectroscopy. I'm presenting this list not only to recognize these efforts and those who have worked on them, but also to spark more ideas and volunteers from members reading this.

- **Training and Certification.** This committee, led by Ellen Miseo, is developing a portfolio of SAS-branded courses. Five courses related to vibrational spectroscopy were presented at SciX 2019 and will appear at other conferences. New courses in other fields (atomic spectroscopy, chemometrics, and others) are being planned. We partnered with *Spectroscopy* magazine to present webinar versions of two courses, which can be accessed from the SAS web site, and we are exploring how to make more courses available outside of conference venues. The training is being developed both for its own sake and for the purpose of supporting a revamped, course- and examination-based Certification program modeled after similar programs in the forensic sciences.
- **Mentoring.** SAS recognizes your needs and requests for enhanced networking and mentoring opportunities and is therefore supporting the Coblentz Society to expand their Speed Mentoring program into a more comprehensive system. At Pittcon 2019, members of both societies participated in a roundtable discussion to review the elements of such a system and a possible path forward for development and implementation. The work will continue into 2020, and both organizations look forward to this program becoming a key membership benefit.
- **Early Career category.** Both mentoring and training will be key elements in our initiative to introduce an expanded, more comprehensively supported version of our current "interim member" status. Newly graduated members will be eligible for a longer duration of time and will have expanded networking opportunities with their peers and with senior SAS members. Programs and activities will try to reach all career fields—academia, industry, and government. We want SAS to be a compelling organization for emerging spectroscopists. As with the mentoring initiative, we aim to introduce this category in 2020.
- **Social Media and SAS website.** SAS welcomes Fay Nicolson as our social media coordinator. She will be assuring that SAS presents a consistent and regular message across various platforms. She is working with our Newsletter Editor Shawn Chen, Web Site Editor Lynn Zhang, Executive Director Bonnie Saylor, and the related committees to maximize our presented content. We are also working with the *Applied Spectroscopy* office and journal publishing partner SAGE to create more "buzz" around the journal as a place to publish, read, and learn.
- **Video conferencing.** SAS has now fully integrated the Zoom video conferencing platform into society operations. However, it has the capability for much more! Simulcasts of section meetings, web-based mini conferences, and other services are available and can help to solve the communication and interaction issues associated with the geographical dispersion of our members. Please contact the Society Office to see how you can use this service.
- **Continued development of student interests.** SciX 2019 saw the inaugural presentation of the Atomic Spectroscopy Section Student Awards. This effort, driven by Derrick Quarles and Ben Manard, recognized four students in a competitive application process. The award winners broadly represent SAS's international membership. Also, SAS's expansion of student sections continues. In late 2018, a new section formed at the University of Puerto Rico–Mayaguez, and as of this writing SAS is on the path to forming our first joint student section between Rennselaer Polytechnic Institute and the University at Albany. Starting at SciX 2019, and continuing forward, we will actively integrate student members into our membership and marketing efforts, to be sure that their interests are directly represented and addressed.
- **Microplastics.** This year, driven by Andrew Whitley, SAS expanded its reach in applied spectroscopy with initiatives associated with the burgeoning field of microplastics analysis. Andrew organized two SAS-branded sessions at SciX on the topic, and with the *Applied Spectroscopy* editorial office is organizing a special issue that will appear in the early part of 2020. We will continue to work to make SAS and our journal a valued forum and resource for this field. Many of the practitioners have backgrounds outside the traditional ones for our members. The growth and continued relevance of SAS will be aided by our successful expansion of the awareness of the relevance of applied spectroscopy to new fields, and the willingness of members of those fields to define themselves as applied spectroscopists. Other issues have explored topics such as analysis of art and cultural artifacts and portable spectroscopic instruments, and a special issue on SERS/TERS, honoring Richard van Duyne,

is in the works for late 2020. These efforts can and must continue, and I encourage readers to propose ideas to the SAS leadership and the Journal office.

What has become apparent to me, in a way I did not fully appreciate when I started my tenure on the Executive Committee in 2018, is the degree of interconnectedness of the different elements of Society operations and governance. There is a cycle that in simplified form looks like:

- Satisfied members renew their memberships and recruit/attract new members;
- who are more likely to publish in, read, and cite our journal;
- which is better able to attract subscribers, advertisers, and sponsors, and builds its reputation;
- which gives SAS a better opportunity to improve member benefits and provide them more efficiently;
- attracting yet more members to continue the cycle.

