

April 2022, Issue 4, Volume 84



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1. Top: Bugs: Alex Madonik – ACS
2. Middle: Andy Streitweiser: Alex Madonik
3. Bottom: The Tri-Valley Innovation Fair Picture: Alex Madonik

Newsletter Editor Donald MacLean

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## Editor's comment.

### Errata corrections for March 2020 Irony of Iron Part 3

Such super massive stars are least eight times and not more than 40 to 50 times, the Sun's mass of approximately  $2 \times 10^{30}$  kg, typically averaging about 25 solar masses (Table 1). They are rather short-lived stars with ages of approximately  $10^7$  years and are also believed to have been some of the first stars formed after the Big Bang.

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### Section Will Host Local Participants to the US National Chemistry Olympiad National Exam on Sat., April 30th, 2022 - at Las Positas College (Livermore)

This event is restricted. High School participants have been selected using the March local section test results. The event is held jointly with the Silicon Valley (SV) Section. The host location alternates between the California section and the SV section. This year the California section will host the test at Las Positas College on April 30th.

Reprint from the March 2022 The Vortex

Prepared by Alex Madonik and Sushila Kanodia



This April 17–23 chemists across the globe will join together to celebrate

#ChemistsCelebrateEarthWeek. Participate by planning your own #CCEW event – or finding a scheduled event near you. Visit [www.acs.org/cceb](http://www.acs.org/cceb) to learn more. #insectchemistry

**Chemists practice chemistry every day, but the celebration of Earth Day during month of April** provides an occasion to focus on our role and our connection to the planet Earth and its resources. This year's ACS Earth Week theme is "The Buzz about Bugs: Insect Chemistry". In the California Section, we celebrate the 20<sup>th</sup> anniversary ACS Earth Week with a virtual event on April 23<sup>rd</sup> from 2 to 5 PM. This event will feature live demonstrations and interactive, hands-on chemistry, followed by a virtual visit with ACS President Dr. Angela Wilson. Sign up online by March 31<sup>st</sup>, and we will send you a FREE kit with instructions for three exciting, family-safe, hands-on chemistry activities. If you need additional resources, including extra copies of Celebrating Chemistry, you can contact us at [CalACSEarthWeek@gmail.com](mailto:CalACSEarthWeek@gmail.com)

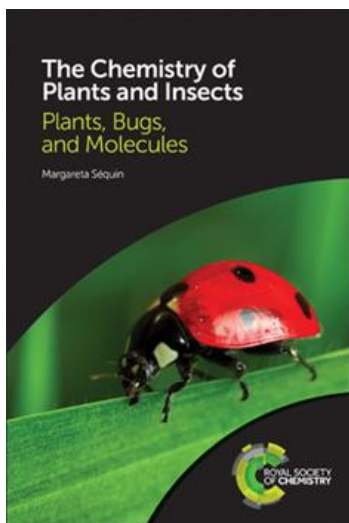


Visit the Cal ACS web site and sign up at <https://calacs.org/outreach/earth-week/>

**Attention K-12 students: you can enter the Earth Week Illustrated Poem contest** – visit our website at the link shown above for details and the entry form. Submit your entry electronically by Sunday, April 24th, 2022 for a chance to win prizes in one of four grade categories. Local winners will advance to the national ACS contest.

**Another opportunity to show your imagination and creativity this year is the [build-a-bug contest](https://calacs.org/outreach/earth-week/)**, using virtual parts of different insects to create something entirely new, and then naming your creation. Share a print of your bug electronically to enter the contest at <https://calacs.org/outreach/earth-week/>

Our website offers a variety of resources for Earth Week and do-it-yourself science. You'll find links there to other Bay Area resources, including the [Essig Museum of Entomology](#).



If you want to dig further into this topic, former Cal ACS Chair [Margareta Séquin](#) has written an engaging book that is the perfect starting point: [The Chemistry of Plants and Insects: Plants, Bugs, and Molecules](#). This book explains the natural chemical compounds that determine the fascinating interactions between plants and insects, providing a gentle and absorbing introduction to organic chemistry that is highly relevant to everyday life and to the natural world and much more. A fascinating read!

Again this year the in-person event at John Muir National Historical Site has been cancelled due to COVID health concerns.

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## Cal ACS Section Spring Science Festival Participation Plans

[The Bay Area Science Festival](#) returns to Oracle Park in San Francisco on Sunday, April 24th, 2022, 10 AM to 4 PM. Cal ACS will be there for in-person hands-on science fun. Please contact [Alex Madonik](#) if you'd like to help out at this event.

[The Bay Area Science Festival](#) returns to Cal State East Bay in Hayward on Saturday, April 30th, 10 AM to 4 PM. Our CSU EastBay colleagues will welcome visitors with an open house and a chemistry magic show. These BASF events are FREE, so please help spread the word. We hope to see you there.

[North Bay Area Science Discovery Day](#) returns to Sonoma County Fairgrounds in Santa Rosa on Sunday, May 15th, 2022, 10 AM to 4 PM. Cal ACS will be there for in-person hands-on science fun. Please contact [Alex Madonik](#) if you'd like to help out at this event.



