

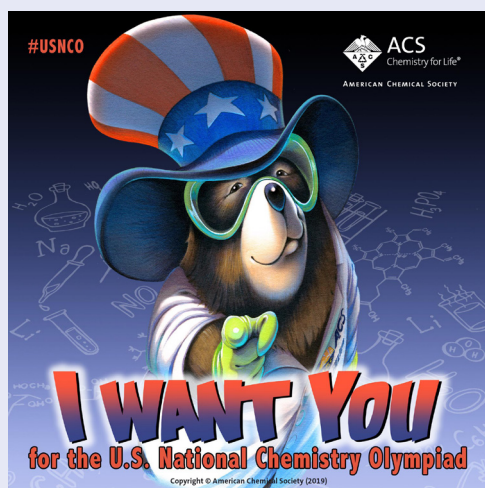


A Joint Publication of the Southern California and  
San Geronio Sections of the American Chemical Society

VOLUME LXXIX/No.1

JANUARY/FEBRUARY 2024

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### Changes to the 2024 U.S. National Chemistry Olympiad Registration Process

USNCO has changed their registration procedures for 2024. See **Page 2** for more details.

### Summary Report on The International High School Students Research Symposium

A full day of virtual presentations from students around the world, covering a range of topics. Our symposium was nothing short of exciting! Check out the complete report on **Pages 4-5**.



### 2024 SCALACS Governance Election Results

See **Page 3** to find who are on the 2024 SCALACS Governance Board.

## UPCOMING EVENTS

See **Pages 8-9** for upcoming  
ACS and SCALACS events.



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# SCALACS

A Publication of the Southern California Section of the  
American Chemical Society

Volume LXXIX

JANUARY/FEBRUARY 2024

Number 1

## SOUTHERN CALIFORNIA SECTION 2024 OFFICERS

### **Chair:**

Richard Kidd

### **Chair-Elect:**

Veronica Jaramillo

### **Secretary/Treasurer:**

Barbara Belmont

### **Executive Committee Members at Large:**

David Hanna

Krishna Kallury

Benjamin Ku

Eric Kuenstner

Jessica Lu

Aaron Moment

Lucky Morales

Sahar Roshandel

Katherine Van Heuvelen

### **Councilors:**

Brian Brady

Robert de Groot

Veronica Jaramillo

Eleanor Siebert

Barbara Sitzman

### **Alternate Councilors:**

Barbara Belmont

Krishna Kallury

Michael Morgan

### **Immediate Past Chair:**

Edye Udell

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## CHAIR'S MESSAGE



Dear SCALACS members,

Happy New Year and welcome to 2024! I hope everyone had an opportunity to rest, have fun, spend time with family and also made (and already broke?) a few New Year's resolutions.

I am very grateful to the executive committee and all of the officers who have served the section this past year, especially Edye Udell for her commitment and leadership as Chair of the year 2023, and Secretary-Treasurer Barbara Belmont as well as Office Managers Peggie Chan, Danielle Fazzi, and Jenneva Guzman, for their sincere dedication and hard work these past years. Congratulations to our newly elected Chair-Elect, Veronica Jaramillo and returning and new members of the Executive Committee.

A passion of mine since returning to the US is public outreach and volunteering, particular in STEAM events. I am fortunate that the organization that I work for is chartered with bringing our work to the public and encourages us to pursue (after a bunch of paperwork!) outside outreach activities. One type of event that I volunteer at, usually as a judge, are science fairs and 2024 is going to be a banner year for science fairs physically in our Section. First up is the Los Angeles County Science & Engineering Fair (LACSEF) in March (at the Shrine Expo Hall) followed by the California Science & Engineering Fair (CSEF) usually in April (at the California Science Center), culminating in the International Science and Engineering Fair (in May) held at the LA Convention Center. I encourage members to volunteer to judge and I hope to see you there!

All three of these fairs as well as the recent (Long Beach, November 2023) Sigma Xi International Forum on Research Excellence (IFoRE) in Long Beach will be held in-person. This past year was the first year that nearly all science fairs, conferences, open-house outreach events, etc., were in person and quite a departure from just a couple of years ago. Both Immediate Past Chair Edye and myself were first elected to the SCALACS Executive Committee (EC) right in the midst of the pandemic and the shutdown. It's been a challenge for us two "EC newbies" to navigate this new world but Edye has done a wonderful job of steering the ship. Luckily, SCALACS rapidly moved to hold the Executive Committee Meetings virtually (a tradition that will continue) and with Chair-Elect Veronica's guidance (she's a past Chair of SCALACS). I hope to continue Edye's work as we continue to emerge from the fog of the pandemic.