SAS exists in a changing environment where external influences such as economic trends, changing paradigms for publishing and member engagement, and even the lifecycle of spectroscopic techniques and fields directly influence at least one of those steps and spread to affect the others. Identifying these trends and influences well ahead of time and formulating and implementing strategies and tactics to address them is the challenge of Society leadership. In this past year it has been a privilege to work with dedicated and experienced people towards this end: our Executive Committee (Mike Carrabba, Richard Crocombe, Ian Lewis, and Diane Parry), Society Office (Executive Director Bonnie Saylor and Stephanie Iocco), committee chairs (Andrew Whitley, Brooke Kammrath, and Ellen Miseo, among many others), journal office (Sergei Kazarian, Mike Blades, and Kristin MacDonald), our external marketing (Bill Cunningham/TPM) and publishing (Louisa Strain/SAGE) partners, and all of the SAS members I have interacted with in various capacities. I am looking forward to working with 2020 President Richard Crocombe, new President-Elect Karl Booksh, and all of SAS's other leaders and volunteers as we continue to address these challenges. Thank you for allowing me to serve as your President and for your continued involvement and interest in SAS!

Rob Lascola, Ph.D.
2019 SAS President

Editor's Note

SciX 2019 wrapped up a few weeks ago and therefore this issue is mostly dedicated to the various activities related to SAS at SciX. There were many noteworthy sessions for which the organizers are still working on and a summary of these events here, so some of the SciX 2019 content will be included in our next issue. In this issue, we will also share pictures of many wonderful events organized by SAS and the SciX organizers.

SciX 2019 was an especially memorable conference to me, as I had the great honor to receive my first external award after coming out of graduate school, the Coblentz Society Craver Award. This award was set up in recognition of Dr. Clara D. Craver's pioneering efforts in promoting the practice of infrared vibrational spectroscopy and her many years of service to the Coblentz Society. On a sobering note, Dr. Craver passed away the week before SciX. Her family graciously shared several inspiring life stories of Clara especially with us on her standing up to and persevering against the many forms of bias against women in general, and in particular, her role as a female scientist at the time. I was greatly and genuinely moved by these personal stories (I don't remember being so moved in the recent years). As a result, I attended the Women in Analytical Chemistry session (organized by Rina Dukor) for the first time. In the past, I generally paid little attention to such "non-technical" sessions, thinking that I am a scientist and just need to mind the hard science, but now I really felt the need to learn more about what is shared in that session.

Rina Dukor dedicated the session to the memory of Clara Craver, and she, together with four female panelists, organized a very informative and interactive session (please see the summary by Rina in our next issue). I think I learned just as much, if not more, from this session as any other technical sessions I attended. After all, we are human and by nature, social, and we can enjoy science so much more when we work in a collaborative win-win environment rather than a patriarchal-dominated workplace. I have in the past heard about stories from both female friends and colleagues whose ideas were not taken as seriously. One useful trick I learned from this Women in Analytical Chemistry session is that sometimes in a group meeting a great point made by a female researcher might go unnoticed or given the attention it deserves. We can help by speaking up to point out that a great idea was just made by that researcher.

I also had the opportunity to give the Thursday morning (17 October 2019) plenary lecture that I called: "Have Fun and Impact with In Situ Spectroscopy in the Chemical Industry". I certainly had a lot of fun on the stage as I shared my personal research work with the largest audience I had ever addressed, and I even took a selfie on the stage (which you can find on my LinkedIn page). I hope that more industrial speakers who have been working on wonderful science can overcome the corporate release process and share their interesting research work with the rest of the SAS community!