California Section  
American Chemical  
Society



All are welcome

Saturday, May 21, 2022

### Title

**How to Thrive (Not Just Survive) as a Woman in Today's World**

### Time

10:30 – 11:00 am

Chatting

11:00 am

Talk and Discussion

### Reservation

Please visit the CalACS website [www.calacs.org](http://www.calacs.org) to register for this meeting or use [Brown Paper Tickets](#). Link for registration:

Link will be placed here!

Please register before Thursday, May 19, 2022, 12 noon. Your email address is needed to send the ZOOM link, which will be shared with attendees on or before the day of the event via Brown Paper Tickets.

### Cost

Free

### About the Speaker



Keda Edwards Pierre is a **renaissance woman** who lives a successful, unconventional, and transformative life - which by all accounts and most societal rules, she should not have. She strives to inspire change through action as a **thought leader, inspirational speaker and Founder of True II Soul Network**

([true2soul.com](http://true2soul.com)), a collective of professional members and community members that are **challenging the status quo around trauma recovery, resiliency development and diversity & inclusion.**

A **27-year police veteran**, Keda walks the talk of powerful healing and living the life we desire – personally and professionally. Her healing journey, coupled with her diverse training and professional history, is the driving force behind her two-fold mission: to **revolutionise how we deal with trauma and create safe and inclusive spaces** for this healing work to be done.

### Abstract

So, you're surviving in this dog-eat-dog world - now what? How do we kick it up a notch? I know, firsthand, what this takes - as a **Black female police veteran** and an **adult survivor of physical, sexual and racial trauma**. A life full of challenges taught me a few important lessons - including that **trust, adaptability, and authenticity are essential for success**. Our achievements correlate with our willingness to be true to who we are, our capacity to trust ourselves and our readiness to release old versions of ourselves to transform our lives.

As women, how do we lead in today's world? A better question is: How well do you trust your capacity to lead? Success is built on trust, and trust is built on honesty - with yourself and with others. Combine these with authenticity and adaptability for true empowerment - from home to boardroom. I don't have a magic pill or formula for you. What I offer are unique perspectives, life experiences, hard-won lessons and effective methods. My methods are how I was able to build a **successful 27-year policing career** - and this is how I was able to leave it (despite many clucking tongues and well-intentioned warnings). I'm now the renaissance woman I always envisioned - as an **actor, coach and inspirational speaker**. I'm living a life that I should not have by all accounts and most societal rules. What life do you envision for yourself?

I'll share a **5-Point Self-Check List, also known as my True II Soul ABCs: Alignment, Boots on the Ground, Communication, Care and Creativity**. My "tried, tested and true" checklist brings clarity and guidance in pursuit of excellence. Want to kick it up a notch? This is what I live and breathe. Come learn how!

### Questions?

Please contact Elaine Yamaguchi at [eyamaguchi08@gmail.com](mailto:eyamaguchi08@gmail.com)

## In Memory of Professor Andrew Streitwieser, Jr.



Professor Andrew Streitwieser, Jr. – photo by Alex Madonik © 2007

The California Section lost one of its best known figures with the death of Professor Andrew Streitwieser, Jr. on February 23<sup>rd</sup>, 2022, at the age of 94. As a graduate student with Professor William von Eggers Doering at Columbia University, Streitwieser studied the mechanisms of organic reactions that occur via reactive carbocation intermediates, and became interested in predicting their stability using a relatively new theoretical approach, molecular orbital theory. Theoretical calculations of any kind were still essentially manual procedures in 1950, as Professor Streitwieser describes in his memoir – see the link below to the quantum chemistry history web site.

Streitwieser continued this work as a postdoc with Professor John D. Roberts at MIT before joining the faculty at the University of California, Berkeley, in 1953, where he taught and advised students continuously until just a few years ago. Professor Bergman kindly submitted the following recollections that describe the broad influence of Professor Streitwieser's work. His 1985 organic chemistry textbook (coauthored with Professor Clayton Heathcock) was an essential reference for me during my career as chemist in the life sciences industry. I finally met Professor Streitwieser in 2007 when the California Section recognized him as 60-year member of the ACS.

- Alex Madonik

<http://www.quantum-chemistry-history.com/Streitw1.htm>

<https://www.legacy.com/us/obituaries/sfgate/name/andrew-streitwieser-obituary?id=33337280>

[https://en.wikipedia.org/wiki/Andrew\\_Streitwieser](https://en.wikipedia.org/wiki/Andrew_Streitwieser)

### Recollections of Professor Andrew Streitwieser, Jr. by Professor Robert Bergman, UC Berkeley

Andrew Streitwieser was a major figure in the field of physical organic chemistry and was one of the earliest contributors to applying and concepts of physical and theoretical chemistry to organic chemistry, A notable area of study of his involved the inspection of organic compound intermediates called carbocations, or "short-lived" compounds that would form as a result of organic reactions. His textbook on Solvolytic Displacement Reactions was purchased and read

by most organic chemists with an interest in mechanisms, and his book on Molecular Orbital Theory for Organic Chemists brought understanding and utility to a wide range of workers in the field. Another major contribution was his understanding and application of kinetic isotope effects to the study of reaction mechanisms, which made him a leader in that area of physical organic chemistry as well.