Cheers,

**Richard Kidd**  
Chair, SCALACS  
Biochemist and Senior Technologist  
NASA Jet Propulsion Laboratory (JPL)

# CHANGES TO THE USNCO REGISTRATION PROCESS!



## 2024 U.S. NATIONAL CHEMISTRY OLYMPIAD

Teachers, please note that USNCO has changed their registration procedures for 2024. If your students are interested in participating in the 2024 USNCO exams, they must register with **ACS** by completing the online **REGISTRATION FORM** no later than **JANUARY 19, 2024**. Completion of this form is a necessary first step to participation in the program. Students will not be accepted if they have not registered on the ACS website by January 19.

The online registration form and more information can be found at the ACS website below:

**<https://www.acs.org/education/students/highschool/olympiad.html>**

### 2024 IMPORTANT DATES

Schedule is subject to change.

All changes will be posted on the USNCO website.

<b>January 19, 2024</b>	Student Registration Closes
<b>March 1 - 24, 2024</b>	Local Exam
<b>April 13 - 21, 2024</b>	National Exam
<b>June 2 - 14, 2024</b>	Study Camp
<b>July 22 - 31, 2024</b>	International Chemistry Olympiad

The 2024 International High School Chemistry Olympiad will be on July 22 through 31. The Local Exam will be held some time from March 1 - 24, 2024. Once USNCO send the list of student participants to SCALACS, invoices will be issued and sent to the schools/teachers for payment. SCALACS will coordinate with all teachers regarding local exam information.

Any questions, please call SCALACS office at 626.327.1216 or email [office@scalacs.org](mailto:office@scalacs.org).

# 2024 SCALACS GOVERNANCE ELECTION RESULTS

Our Election for 2024 SCALACS Governance has concluded. This election was processed by ElectionBuddy.com. We thank all other members who submitted their votes.

The SCALACS Elected Governance for 2024 is as follows:

## **Elected Officers:**

Chair: Richard Kidd

Chair-Elect: Veronica Jaramillo

Secretary/Treasurer: Barbara Belmont

## **Elected Executive Committee Members at Large:**

Eric Kuenstner (Jan. 2024 – Dec. 2024)

Jessica Lu (Jan. 2024 – Dec. 2026)

Aaron Moment (Jan. 2024 – Dec. 2026)

Lucky Morales (Jan. 2024 – Dec. 2026)

## **Continuing Executive Committee Members at Large:**

David Hanna (Jan. 2023 – Dec. 2025)

Krishna Kallury (Jan. 2023 – Dec. 2024)

Benjamin Ku (Jan. 2023 – Dec. 2025)

Sahar Roshandel (Jan. 2023 – Dec. 2025)

Katherine Van Heuvelen (Jan. 2022 – Dec. 2024)

## **Elected Councilors:**

Brian Brady (Jan. 2024 – Dec. 2026)

## **Continuing Councilors:**

Veronica Jaramillo (Jan. 2023 – Dec. 2025)

Robert de Groot (Jan. 2022 – Dec. 2024)

Eleanor Siebert (Jan. 2022 – Dec. 2024)

Barbara Sitzman (Jan. 2023 – Dec. 2025)

## **Continuing Alternate Councilors:**

Barbara Belmont (Jan. 2022 – Dec. 2024)

Krishna Kallury (Jan. 2023 – Dec. 2025)

Michael Morgan (Jan. 2022 – Dec. 2024)

