



## SAS eNews



Society for Analytical Chemists of Pittsburgh  
Spectroscopy Society of Pittsburgh



**October Meeting (In-person or virtual)  
Wednesday, 13 October 2021**

**PLEASE NOTE THAT DUQUESNE HAS AN INPERSON MASK MANDATE IN PLACE**

5:00pm: Social hour in the Shepperson suite  
5:30pm: Technology forum  
6:30pm: Dinner in the Power Center Ballroom  
7:15pm: Technical program in the Power Center Ballroom

### SSP Technology Forum

Reid Frazier, Energy Report, *The Allegheny Front*

"Covering Western Pennsylvania's Energy and Environmental Issues: Petrochemical and Shall Gas Industries"

#### Biography

Reid has covered the fracking industry for The Allegheny Front, a public radio show that covers the environment, since 2011. He has won numerous awards for his reporting on everything from climate change to chemicals to the fracking industry's lobbying and influence in Pennsylvania. His reporting on the issue has taken him to the Gulf Coast, Kentucky, and Scotland. Reid has worked as a journalist for over 20 years in newspapers, magazines, and radio. His stories have aired on National Public Radio, Marketplace, and other national radio outlets. A graduate of Hampshire College, he holds a master's degree in history from the University of Vermont. He lives in Pittsburgh with his wife and two daughters.



#### Abstract

Reid will discuss what scientists have learned about the impacts of fracking in the last decade on public health and the environment, what the expansion of the petrochemical industry in Pennsylvania means for the state, and the climate implications of the industry. He will discuss the challenges of communicating the evolving science of a controversial industry as a journalist and questions that are bound to arise as the industry evolves in Pennsylvania.

### SSP Technical Program

Isao Noda, University of Delaware

"Historical Perspective on the Development of 2D Correlation Spectroscopy"  
(A Virtual Presentation)

#### Biography

Born in Japan, Isao Noda received his Ph.D. from Columbia University and D.Sc. from the University of Tokyo. After retiring from Proctor and Gamble, Dr. Noda has held positions at University of Delaware and a biotechnology company Danimer Scientific. His research interest is in the broad area of polymer science and vibrational spectroscopy.



#### Abstract

The Pittsburgh Spectroscopy Award is given annually to a researcher who has demonstrated outstanding achievements in spectroscopy. Isao Noda was chosen based on his outstanding contribution in the advanced understanding and applications in the field of spectroscopy, his leadership in the

scientific community, and his mentorship of young scientists. His research interest is in the broad area of polymer science and vibrational spectroscopy.

Additionally, his creative and prolific contributions to both molecular spectroscopy and polymer science through the development and application of Two-Dimensional Correlation Spectroscopy, has become very widely used worldwide for materials characterization.

His many patents, large number of published journal articles, and three coauthored books indicate the breadth and significance of these accomplishments from both academic and industrial perspectives.

For these highly significant accomplishments, the Spectroscopy Society of Pittsburgh proudly confers this award.

#### MEETING RESERVATIONS

For both in-person and virtual reservations, please complete the appropriate form by [CLICKING HERE](#) BY NO LATER THAN end of day **Tuesday, 6 October 2021**. In-person entree choices include Wienerschnitzel (veal) with braised red cabbage and sauteed spätzle or grilled vegetable kabobs with braised red cabbage and sauteed spätzle. Please let us know if you have any dietary restrictions. Dinner will cost \$10 (\$5 for undergraduate students). Checks can be made payable to either SACP or SSP, depending on your membership. Please note the dinner policy included in your document links regarding cancellations.

#### PARKING

Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. The Power Center can be accessed from the 8th Floor of the Forbes Garage. Bring your parking ticket to the dinner or meeting for a validation sticker.

Please contact Duquesne University, if any difficulties should arise. If there is a special event, please note that you are there for an SSP or SACP meeting to get a parking ticket.

For any questions or problems, please contact Colleen, the Society Coordinator, at 412-825-3220 (Ext. 215).

## October NY/NJ SAS Virtual Meeting

The NY/NJ Society for Applied Spectroscopy (SAS) section cordially invites all to attend the 12:00pm EDT (9:00am PDT) virtual meeting on 21 October 2021. Professor Dulasiri Amarasiriwardena of Hampshire College in Amherst, Massachusetts, will be presenting, "Unraveling of Past Pollution Events Using Elemental Dendrochronology: A LA-ICP-MS Approach".