Andy was also a dedicated teacher. He and Clayton Heathcock were well known for their ground-breaking undergraduate organic textbook, and I learned a lot from him during the several years that he and I co-taught the first year graduate physical organic course at Berkeley.

One of Andy's insights that most impressed me was his prediction and discovery of the sandwich compound uranocene. Once the structure of ferrocene had been elucidated, Andy's analysis of the molecular orbital structure of that molecule, and his deep understanding of how MO theory could be used, led him to predict that a similar sandwich compound, but in this case using an actinide and eight-membered pi systems (rather than transition metals and five-membered pi systems that formed ferrocene) should be stable. In what I think was a triumph of that way of thinking led him and his group member Ulrich Mueller-Westerhoff to synthesize uranocene and demonstrate that it is, in fact, quite stable. This was a time when most organic chemists paid little attention to molecules that had metals in them.

Later in his life Andy focused his research on the acidity of organic compounds, and developed one of the most often used methods for measuring quantitatively the pKa's of organic acids that were weaker acids than water, so that their acidity had to be measured in less protic solvents. This required careful experimental work carried out on equipment that was rigorously air- and water-free.

Besides his scientific contributions, Andy was a kind and friendly man personally. He was one of the people who attracted me to Berkeley in the late 1970's, and he was always available to answer my questions on the many occasions I found myself confronting a thorny mechanistic problem. He was one of my favorite colleagues and I will miss him greatly.

<https://www.dailycal.org/2022/02/28/uc-berkeley-professor-emeritus-of-chemistry-andrew-streitwieser-dies-at-94/>

# The Irony of Iron

## Part 4

by Bill Motzer



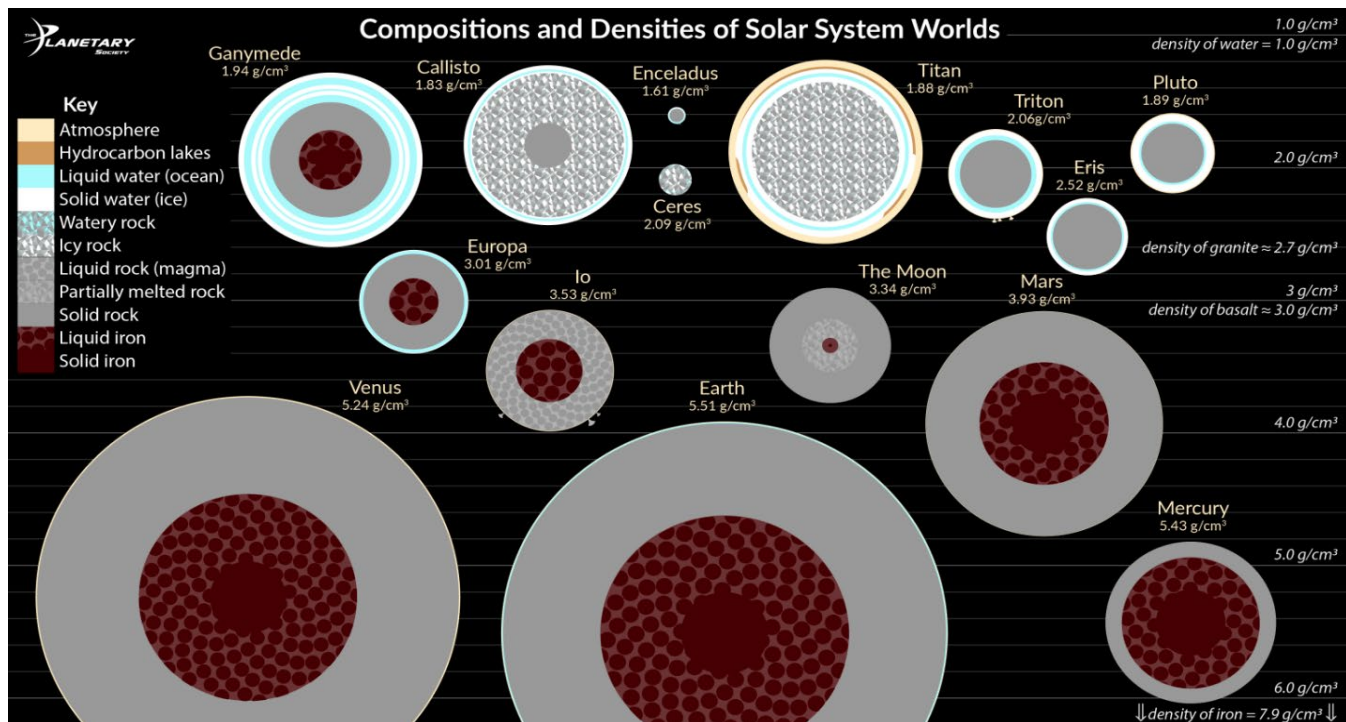
In Part 3 of this series (March 2020 Vortex, I discussed stellar nucleosynthesis, Type II supernovas, and supernova remnant (SNR) that produced and scattered iron (Fe) throughout the Universe to ultimately end up in galaxies and metal-rich stars including our Sun and solar system.

Life, as we know it, is largely composed of the six most important elements contained biological molecules (i.e., living organisms and the human body). These often are carbon (C), hydrogen (H), nitrogen (N), oxygen (O), phosphorous (P) and sulfur (S), abbreviated as the mnemonic acronym CHNOPS. Note that iron is not included; however, if not for iron, life might not have developed and evolved on Earth.