## **Immediate Past Chair:**

Edye Udell

**Election Date: October 19 - November 24, 2023**

**Election Vendor: ElectionBuddy.com**

**Submitted by and certified by Barbara Belmont, SCALACS Secretary/Treasurer**



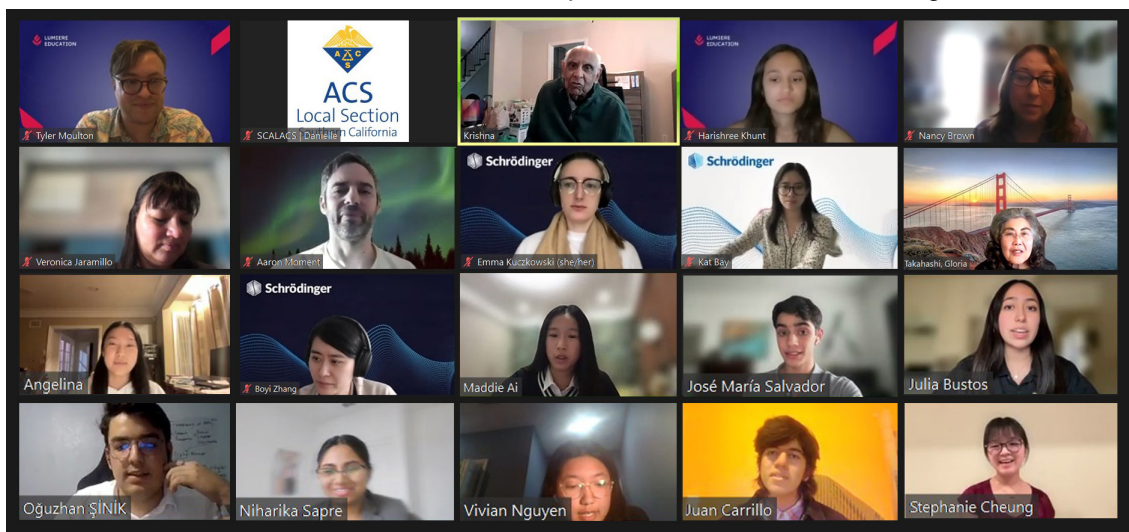
# SUMMARY REPORT ON THE INTERNATIONAL HIGH SCHOOL STUDENTS RESEARCH SYMPOSIUM

## December 2, 2023



This symposium for high school students to present their research is the first of its kind organized by SCALACS since its inception. It is perhaps the first of its kind in the country itself. Lumiere Education, an organization that promotes high school students research, is the sponsor of this event and contributed 21 of its students out of a total of 28 presenters. Lumiere was founded by Harvard graduates and caters to students all over the world.

Among the participating students, eight are from California and belong to the area under SCALACS jurisdiction. Seven are from the USA, namely the states of New York, New Jersey, Georgia, Virginia, and Maryland. Five are from India and one each from Bulgaria, China, Egypt, Ireland, Kazakhstan, Mexico, and Pakistan. All presentations were done in English.



The topics of research presented included widely differing areas. Some focused on the applications of artificial intelligence and machine learning in climate studies, traffic control, automotive design, racial biases, health care, quantum particle studies, and privacy considerations of Twitter content and its ethical impact on women. A number of other presentations dealt with biological or medicinal chemistry involving studies on DNA/RNA, proteins, and other biomolecules with respect to the detection and treatment of ailments such as cancer, disorders of the brain, and other organs, stroke, and transplants.

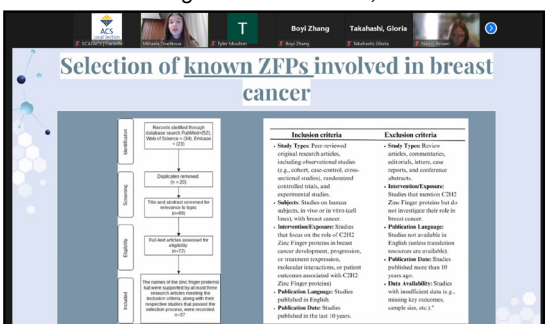
Eight judges participated in evaluating the presentations for awarding gift certificates to the top six students and included Nancy Brown of California Academy of Math and Science (CAMS), Carson; Katherine Bay, Boyi Zhang, and Emma Kuczkowski of Schrodinger Technologies, New York; Anu Kallury of Stripe Financial; and two SCALACS Executive Committee members, Veronica Jaramillo and Aaron Moment. Our sincere thanks to all of them for taking their time to judge the event.

We also thank Tyler Moulton, Head of Academic Programming of Lumiere, for functioning as event coordinator, and Krishna Kallury, SCALACS Councilor, for putting this event together.

