

AUGUST 2024 NEWSLETTER



New Website Feature: Member News

A new feature on SAS's website is [Spectroscopy in the News](#) that features members' professional news, as well as news articles about applied spectroscopy.

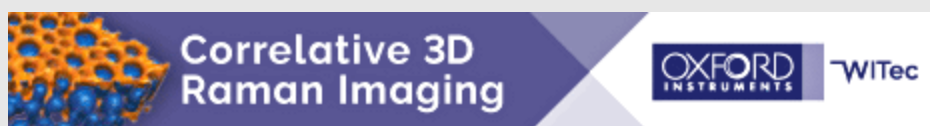
Member news could include:

- Members featured in news stories involving spectroscopy
- New publications (journal, book chapter, book)
- Academic tenure and promotions
- Industry promotions or new jobs/titles

Do you have news you'd like to share? [Complete this form](#) and the SAS office will update the news page. You can always find this form in your Member homepage.

Questions? Contact sasadmin@s-a-s.org

Angela Gordon, Executive Director SAS



Important Dates & Events for SciX 2024

Participate in SciX 2024, taking place from 20-25 October at the Raleigh Convention Center in Raleigh, NC. We have planned special sessions and invited special guests to commemorate this significant event, making this year one you certainly don't want to miss!

Submit your Posters by 12 August, 2024 before 11:59 PM EDT [here](#).

Take advantage of Early Bird Pricing and Register [here](#) now!

Buy a table at our 2-day Career Fair & Expo – Open to the public! Purchase table [here](#).

Register to attend our [free](#) Career Fair & Expo [here](#)!

Check out our Short Courses [here](#)!

View our Interactive Program [here](#).



Tina Gong, SciX Marketing Chair

Early Career/Student Social at SciX

Mark your calendars for a special social event at SciX 2024, presented by the Early Career and Student Sections! This out-of-this-world event will be held on **Monday, 21 October** from **8:00 PM – 12:00 AM** at the [Raleigh Flying Saucer](#), which is known for its wide selection of craft beers and for the hundreds of saucers mounted to the ceiling. Come check it out!

Students and Early Career members will be admitted for FREE with tokens for two drinks and food. General Members of the SAS will also be included for \$20, which covers one drink token plus food. More details, including how to RSVP, will go out closer to the event.



Anthony Stender, Early Career Interest Group

Professional Short Courses Offered at SciX 2024

Professional short courses will be offered at SciX 2024. The courses have low registration fees and are geared to professional development.

Course Number: Course Title	Length	Instructor (s)
CSAS 116: ABC to PMP: A Project Management Crash Course	½ day	Luisa Profeta
SciX135: Mastering Technical Communications	1 day	Henry Maynard
SciX136: Expert to Entrepreneur	½ day	Jeff Kiplinger
SciX 140: Job Search Roadmap	½ day	Caroline Sangal

Course descriptions

CSAS 116: ABC to PMP: A Project Management Crash Course

Project management—a term invoking both excitement and loathing to the experienced professional but to the unfamiliar, it might as well be a second language for a freshly minted scientist venturing out into the world. For the average scientist, the fundamentals of project management are not found anywhere in their undergraduate or graduate level schooling, despite project management being used throughout scientific disciplines. Learning further about project management early in one’s career (or even a little later on) can help scientists understand the nuances to formal project management within their chosen discipline.

This course is not a substitute for formal project management training towards a Project Management Professional (PMP) certification but aims to provide a half day of learning for attendees to understand how project management fundamentals influence all scientists in modern disciplines. Attendees should leave the course having a firmer understanding of the influences of project management within all realms of scientific work.

SciX135: Mastering Technical Communications

This course offers a comprehensive exploration of effective communication strategies tailored to the unique needs of professionals in scientific and research fields. Participants will delve into the intricacies of conveying complex technical information clearly and persuasively, honing their skills in written, oral, and visual communication. Through interactive lectures, practical exercises, and real-world case studies, students will gain the tools and confidence needed to excel in diverse communication contexts within academia, industry, and beyond.

SciX135: Mastering Technical Communication

As scientists, we pour most of our intellectual energy into our specialization, our scientific field, for years in order to become “experts”. With that status

comes pride, recognition, seniority, and respect. Being an expert can also feel like a trap, as when an employer expects you to continue to do the same job forever – because that’s where your value lies.

If you’ve ever wondered whether going the “entrepreneur” route – turning what you know better than anyone else into a thriving business – might give you a way out of your box, this short course is for you.

As scientists, we don’t get a business education, and in fact we have some serious shared blind spots when it comes to some business functions such as sales and marketing. Typical business bootcamps, perhaps offered at a local community college or through government small business agencies, offer a one-size-fits-all approach to take entrepreneurs through start-up. But few if any courses teach the critical skill of *growing* a business.

Finding customers outside your network and helping them make the decision to buy from you is the single most important function of your company. As a scientist, you will naturally think of how to deliver the best product or service in your lab, but you can do this for one customer or a thousand. If your business functions properly, its purpose is to find and keep the other 999.

SciX 140: Job Search Roadmap

Unlock the secrets of the hiring process. This course is designed to give you a behind-the-scenes look at what happens on the other side of the job search. Gain invaluable insights into the roles of recruiters, human resources, and hiring managers. Learn exactly what these key players look for in candidates and how you can stand out and make a lasting impression. Join us to discover how to craft a positively differentiated resume and LinkedIn profile, avoid common interview pitfalls, and negotiate offers effectively. With practical exercises and supportive discussions, you'll leave with the confidence and knowledge to navigate the job market successfully. Sign up today and take the first step toward your next success!