The terrestrial (rocky) inner planets all have similar structures: a central metallic, mostly [iron-rich core](#) generally surrounded by a silicate [mantle](#) and a stable outer crust. A metallic (Fe-Ni) core is important because it can generate a planet's magnetic field by a dynamo effect. Terrestrial planets also possess more carbon-rich [secondary atmospheres](#) either derived by internal volcanism or by cometary and perhaps even asteroid impacts, as opposed to the gas giants (i.e., Jupiter and Saturn) that have [primary atmospheres](#) of mostly H and He captured directly from the original [solar nebula](#) (see also: *Goldilocks and the Three Zones – Part 2*, December 2012 Vortex).

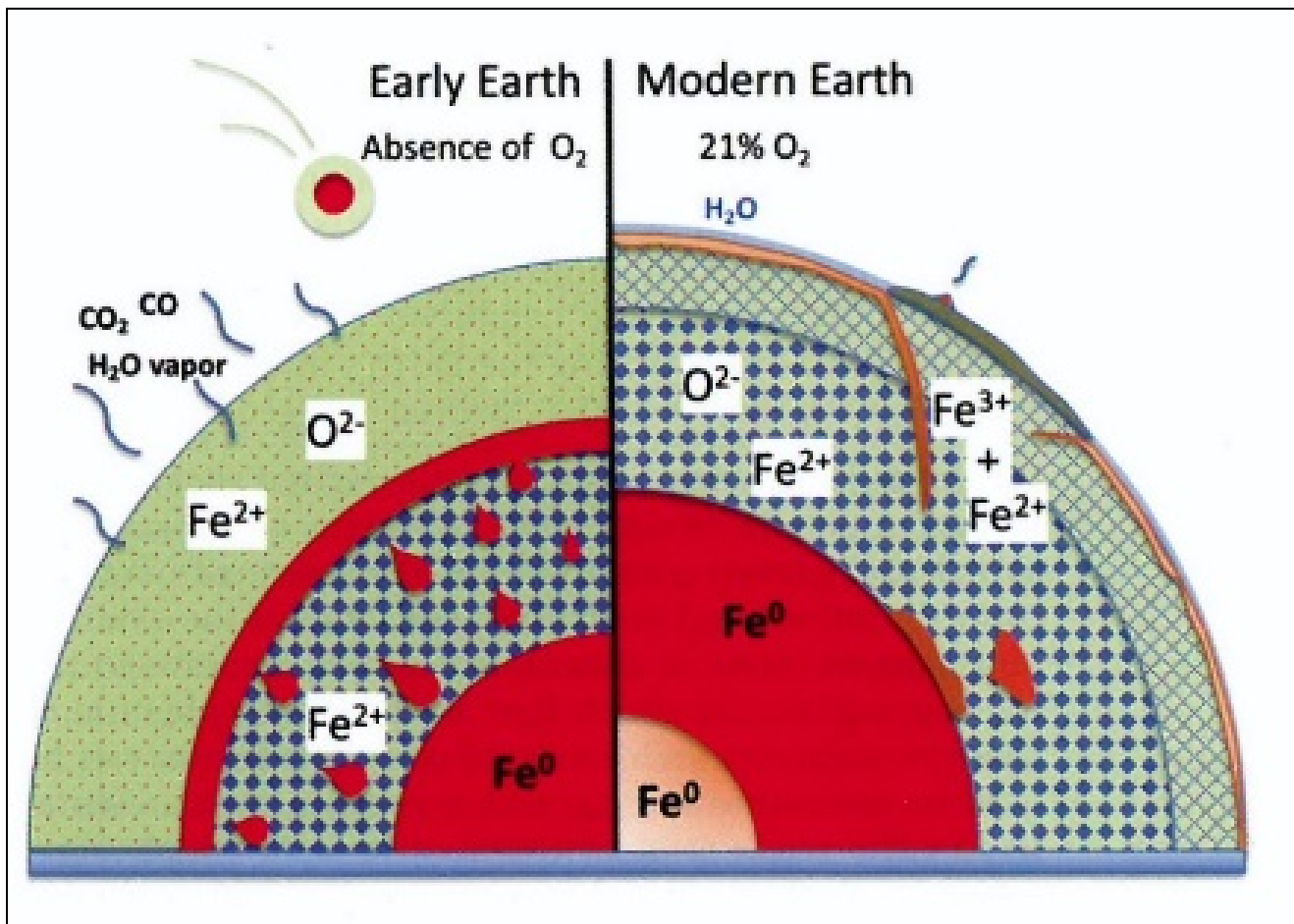
The terrestrial inner planets contain large iron cores relative to their diameters (Figure 1). Mercury and Venus are believed to have iron (Fe)-nickel (Ni) cores. Based on the 2018 Mars *InSight* Landers's seismograph, Mars most likely has a core composed of liquid iron-sulfur mixed with some nickel. Inner planetary large cores are believed to have resulted from early asteroid bombardment (see: P. Olds, "Prelude to a Tentative Idea": September 2020 Vortex, my *Comment on "Prelude to a tentative idea,"* November 2020 Vortex, and Olds, P., 2019).