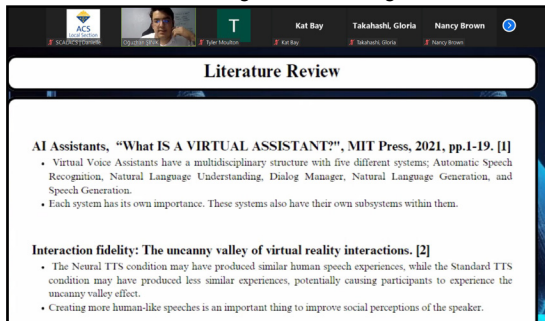
The following students were adjudged to be the top six presenters and were given Gift Certificates of one hundred dollars each. The funds were provided by a Local Section Activities Committee (LSAC/DEIR) grant.



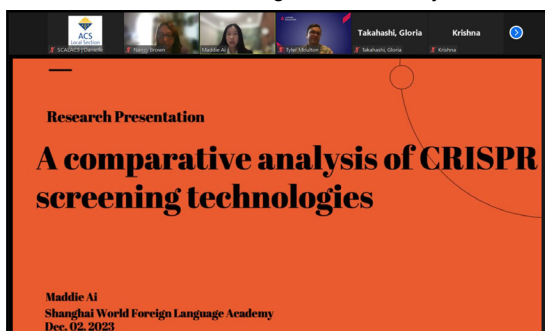
*Presentation by Stephanie Cheung, Westridge School for Girls, USA.*



*Presentation by Mihaela Petrova Tzvetkova, American College of Sofia, Bulgaria.*



*Presentation by Oğuzhan ŞİNIK, Ankara Atatürk High School, Turkey.*



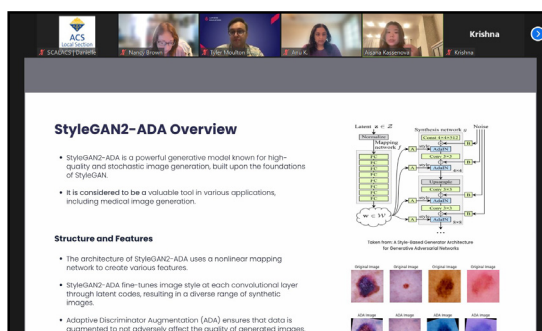
*Presentation by Maddie Ai, Shanghai World Foreign Language Academy, China.*

Our congratulations to all of them for their wonderful and exciting presentations! SCALACS proposes to continue organizing similar symposia next year.

- **Stephanie Cheung:** How a Hypoxic Environment Impacts CBX6 Expression and its Potential Target CA9 within Glioblastoma
- **Ryan Santosh:** Employing Machine Learning Technologies and Frameworks to Aid with Automotive Design
- **Adhiraj Gupta:** How do different CNN architectures compare for the task of classifying road signs and drawing bounding boxes around them?
- **Nada Elmahmoudy Hassan Elazazy Harraz:** How can rising sea levels affect the coastal zone of the Nile Delta in Egypt?
- **Angelina Lin:** Are all controls interchangeable? (in *Caenorhabditis elegans*)
- **Mihaela Petrova Tzvetkova:** What is the impact of zinc finger proteins in developing and promoting metastasis in breast cancer?



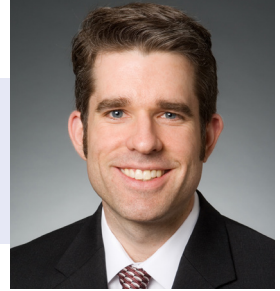
*Presentation by Angelina Lin, Brentwood School, USA.*



*Presentation by Aisana Kasanova Askhatovna, Astana Garden School Kazakhstan.*

BY

KEITH ORSO  
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Recent columns have explored the content of the 1976 “Agreement on Guidelines For Classroom Copying In Not-For-Profit Educational Institutions” (“the Guidelines”). How have these guidelines been addressed by the courts?

In one case decided two decades after the agreement, a commercial copyshop “reproduced substantial segments of copyrighted works of scholarship, bound the copies into ‘coursepacks,’ and sold the coursepacks to students for use in fulfilling reading assignments given by professors at the University of Michigan.” The copyshop was owned by a man who was “something of a crusader against the system under which his competitors [had] been paying agreed royalties, or ‘permission fees.’” Unlike his competitors, the owner declined to obtain permissions and advertised to professors that they would not have to worry about delays associated with obtaining licenses from publishers.