Ellen Miseo, 2024 SAS Secretary

Creative Corner: The Science of Rainbows

Few phenomena captivate the imagination quite like the rainbow. Yet, it is not a material object; they are perceptions and cannot be touched. Formed under specific conditions, this hue arc across the sky is the result of daylight refracted and scattered by raindrops, crafted by light's interaction with water droplets, creating a spectrum of light seen in the top image. This manifests as a multicolored arc, often seen after a rain shower. In fact, René Descartes demonstrated as early as 1637 that rainbows depend on refraction and reflection in spherical raindrops.

Rainbows come in various types, each with distinct characteristics based on the atmospheric conditions and the nature of light interaction with water droplets. There are two types of rainbows: the primary rainbow and the double rainbow. The primary rainbow is the most common type, featuring violet on the inner side and red on the outer side. This rainbow forms when sunlight enters a water droplet, refracts, undergoes total internal reflection, and refracts again as it exits. The bottom image illustrates the propagation of light within the droplet.

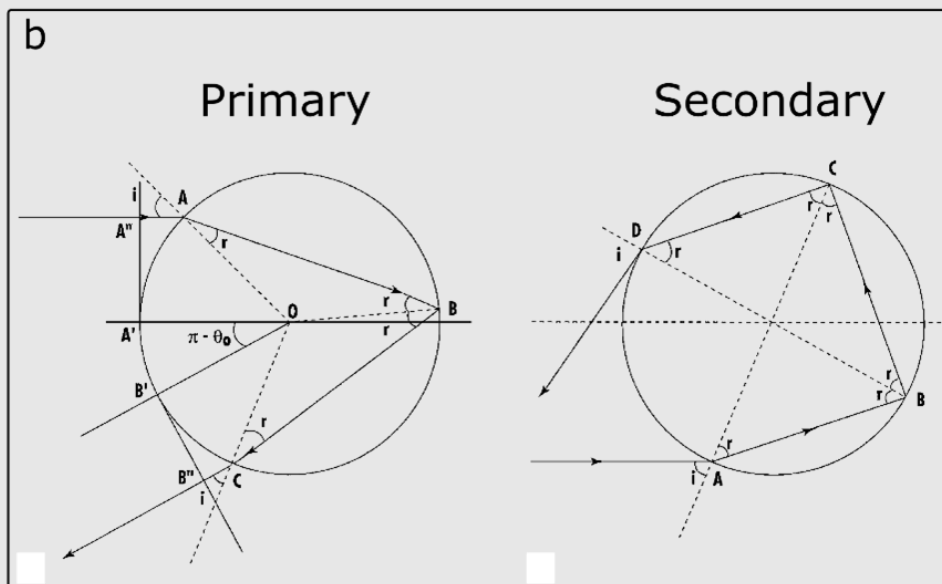
Double rainbows, on the other hand, add an extra layer of intrigue. In these phenomena, a second, fainter arc appears outside the primary one, with its colors reversed—violet on the outside and red on the inside. This occurs because the light undergoes two reflections inside the droplet. The deviation angles, about 42° for red light and 40° for blue light, create this reversed spectrum effect, as shown in the bottom image. These angles also explain why we see different colors at different positions in the arc.

As a gregarious and keen observer may know, no two people see the same rainbow. Each observer's position and perspective create a unique rainbow, as the antisolar point (the imaginary point opposite to the sun) shifts with each viewpoint. This phenomenon also explains why rainbows are perceived as circular arcs from the ground. In reality, rainbows are full circles, but our vantage point typically limits us to seeing just a part of this circle.

Rainbows can take on various forms beyond the primary and double arcs. Higher-order rainbows, twinned rainbows, supernumerary rainbows, reflection rainbows, fogbows, and even moonbows each add to the spectrum of this natural display. Each type is created by subtle differences in the interaction of light and water droplets.

In every culture, rainbows hold a special place, often symbolizing hope, bridges between worlds, and the promises of deities. Whether viewed through the lens of science or myth, rainbows remain a testament to the wonder of light-matter interactions, a spectacle of nature that continues to inspire and amaze.

Alejandro De La Cadena Perez Gallardo, Newsletter Committee Member



(Top to bottom): A rainbow photographed at the Beckman Institute for Advanced Science and Technology by Alejandro De la Cadena. The basic geometry of ray paths in a spherical raindrop for the primary rainbow; adapted from J. A. Adam, Phys. Rep., 2002, 356, 229-365.

Exploring Spectroscopy's Future: An Interview with Richard Crocombe at Pittcon 2024

At Pittcon 2024 in San Diego, Richard Crocombe, a well-known figure in the field of portable spectroscopy, shared his insights about the field during an interview. He discussed how innovations are poised to revolutionize wearable health and fitness technologies, making advanced diagnostics more accessible and personalized. By integrating spectroscopy into wearable devices, he envisions a future where real-time health monitoring becomes a seamless part of everyday life, empowering individuals to make informed decisions about their well-being. This [interview](#) highlighted the transformative potential of portable spectrometers and underscored his significant contributions to the field.