**Figure 1:** Terrestrial planetary and other solar system asteroid, dwarf planet, and moon core comparisons showing core sizes relative to planetary diameters. Source: B. Murray at: <https://www.planetary.org>.

Large iron cores are necessary to produce sustained terrestrial planetary magnetic fields. However, from planetary probe detections, Mercury has a weak magnetic field, possibly generated from slow rotation and Venus has a very weak and unstable magnetic field due to its slow rotation (243 days) and because it lacks internal thermal convection from a nonrotating molten interior metallic core. Mars may have generated a magnetic field billions of years ago; however, it shut down leaving only some magnetic fragments in magnetized minerals in rock. Earth is the only terrestrial planet having a sustained magnetic field, largely due to the Earth-Lunar system operating as a dual or double planetary system. The Earth-Lunar barycenter is about 1,700 km below Earth's surface or 4,671 km from Earth's center. It's this offset that produces a rotating core dynamo resulting in Earth's sustained magnetic field, which diverts ionizing radiation from the Sun and stellar cosmic rays thereby protecting CHNOPS life. Thus, without iron, there would be no life on Earth.



**Figure 2:** Cross sectional model of Earth's interior showing possible Fe core evolution. Additional Fe was supplied by Earth's collision with a large Mars-like planetoid dubbed *Theia* about 4.4 billion years ago and additional large asteroid impacts. Source: Stagno and Fey (2020).

**References Cited:**

Olds, P., 2019, *Hypervelocity Impacts and Exposed Lithospheric Mantle: A Way to recognize Large Terrestrial Impact Basins?.* Journal of Earth Science, v. 30, pp. 451-459. <https://doi.org/10.1007/s12583-019-1225-x>.

Stagno, V. and Fei., Y., 2020, *The Redox Boundaries of Earth's Interior.* Elements magazine, v.16, n.3, pp. 167-172.

# Reuse, Recycle, Repurpose – Former Hamilton Army Air Field, Novato (Marin County)

By: Donald MacLean

This month's nature science travel location is the former Hamilton Army Air Field in Novato. This former base has the 3 R's, reuse, recycle, and repurpose that are taught to the elementary students when it comes to saving the environment. The air base closed in 1973 and was transferred to the Army. In 1988 it was mothballed then eventually sold for housing.



In 1989 this location was a National Guard staging area after the Loma Prieta earthquake just in case a riot developed that never happened. A number of buildings have been demolished, but ground contamination is an ongoing issue, and some have been repurposed for a museum / art studio. The white airplane hangers have been repurposed and seem underutilized. The runway

has been converted into a mudflat and pool for birds and there are lots of bird boxes. There is a cinder block wall on top of the dike constructed between the hangers and recycled / repurposed runway. The weird perspective is that hangers are at lower elevation than the mudflat that has replaced the runway. This year is a dry year so the view is not optimum.

Figure. From the built up dike, the tower view showing what this place used to be.

Figure. Outpost showing what the potential is.

Figure. The runway is now a mudflat with a water channel.



## EP 11<sup>th</sup> Edition Adopts a Broader Symmetry Factor

By: Donald MacLean

European Pharmacopoeia (Ph. Eur.) Commission adopted the general chapter 2.2.46. Chromatography Separation Techniques with a new symmetry factor 0.8 to 1.8.<sup>1</sup> If a value is not stated, the default symmetry factor range is extended to 0.8-1.8 instead of the current 0.8-1.5. This will be implemented in 11th Edition of the Ph. Eur. (EP 11.0), effective date January 1, 2023.

What is tailing factor?

The ideal chromatography peak is a nice sharp symmetrical shape, a Gaussian peak, with a flat baseline. Non ideal peak shape deviations originate from asymmetrical, flatten, or have the baseline rise. The figure below shows a tailing peak and the parameters used to calculate the tailing factor. Note the key reference points are the peak maximum height, and the one twentieth the peak height (5%), the width at 5% peak height ( $W_{0.05}$ ), and the front half width ( $f$ ).

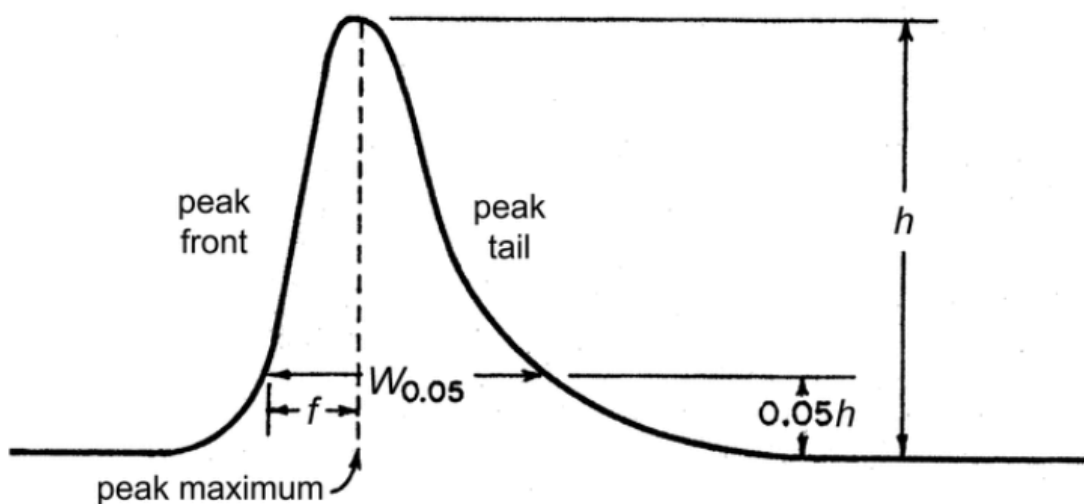


Figure from USP general chapter <621> "Chromatography" showing an asymmetric peak.