Three major publishing houses sued the owner and his copyshop for copyright infringement. The extent of the copying, which ranged from 5% to 30% of the published works, was undisputed. The issue to be decided by the courts was whether the copying constituted fair use. The trial court decided that the commercial exploitation by the defendants was not fair use. The defendants appealed, but the court of appeal ultimately affirmed the finding of no fair use.

The court of appeal found that the use by the defendants, as opposed to the students who purchased the coursepacks, was commercial and that the publishers carried their burden of proving a diminution in market value as a result of the use. Turning to the Guidelines, the court noted that congress “explicitly accepted the Classroom Guidelines ‘as part of their understanding of fair use’ and that one circuit court of appeals had “characterized the guidelines as ‘persuasive authority.’” The court found that “[i]n its systematic and premeditated character, its magnitude, its anthological content, and its commercial motivation, the copying done by [Defendants] goes well beyond anything envisioned by the Congress that chose to incorporate the guidelines in the legislative history.” The court acknowledged that the Guidelines “do not purport to be a complete and definitive statement of fair use law for educational copying” and “do not have the force of law, [but stated that] they do provide us general guidance.”

The court concluded that “[t]he fact that the [defendants’] copying is light years away from the safe harbor of the guidelines weighs against a finding of fair use.” One judge dissented, criticizing the majority for its reliance on the Guidelines as an interpretive tool without identifying any ambiguity in the fair use statute.

*The author earned engineering and chemical engineering undergraduate and graduate degrees, and is a patent attorney and partner at the law firm of Irell & Manella LLP. This column does not constitute legal advice and does not necessarily reflect the views of the firm or its clients.*



# THIS MONTH IN CHEMICAL HISTORY

BY

**HAROLD GOLDWHITE**  
California State University, Los Angeles  
hgoldwh@calstatela.edu



I promised you more on Fourcroy, the author of “Philosophie Chimique,” the early 19th Century book I reviewed briefly in a recent column, and so I hereby fulfil my promise. After all, pretty much all I said of this significant scientist was that he was a colleague of Lavoisier and that he was one of the authors of the important text on chemical nomenclature. He deserves more. The following account is based on the extensive biography and bibliography in Volume 3 of J. R. Partington’s magisterial “History of Chemistry” (Macmillan, 1962).

Antoine Francois de Fourcroy was born in Paris in 1755 to an impoverished noble family. He had little schooling and became a clerk, but a family friend helped him to enroll in medical school where he began to study chemistry. Marriage to an heiress gave him security and he studied with Bucquet and Maquer. He gave an introductory course in chemistry before he graduated, and sometimes filled in for Maquer in the latter’s courses. When Macquer died, Fourcroy was appointed to succeed him as Professor at the Jardin du Roi. This was where Lavoisier first studied chemistry and where, probably, he first met Fourcroy.

Despite his slight attachment to nobility, Fourcroy was accepted by the revolutionary administration and he succeeded Marat as a member of the National Convention where, among other activities, he successfully argued for the Metric Commission. He supported the establishment of a National Medical School and was appointed its Professor of Chemistry. He helped found the Ecole Polytechnique

which became the leading scientific and technological university in the country.

In 1801, Fourcroy was appointed a Consul by Napoleon and he served as Minister of Public Instruction from 1802 - 1808. At that time, France was limited in its imports by the British navy’s blockade and Fourcroy helped organize the saltpeter industry to support the manufacture of explosives.

Now to Fourcroy the chemist. His publications number over 160, most with Vauquelin as co-author. Vauquelin was an outstanding analytical chemist (certainly worthy of a future column) and the scuttlebutt is that Vauquelin did most of the experimental work and Fourcroy wrote the articles. Fourcroy’s first major chemical text, based on his lectures, was published in 1782 titled “Elementary Lectures on Natural History and Chemistry.” He became increasingly interested in chemistry applied to medicine and physiology and, in collaboration with Vauquelin, analyzed mineral waters, medications, and many natural products. They showed that the “albuminous” materials in vegetables contained nitrogen. Gluten from wheat could be separated into components, one of which (gliadin) was soluble in ethanol while the other (glutenin) was insoluble. Onion juice contained sugars but investigations into rubber latex and cinchona bark (the source of quinine) were inconclusive. Fourcroy was one of a number of discoverers of picric acid from the reaction between nitric acid and indigo; he called it “hydrocarbon of nitrogen