Join Zoom Meeting

<https://us02web.zoom.us/j/2507362969?pwd=eGVsS2hYT0QzRnJyUzRoT1pJeXEzUT09>

Meeting ID: 250 736 2969

Passcode: 1958

One tap mobile

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## Unraveling of Past Pollution Events Using Elemental Dendrochronology: A LA-ICP-MS Approach

### Abstract

During the lifetime of a tree, annual tree rings incorporate trace metal pollutants translocated from the surrounding soil. Thus, the archived chronological toxic elemental signature in tree rings can be used to reconstruct the past metal(loid)s pollution histories. The Xikuangshan (XKS) mining area in Hunan Province, China, is the home for world's largest antimony reserve. Due to heavy mining activities at the XKS, the surrounding water, soils, and food systems have been contaminated with As, Ca, Pb, Sb and Zn. The purpose of this project was to investigate the trace metal pollution history of the XKS region using elemental dendrochronology and laser ablation (LA)-inductively coupled plasma mass spectrometry (ICP-MS). Wood core samples from several common trees found in the XKS mining district were harvested and air dried and planed for laser ablation (LA) experiments. The laser parameters such as spot size, scan speed, laser ablation frequency, the laser energy was optimized to achieve best laser ablation conditions for determination of annual distribution of trace metals in tested tree cores. We used tomato leaves (NIST SRM 1543a) standard in pressed pellet form for the calibration of LA-ICP-MS instrument for determination of As, Ca, Pb, Sb, and Zn in wood samples. <sup>13</sup>C was utilized as an internal standard to normalize analyte element signals. Trees closer to the mine smelters had accumulated elevated levels of toxic metal contaminants. The average Sb ranging from 18.8 to 4.8 mg/kg was found especially in the vicinity the NM1 (north mine), MT1 (a mine tailing storage site), and BSN (between north and south mine) tree cores where residues of stibnite (Sb<sub>2</sub>S<sub>3</sub>) is abundant. Essential elements such as Ca showed chronological oscillations. The elevated peaks of Sb and Zn were present between 1980-1990 probably due to enhanced mining and smelting of Sb as well as poor mining practices.

### Biography

Dulasiri Amarasiriwardena is an Emeritus Professor of Chemistry, at Hampshire College, Amherst, Massachusetts, received his Ph.D. in Analytical Chemistry from North Carolina State University, and his undergraduate work was completed at the University of Ceylon in Sri Lanka. Dula regularly teaches analytical chemistry, environmental chemistry, and general chemistry. His research is focused on the transport properties and the fate of trace metals and metal nanoparticles in soil and aquatic environments. This includes chemical speciation of arsenic and antimony and characterization of trace metals bound to soil-derived humic acids by size exclusion chromatography (SEC) or ion chromatography (IC) coupled with inductively coupled plasma-mass spectrometry (ICP-MS). Dula is also interested in the application of laser ablation (LA)-ICP-MS for investigation of past trace metal nutrition and the exposure to toxic metal pollutants using hard tissues such as human teeth and hair. He serves on editorial boards of Environmental Pollution and Microchemical Journal.

Dula is a member of American Chemical Society, and Sigma Xi Honorary Research Society. He served as the Chair of the Society for Applied Spectroscopy—New England Section (2008–2009) and Lester W. Strock Award Committee with the Society for Applied Spectroscopy (SAS), 2016–2017. He has received grants from the National Science Foundation and the Pittsburgh Conference. Professor Amarasiriwardena served as a Fulbright Specialist at the University of Concepción (2006,2009,2016) and University of Tarapaca (2009, 2016) in Chile. Dula received the Gruber Award for Excellence in Students Advising at Hampshire College in 2014.

## Fall Laser Biomedical Research Center MIT Speaker Series

The Laser Biomedical Research Center at MIT is pleased to announce that our Modern Optics and Spectroscopy Seminar series will continue virtually this Fall semester.

We will once again be offering a short schedule of MOS seminars presented by an array of speakers, and hope that many of you who attended virtually (or in-person!) in the past will do so once more. We are thrilled that, despite the challenges of the virtual format, many of you will be able to join despite time and location differences.

Seminars will be held via Zoom, and registration is not required. Links will be shared prior to each seminar by email and will provide direct access to the seminar. A short Q&A segment will immediately follow the conclusion of the seminar.?

We hope that you will join us on selected Tuesdays at 12:00pm EST (9:00am PST; standard time after 7 November 2021) for one or all of the following (Zoom link below):

### FALL 2021 Modern Optics and Spectroscopy Seminar

10/26: Timothy Bamum, MIT–McGuire Group, USA  
11/9: Paul French, Imperial College London, UK  
11/16: Harold Linnartz, University of Leiden, Netherlands  
11/30: Ben Schuler, University of Zurich, Switzerland

If you have any questions, or would like to join the MOS email list, please contact [cbrooks@mit.edu](mailto:cbrooks@mit.edu).