Tailing factor also known as symmetry factor ( $A_s$ ) is calculated by  $A_s = W_{0.05} / 2f$

One of the common shifts away from a Gaussian peak is when the back half of the peak falls away. If the peak were split into two, vertically, the later half would be wider than the first half of the peak. This effect is most clearly seen close to the baseline and is known as peak tailing.<sup>2</sup>



There are two main methods for defining peak tailing:

- **Tailing factor ( $T_f$ )** – widely used in the pharmaceutical industry.

Let  $f$  and  $b$  be the peak half-widths at 5% of the peak height,  $f$  is the front half-width,  $b$  is the back.

$$T_f = (f + b) / 2f$$

- **Asymmetry factor ( $A_s$ )** – used in most other industries.

$A_s$  in  $T_f$ ,  $f$  and  $b$  are the peak half-widths, but at 10% of the peak height.

$$A_s = b / f$$

Either method of measuring tailing can be used – unless it is defined in a method or standard – but note the methods are not interchangeable.

$A_s$  value of 1.0 signifies symmetry.

When  $A_s > 1.0$ , the peak is tailing.

When  $A_s < 1.0$ , the peak is fronting.

### Acceptable Tailing

Since most columns exhibit some peak tailing, what is considered an acceptable  $A_s$  value?

A new column is considered acceptable if the  $A_s$  value is 0.9 - 1.2 (0.9 indicates slight fronting).

In practical terms, an  $A_s$  value below 1.5 is usually OK to work with, and up to  $A_s = 2.0$  may be acceptable depending on the separation and resolution of the peaks.

If the  $A_s$  value is greater than 2.0, then there is a problem that needs to be identified and fixed.

What are the harmonization changes in EP general chapter 2.2.46.? See EP 11.0 when it comes out in July 2022 or see <https://www.edqm.eu>.

What do you need to do to prepare? Software update by vendor if needed.

References:

- 1 <https://www.edqm.eu> > news. “Ph. Eur. Commission adopts harmonised general chapter 2.2.46. Chromatographic separation techniques”, February 15, 2022
- 2 Chromatography Today, August 8, 2014
- 3 USP 2022 general chapter <621> Chromatography

# JP 18 Now Available in English

By Donald MacLean

The long-awaited Japanese Pharmacopeia edition 18 (JP 18) is now available in English. It can be downloaded free from the PMDA (Pharmaceuticals and Medicine Device Agency, the Japanese FDA) website.

<https://www.pmda.go.jp/english/rs-sb-std/standards-development/jp/0029.html>

It can be downloaded in 7 parts as follows:

1. General Notices – general Tests, Process and Apparatus
2. Official Monographs (A to L)
3. Official Monographs (M to Z)
4. Crude Drugs and Related Drugs
5. Infrared Reference Spectra
6. Ultraviolet-visible Reference Spectra
7. General Information

The JP 18th Edition came into effect on June 7, 2021 with the transitional period ending on December 31, 2022. There is usually a 6- to 9-month period in which there is no English version to the released edition or supplement. Note the transitional period to apply General Notice 34 (GN 34) will end on June 30, 2024 as specified in the MHLW (Ministry of Health, Labor, and Welfare) Ministerial Notification No. 220.

What is GN 34?

Copied is GN 34. “34. In principle, the JP Drug Products are controlled appropriately according to the direction under Elemental Impurities of the General Tests. When elemental impurities in the drug products are appropriately controlled in accordance with the direction, it is not necessary to perform the tests on elemental impurities such as heavy metals and arsenic specified in the monographs including, but not limited to, those of drug products, drug substances and excipients” <sup>1</sup> This is the ICH part Q3D controlling of elemental impurities which is now part of chapter 2.66 Elemental Impurities (ICH = The International Council for *Harmonisation* of Technical Requirements for Pharmaceuticals for Human Use; Q = quality unit, 3 refers to impurities, D = elemental).

If you read JP for changes, one thing to note is changes from the previous editions are not marked using highlights or marks to indicate changes. Changes must be compared side by side from previous versions. This is different than USP and EP where marks and / or highlights are used to note changes.

Reference:

- 1 Japanese Pharmacopeia 18<sup>th</sup> Edition, General Notices Section.

# Report on the Council Meeting in San Diego – Spring 2022

(Adapted from the *Councilor Talking Points* provided by the ACS)

By Jim Postma

## 1. Election Results

### Candidates for President-Elect, 2023

The Committee on Nominations and Elections presented to the Council the following nominees for selection as candidates for President-Elect, 2023: Frank Blum, Mary Carroll, Rigoberto Hernandez, and Ingrid Montes. By electronic ballot, the Council selected **Mary Carroll** and **Rigoberto Hernandez** as **candidates for 2023 President-Elect**. These two candidates, along with any candidates selected via petitions, will stand for election in the Fall National Election.