There were many other memorable moments as well such as the red Jeep ride to visit the San Andreas Fault as the SAS exclusive Sunday afternoon event. I had the fortune to be seated in the same Jeep as several celebrities in the field of spectroscopy, including John A. Reffner, who pioneered the development of infrared microscopy, Rohith Reddy, who is currently a professor at University of Houston and has won multiple awards from SAS and FACSS before, Jim Rydzak, who has been the section chair of Process Analytical Technology at SciX for as long as I can remember and has been campaigning the speed mentoring program at SciX for several years (see summary from Jim below), Alexander Scheeline, who is a professor emeritus at the University of Illinois at Urbana-Champaign and has his own company SpectroClick, and last but not least, Brooke Kammrath, who is a professor at the University of New Haven. See whether you can find the picture of the group of us below!

I am especially glad that I had the chance to meet Brooke, as she has recently taken on the critical role of SAS Membership Coordinator. Membership is one of the most important assets of a society and I am so glad that we have a passionate and motivated membership coordinator now. I also heard about the personal story of how Brooke changed her career from a high school teacher to a university professor under the mentorship of John Reffner. Such close-knit personal mentoring and networking is really what sets SAS apart from many of the much larger organizations such as the ACS, OSA, or APS.

I'm proud that I recruited my former colleague Michael Bishop to join SAS, and he also graciously accepted a volunteer role to serve on our website committee (more on this in our next issue). My personal experience with SAS continues to evolve. While in graduate school, I never thought about volunteering for such professional societies. I was motivated to join SAS when I submitted my first manuscript to *Applied Spectroscopy* at my current job—after I did the math I decided to join SAS rather than pay the hundreds of dollars for the color figure fee. This was one of the best decisions I have ever made in my life! I have since become increasingly involved with SAS, serving as the Newsletter editor for the past three years, and now I'm planning to take on the role of website co-editor in the near future. I have also been chairing technical sessions, including the Process Analytical Section with Jim Rydzak. I am also trying to lead a SAS-China initiative in 2020 and I welcome any ideas or thoughts you may have to support this initiative. Such experiences have been enriching and fulfilling, and I certainly hope that more SAS members can step up to share such responsibilities and fun with us! There are many other memorable moments throughout SciX, most of them related to meeting old friends and new people. For example, I bumped into Martin Kimani who is working at FDA. I learned about his need to detect drugs through packages and suggested spatially off-set Raman for such applications. I hope that in the near future Martin can share with us some of his interesting application work, either in our Newsletter, or on our website, or even at an upcoming SciX! I hope the sharing of my personal experiences at SciX and the many inspiring activities organized by all our fellow applied spectroscopists may motivate you to do more for our shared community: SAS.

Contributed by Xiaoyun "Shawn" Chen
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Speed Mentoring at SciX 2019

The speed mentoring session held on Monday, 14 October at SciX 2019, in Palm Springs was the sixth consecutive year that it has been offered by the Coblentz Society and the Society of Applied Spectroscopy—and it was a big success! We had 24 mentees take part with 29 mentors on hand for them to discuss what it was like to work in industry, academia, or national labs. We had mentors from a number of universities, and industry segments included pharmaceuticals, instrument vendors, chemical, petroleum, and people from national labs like the FDA, USDA, Lawrence Berkley, and Savanna River National labs. Our mentees got to spend a fun and a bit intense five minutes of back and forth exchange of experience with the mentors speaking to at least a dozen mentors during the session. Also, the mentees were introduced to a permanent mentoring site that has been developed jointly by Coblentz and SAS. You can join this site as a mentee or mentor by signing up at https://cgscholar.com/identity/users/sign_in.

We also plan to offer the opportunity at Pittcon 2020 in Chicago, as well as SciX 2020 in Sparks, Nevada.

Contributed by Jim Rydzak
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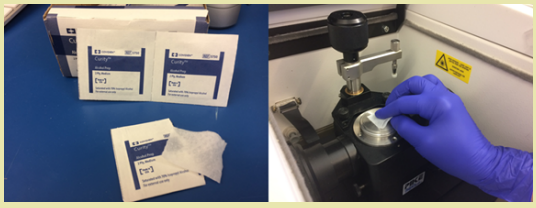
Tip of the Month

Cleaning ATR Elements



Do you clean your ATR element between samples? You should. The technique is a surface technique and even a submicron thin layer of residue can complicate your spectrum possibly making it uninterpretable. Worse collecting a background through a dirty ATR

will result in negative going bands in the absorbance spectrum.