Zoom link:

<https://mit.zoom.us/j/94453461927?pwd=am85Mnl1QUlySVJ6ZmpNN2RhN1RwZz09> Password: 847976

## Spectroscopy Society of Pittsburgh Membership Boundaries Expanded

The Spectroscopy Society of Pittsburgh (SSP) is the Pittsburgh Regional Section of the Society for Applied Spectroscopy (SAS). For the 2021–2022 programming year, we expanded our geographical boundaries to include all of Pennsylvania, West Virginia, Ohio, New York, New Jersey, and Maryland. We encourage SAS members to consider joining the SSP and our sister society, the Society for Analytical Chemists of Pittsburgh (SACP). Not only do we offer high quality technical programs, but we also take the proceeds of the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (PITTCON) to further our mission of science outreach and education in the form of grants for current and future scientists! Please contact Pittsburgh delegate and 2021–2022 SSP Chair Heather Juzwa at [juzwa@pittcon.org](mailto:juzwa@pittcon.org) if you would like more information or to join for only \$10!

## College/University Programming and Grants

### *Pittsburgh Conference Memorial National College Grants (PCMNCG) Award Program*

Originally established in memory of R.K. Scott, 1955 President of the Pittsburgh Conference, this award serves as a memorial to deceased members of the Pittsburgh Conference Committee by promoting excellence in science education. Through the program, small colleges can enhance their science curricula through grants of up to \$10,000 to purchase equipment and course materials.

### *SACP Undergraduate Analytical Research Program Grant (UARP)*

The Society for Analytical Chemists of Pittsburgh will award three grants of up to \$10,000 each to promote high-quality, innovative undergraduate research in the field of analytical chemistry. The objective of this grant is to promote training and development of undergraduate students in the field of analytical chemistry.

### *Starter Grant*

The SACP/SSP Starter Grant Awards are given to encourage high-quality, innovative research by beginning chemistry professors. The goal of the grants is to promote the training and development of graduate students in the fields of spectroscopy and analytical chemistry. Two awards are granted each year: a \$40,000 grant from the Society for Analytical Chemists of Pittsburgh in the area of analytical chemistry and a \$30,000 grant from the Spectroscopy Society of Pittsburgh in the area of spectroscopy.

### *SACP College Chemistry Award*

Since 1961, the SACP has annually honored students in chemistry with its College Chemistry Awards. The awards are given to one student, along with a monetary award, at each college to recognize the student's demonstrated excellence in performance and high achievements in the field of chemistry. The Chemistry Department faculty of the student's college selects each recipient.

### *SSP College Equipment Grant Program (CEGP)*

The purpose of this equipment grant is to contribute to science programs at colleges and universities with enrollments of no more than 7500 undergraduate students. The grant was created to be used to assist with the purchase of new instrumentation or to upgrade existing instrumentation, accessories and equipment related to the study of spectroscopy. The maximum amount of the grant is \$5,000.

### *SSP SAS Award*

The Society for Applied Spectroscopy Undergraduate Student Awardee will have demonstrated an aptitude for

research in one or more of the various fields of spectroscopy and maintained a GPA of 3.0 or higher in their undergraduate course work.

#### *College/Institution Speaker Grant*

Your institution can host one of our monthly technical programs at your site, and we will pick up the tab for dinner and soft drinks.

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## Professional Programming and Grants

#### *SACP Pittcon Achievement Award*

This SACP award is presented annually at Pittcon to recognize individuals for outstanding achievements in the fields of analytical chemistry and/or applied spectroscopy within 10 years after completion of their Ph.D. work.

#### *SSP Pittsburgh Spectroscopy Award*

The Pittsburgh Spectroscopy Award is given annually to a researcher who has demonstrated outstanding achievements in spectroscopy. The award consists of an honorarium and a plaque (scroll) and is presented at Pittcon during a symposium held in their honor.

#### *SACP Pittcon Analytical Chemistry Award (PACA)*

This award, presented at Pittcon, was established in recognition of an individual's significant contributions to the field of analytical chemistry.

#### *SSP Ralph N. Adams Award*

The Ralph N. Adams Award in Bioanalytical Chemistry, presented at Pittcon, includes a cash award and travel expenses. The award recognizes significant contributions to the field of bioanalytical chemistry, broadly defined. The recipient will have introduced a significant technique, theory, instrument or application important to the life sciences, and provided an exceptional environment to educate bioanalytical chemists.

#### *Science Institution Grant (SIG)*

New for 2020–2021, created with the intent of helping community groups, clubs, organizations, etc. in developing and supporting a science outreach program or activity. Maximum funding for each application is \$5,000.

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## K–12 Programming and Grants

#### *SACP Elementary/Middle School Equipment Grants Program*

This program gives elementary and middle school teachers an opportunity to submit proposals for the purchase of up to \$600 worth of science equipment and supplies. The SACP typically funds 75% to 80% of proposals received. Equipment is purchased by the SACP and shipped directly to the school.