President-Elect, 2023a Nominee	1st Round	2nd Round	3rd Round
Frank Blum	76	-	-
*Mary Carroll	129	169	198
*Rigoberto Hernandez	119	132	173
Ingrid Montes	86	105	-

\*410 valid electronic ballots were cast, with 206 being the majority. The results of the first preference vote totals are shown in the 1st round column. No nominee attained a majority. Following the procedures approved by Council, second-preference votes were distributed in two subsequent rounds. Those marked with an asterisk (\*) were declared elected as candidates.

## 2. Council Actions

### Committee on Committees Actions

Interested ACS members who would like to serve on a governance committee (of Council) should submit their online committee preference form for 2023 committee assignments. The preference form will be open to all ACS members and no one will be required to request permission to gain access to the form. The new form will allow users to review each committee by its main topic and focus, along with the skills and expertise needed to serve.

The Council approved the *Petition to Amend the Duties of the Committee on Chemists with Disabilities*. This petition sought to change the language in the duties of CWD from **students** to **persons** to be more inclusive to ACS members of all levels and backgrounds participating in the Society's meetings and events.

The Council approved the continuation of the Committee on Chemists with Disabilities. The Committee on Committee (ConC) reviews each Society Committee no less often than every five years and advises the Board of Directors and Council whether they should be continued. ConC completed the performance review for the Committee on Chemists with Disabilities and recommended its continuation.

### **Committee on Budget & Finance Petition**

The Council approved the *Petition to Amend the Use of Dues*.

- The petition has two major components. The first changes the basis for developing the total pool of allotments available for local sections and technical divisions. The second eliminates the connection between dues revenue and C&EN.
- The total resource pool available for distribution to Local Sections and Divisions will be funded via a quasi-endowment established from the Society's unrestricted investment balances. This replaces the previous pool that was funded through the allocation of 20% of dues revenue to local sections and divisions.

### **Committee on Divisional Activities Action**

The Council approved a division name change. Effective January 1, 2023, the Division of Carbohydrate Chemistry (CARB) will change its name to the Division of Carbohydrate Chemistry & Chemical Glycobiology (CARB).

### **Committee on International Activities Petition**

The Council approved a *Petition to Charter an International Chemical Sciences Chapter*. This petition, contingent on approval by the ACS Board of Directors, allows for a new International Chemical Sciences Chapter in Switzerland.

### **Committee on Membership Affairs**

The Council approved the extension of market testing of the international dues discount program based on World Bank country income levels. The test provides reduced dues for international members residing in emerging nations, which host an ACS chapter, and as defined by World Bank income criteria. The test results to date have suggested a positive impact on membership through new members and the expanded inclusivity that a wider global community provides.

The Council approved the 2023 Schedule of Membership. The 2022 Schedule went live a few short months ago, and the 2023 Schedule was designed to add more value and increased choice for membership by adding clarity and a more intuitive explanation of how our membership works. The 2023 Schedule of Membership did not change any dues, benefits, eligibility, or privileges from the 2022 Schedule.

## **2. Resolutions**

The Council passed several resolutions:

- in memory of Past President Nancy B. Jackson;
- in memory of deceased Councilors;
- to officers and members of the San Diego Local Section.

## **3. Highlights from Committee Reports**

**Budget and Finance** In 2021, ACS generated a net from operations of nearly \$79 million, which was almost \$48 million higher than budgeted. Total revenues were \$660 million, which was 5.2% or \$32.6 million over budget. Expenses for the year were \$581 million, or 2.5% below budget. This overall result was attributed to strong revenue performance from the Society's Information Services units (CAS and ACS Publications), reduced spending due to COVID-19 related impacts, and careful management of expenses across the ACS.



The Society's overall financial position strengthened considerably in 2021 as Unrestricted Net Assets, or reserves, increased by \$123 million to \$676 million on December 31. The increase was primarily the result of the \$79 million net from operations and growth of the Society's investments totaling \$71 million.

**Nominations and Elections** The Committee on Nominations and Elections solicits Councilors' input regarding qualified individuals for President-Elect and/or Directors for future consideration. Suggestions may be sent to [nomelect@acs.org](mailto:nomelect@acs.org).

#### **Actions of the Board of Directors - Executive Session**

The ACS Board of Directors met in Executive Session on March 18 and March 19, 2022 at the ACS spring meeting in San Diego. They considered several key strategic issues and responded with numerous actions. The Board opened its session with a reflection on Diversity, Equity, Inclusion and Respect (DEIR), led by Immediate Past President, H. N. Cheng.

#### **4. The Chief Executive Officer's Report**

The Board received an extensive report from the CEO on issues relating to ACS core values of safety and DEIR, membership, financials, the ACS Institute, strategic initiatives, and upcoming events and activities. Notably, the strategic initiatives include funding of up to \$50 million over 5 years for sustainability, fostering a skilled technical workforce, accelerating digital research data projects, and accelerating life sciences growth.