So, is there is a fast and easy way to clean an ATR element without having a wash bottle of isopropanol and lens tissue at hand? Isopropyl alcohol wipes purchased at the local drug store work very well. The wipe material is saturated with 70% IPA and it is incredibly simple to open one, wipe the ATR and be done with it. Just be sure to make sure all the alcohol has evaporated.

This tip works well for fairly hard ATR elements such as germanium, zinc selenide, silicon, diamond, and diamond coated zinc selenide. I would not use this type cleaning on KRS-5 since it is so soft (and I would dispose of KRS-5 if possible, because of the hazard the material poses).

Keep your ATR elements clean and you won't have to worry about cross contamination and wonder if the spectrum you are looking at is truly of the material you thought.

Contributed by Ellen Miseo
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How to Get Published Course

The SAGE Campus team who create interactive e-learning courses for researchers have recently been working on a "How to Get Published" course, and I'm excited to announce that it is now live. We know there is huge demand from researchers to know the secrets of successfully getting their articles published in quality journals. This course provides a fantastic solution to researchers who may not be able to attend live How to Get Published sessions.

The course is available at the below URL, where the learner can register to access the course for free.
https://campus.sagepub.com/how-to-get-published#how-to-get-published/about-the-course

Contributed by Louisa Strain
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Baltimore Washington Tour Speaker program

On 30 October2019, the Baltimore-Washington local section of the Society for Applied Spectroscopy featured tour speaker Dr. Steven J. Ray, the Winkler Assistant Professor of Chemistry in the Department of Chemistry at the State University of New York at Buffalo. Dr. Ray presented some of his research on new instrumental approaches for atomic and molecular mass spectrometry. The meeting was held at Eggspectation in Silver Spring, Maryland. The meeting commenced at 6:00 pm with a meet and greet social hour, followed by dinner at 7:00 pm throughout which the speaker and the section members discussed various topics. The dinner was followed by Dr. Ray's tour talk. All of the attendees and Dr. Ray seemed to enjoy the evening.

Given the need for greater selectivity and lower detection limits in a large number of analyses, there are needs for creating or revisiting approaches for chemical analyses. A great deal of effort has been spent increasing the selectivity of instruments and methods as the capability of methods improve, so does the need to analyze for smaller and less well resolved chemical information.

With this in mind, Dr. Ray has been exploring a variety of areas of research. Some of these are derived from very early research which have largely been overlooked as opportunities for increasing the information that can be extracted from samples. Utilizing developments from a variety of different areas of technology, these techniques have shown significant promise toward the development of new and more powerful techniques.

One example is the distance of flight mass spectrometry. In this application, starting from the base instrumental technique of Time of Flight mass spectrometry, utilizing an alternative initial focusing mechanism than currently used, ions of high molecular weight can be spatially, and momentum focused into narrow bands. These narrow bands can then be gently focused onto a detection/collection chip which allows detection of ions and collection ions onto the detector surface. This detector surface which can be manufactured from a semiconductor wafer at low cost, can then be removed and the collected ions analyzed in place or recovered for further analysis.

Microwave-driven chemical reactions can in some cases selectively accelerate chemical reactions and can change the interactions of samples in some cases. Dr. Ray has been investigating the effects of small commercial microwave sources and their effects on different samples and sampling processes such as in protein digestions and in the nebulization of liquid samples.

Another area that Dr. Ray is researching is the utilization of digital light processors (DLP) in spectroscopy. Aside from the more usual applications which involve the selection of wavelengths from dispersive elements, Dr. Ray is also utilizing the fast switching time of the DLP for the purpose of carrying out time resolved spectroscopy.

Contributed by John S. Canham
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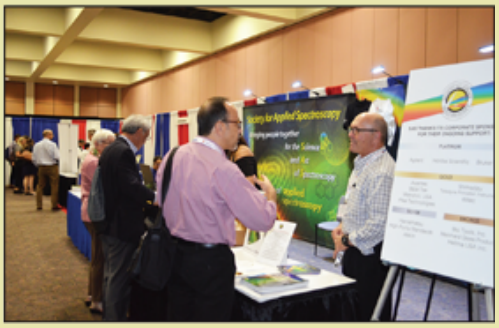
SciX 2019



SciX 2019 Award Recipients

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 xchen4@dow.com.

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