#### *SACP High School and Middle School Essay Contests*

Students in grades 7–9 and 10–12 are invited to submit essays on a specific topic in science and compete for 13 cash prizes valued from \$100 to \$500 for high school students and \$50 to \$250 for middle school students. This is an excellent opportunity for students to practice their writing skills in preparation for state assessment tests. Each school may submit two essays in each category.

#### *SSP High School Equipment Grants*

This program provides high school teachers of biology, chemistry, physics and general science with the opportunity to request equipment/supplies valued up to \$2,000 to incorporate the use of spectroscopy and related topics in their curriculum.

#### *SSP J. Kevin Scanlon Award*

The SSP has established the J. Kevin Scanlon Award for the Promotion of Science to recognize an educator who has promoted and enhanced science education in the geographic boundaries of the SSP through uncompensated efforts above and beyond their normal classroom duties. Two awardees will be selected by the Award Committee from the submitted nominations. Each recipient will receive a plaque and a \$500 award that they may use toward a science-related resource of their choosing.

#### *SSP Keiven Burns Outstanding High School Teacher Award*

This award consists of a plaque and an honorarium for outstanding science teaching at the secondary school level. It requires a nomination from a Principal or Science Department Head.

#### *SSP Elementary School/Middle School Science Olympiad Program (EMSSOP)*

The SSP will provide funding for elementary and middle schools wishing to develop a Science Olympiad Program for their students. A Science Olympiad program is a hands-on event which excites, inspires and challenges students of all abilities about science. \$2,000 funds for individual schools are available for equipment and materials related to implementation of the Olympiad.

#### *SSP K-8 Science Education Award*

This award consists of a plaque and an honorarium for outstanding science teaching at the elementary school level. It requires a nomination from a Principal or Science Dept. Head.

#### *SSP K-12 Science Innovation Grant Program*

This annual grant provides funding up to \$2,000 to innovative and unique projects for science classrooms throughout the SSP geographic region. Public and private schools are eligible for these grants. Grant applications may be submitted for course-specific or building-wide projects. Applications are reviewed based upon student impact, innovation, connection to the science curriculum, etc. Grant recipients must provide a final report on the outcome of the proposed program.

#### *SACP Computer Workshop for Chemistry and Physics Teachers*

This annual full-day teacher workshop is held at the National Energy Technology Center in Pittsburgh. At the workshop, teachers explore a variety of computer software programs and internet websites for the teaching of important concepts in chemistry and physics. All the concepts and activities correlate well with the new

Pennsylvania science goals. Teachers take home all of the computer programs used at the workshop, receive a free one-year subscription to the Journal of Chemical Education and 5 hours of Act 48 credit through the Allegheny Intermediate Unit.

*SSP Herbert L. Retcofsky Memorial "Light, Color, and Spectroscopy for Kids" Workshop*

This annual full-day teacher workshop for Middle and Elementary School teachers is held at the National Energy Technology Center in Pittsburgh. At the workshop, teachers will explore a wide variety of activities to assist their students in understanding important concepts about light and color. All these activities correlate well with the new Common Core standards. Teachers attending will receive most of the materials needed to perform these activities in their own classrooms plus five hours of Act 48 credit through the Allegheny IU and one teacher will take home Vernier Interfacing equipment for use in elementary/middle school.

*Faraday Lecture*

For decades, the Faraday Lecture has been a live event presented by prominent educators and scientists throughout the nation. Its astonishing demonstrations in chemistry and physics have both amazed and encouraged the middle and high school students to whom it is focused.

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## 2022 Winter Conference on Plasma Spectrochemistry

The 2022 Winter Conference on Plasma Spectrochemistry, 22nd in a series of biennial meetings sponsored by the ICP Information Newsletter, features developments in plasma spectrochemical analysis by inductively coupled plasma (ICP), dc plasma (DCP), microwave plasma (MIP), glow discharge (GDL, HCL), and laser sources (LA, LIBS, LAMIS).

The meeting will be held Monday, January 17 through Saturday, 22 January 2022, in Tucson, Arizona ([www.visitTucson.org](http://www.visitTucson.org)) at the El Conquistador Tucson Resort ([www.hiltonelconquistador.com](http://www.hiltonelconquistador.com)). Professional development short courses at introductory and advanced levels and manufacturers' seminars will be offered Friday through Tuesday, 14–18 January. Spectroscopic instrumentation and accessories will be shown during a three-day exhibition from 18–20 January, and workshops on new plasma instrumentation, clinical ICP-MS, isotope analysis, elemental imaging and mass cytometry, and elemental speciation methodology will be presented Tuesday through Friday afternoons. For program, registration, and short course details visit <http://icpinformation.org>.

**2022 Winter Conference on  
Plasma Spectrochemistry**  
Tucson, Arizona, January 16 – 22, 2022



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](mailto:luisaprofeta@gmail.com).

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