#### **5. The Board's Committees and Task Forces**

The Board received and discussed reports from its committees on Executive Compensation, on Professional and Member Relations, as well as the ACS Governing Board for Publishing, Budget and Finance and the Working Group on Structure/Representation. Some of these committees requested and obtained Board action on one or more items, as follows.

The Board received an extensive briefing and approved several recommendations from its Committee on Executive Compensation. The compensation of the Society's executive staff continues to be reviewed regularly by the Board.

Upon recommendation of the ACS Governing Board for Publishing, the Board voted to approve the reappointment of one of its members. The reappointment will be announced once the individual has been notified and appropriate arrangements for their continued service have been made.

Upon recommendation of the Committee on Professional and Member Relations, the Board approved five nominees each for the 2023 Priestley Medal, the 2023 Award for Volunteer Service to the ACS, and the 2023 Charles Parsons Award as well as a recommendation for an ACS nominee for the 2022 GRAND PRIX of the Fondation de la Maison de la Chimie.

Pending the approval by Council of the Petition to Amend the Use of Dues, the Board of Directors resolved to authorize the creation of a quasi-endowment from proceeds in the ACS General Fund. This would have an initial principal amount of \$85 million, the annual

payout from which would fund individual technical divisions and local sections per the allotment policies established by the Committees on Divisional Activities (DAC) and Local Section Activities (LSAC). Further, the amount of funding available made available for this purpose would be the standard payout from this quasi-endowment or \$3.2 million, whichever is greater.

## 6. Other Society Business

As is customary, the Board heard reports from the Presidential Succession on their current and planned activities for 2022 and 2023. Also, the Board adopted the resolution in memory of ACS Past President Nancy B. Jackson, who passed away in January.

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## Cal ACS at the Tri-Valley Innovation Fair on Saturday, March 19<sup>th</sup>, 2022

By: Charlie Gluchowski

A small but dedicated team of CALACS chemists welcomed a steady stream of visitors at the Tri-Valley Innovation Fair, held on a rainy Saturday (March 19, 2022) at the Alameda County Fairgrounds in Pleasanton. Event sponsor Quest Science Center (<https://quest-science.org/>) reported that there were over 2400 attendees and 62 different exhibits from organizations as diverse as UC Merced, Las Positas College, the Oakland Zoo and Wente Vineyards.

The CALACS display was organized by Greti Sequin and Alex Madonik, featuring the 2022 Chemists Celebrate Earth Week theme, “The Buzz About Bugs: Insect Chemistry.” At least one hundred aspiring chemists, including students from preschool through college level as well as adults stopped by to learn about the structures of key chemical attractants and repellents made by plants, as well as insect defensive chemicals and pheromones. Inspired by aromatic herbs and illustrations of the molecular structures, visitors then took on the challenge of making molecular models.

Our table was staffed by Greti Sequin, Charlie Gluchowski, James Stewart and Steven Mok, with Michael Cheng assisting at the end of the event. Here are a few photos of the event taken by CALACS members. Additional photos of the event can be found at the Quest website: <https://quest-science.org/innovation-fair/>.



Photo By Greti Sequin



Photo by Charlie Gluchowski



Photo by Greti Sequin

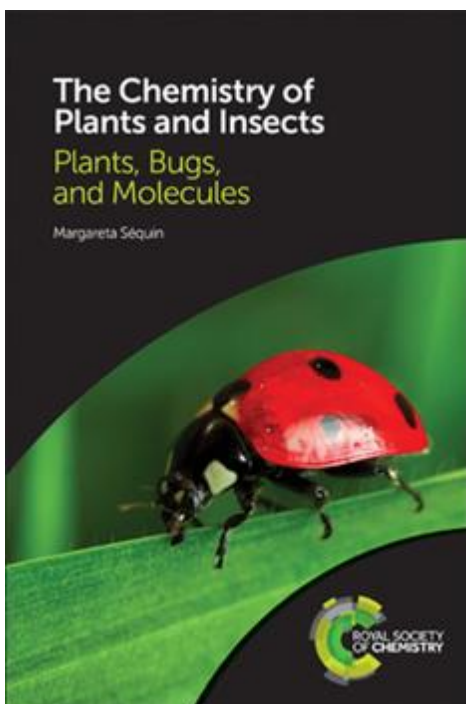


Photo by Charlie Gluchowski



## Past Events That Did Not Make Into The Vortex

By: Donald MacLean, newsletter editor

1. Processing Conventional and Non-Uniformly Sampled Biomolecular NMR Spectra: How to Do It, and What's Good to Know – Dr. Frank Delaglio, Principal Investigator, Biomolecular Measurement Division, National Institute of Standards and Technology - Thursday February 24, 2022 on Zoom @ 12:00 pm – 1:00 pm
2. Virtual Section Meeting “Leveraging Science Driven Research With Entrepreneurial Vim-Key Gaps & Essential Toolkit” - Dr. Noeen Malik<sup>1</sup> - Friday March 25, 2022, on Zoom @ 12:00 pm – 1:00 pm

<sup>1</sup> Research Scientist, Radiology, MIPS, Stanford School of Medicine  
CEO & Founder, Scientudio Inc. (Business Venture)  
Founder, Endorse Hope (NGO)  
Executive Director of Public Affairs, GIANT (with WHO-United Nations)