*(Continued on page 8)*

Baltimore  
in  
'24

ICGS Conference

June 24-26, 2024

Renaissance Baltimore Harborplace Hotel  
Baltimore, Maryland, USA

Dr. Edye Udell, SCALAC's immediate past president will be presenting at the 2024 International Coalition of Girls' Schools Conference happening on June 24 - 26 in Baltimore.

More information can be found here:

<https://girlsschools.org/professional-development/icgs-conferences/>



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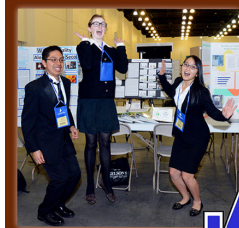
(Continued from page 7)

superoxygenated." In a more grisly mode (I am writing this a week before Halloween), Fourcroy and another colleague, Thouret, had an unusual opportunity when corpses at the Cemetery of the Innocents in Paris, which had become overcrowded, had to be moved. The corpses reeked of ammonia and had a waxy material on them that Fourcroy named adipocire. He believed (incorrectly) that it was identical to the material of gallstones. It is, in fact, a mixture of calcium and potassium salts of long-chain fatty acids.

Fourcroy, often with Vauquelin, carried out studies of milk, cheese, blood, bile, tears, mucus, saliva and urine; they were pioneers

of physiological chemistry. They showed the presence of phosphorus in fish roe and, importantly, bones. They purified urea from urine. And, in detailed studies of urinary stones they identified uric acid, ammonium urate, calcium phosphate, magnesium, and ammonium phosphates, calcium oxalate, and, rarely, silica.

I close with a quote from Partington: "It is the destiny of pioneers to be forgotten and their work superseded..." I write these columns so that from time to time I may remind you of some pioneers of chemistry.



# LOS ANGELES COUNTY SCIENCE & ENGINEERING FAIR

Join us for the 74<sup>th</sup> Annual LA County Science & Engineering Fair **in person**, March 10-11, 2024, at the Shrine Expo Hall, Los Angeles!

**Virtual** Awards Ceremony on YouTube Channel  
Sunday, March 24, 2024



## CALIFORNIA SCIENCE & ENGINEERING FAIR



The California Science & Engineering Fair is usually held in April hosted by the California Science Center located in Exposition Park, just south of downtown Los Angeles. Keep April open in your calendar to either volunteer or attend this fantastic fair. More info will be announced at <https://csef.usc.edu/>



Regeneron ISEF 2024 will take place in Los Angeles from May 11-17, 2024 at the Los Angeles Convention Center. Regeneron ISEF 2024 is an in-person event with all finalists competing in-person. For more information on volunteering and sponsorship, visit <https://www.societyforscience.org/isef/>

**SOUTHERN CALIFORNIA SECTION  
AMERICAN CHEMICAL SOCIETY**

**2700 East Foothill Blvd #209  
Pasadena, CA 91107**

**IMPORTANT  
Do Not Delay!**

**Contains Dated Meeting Announcement**

# PERIODICALS

## IMPORTANT DATES

### JANUARY

**19** High School Olympiad Student  
Registration Closes — page 2

### MARCH

**TBA** High School Chemistry Olympiad  
Local Exam — page 2

**10-11** Los Angeles County Science &  
Engineering Fair — page 9

**17-21** ACS Spring 2024 — page 8

### APRIL

**TBA** California Science & Engineering Fair  
in Los Angeles — page 9

**13 - 21** High School Chemistry Olympiad  
National Exam — page 2

### MAY

**11-17** Regeneron International Science  
and Engineering Fair 2024 in Los  
Angeles — page 9

### JUNE

**3-5** ACS Green Chemistry Institute's  
28th Annual Green Chemistry &  
Engineering Conference in  
Atlanta, GA — page 8

**24-26** 2024 International Coalition of  
Girls' Schools Conference in  
Baltimore, MD — page 8

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**For more information or to find events, please see our website: [www.scalacs.org](http://www.scalacs.org)**