

# The Chemical Bulletin

http://chicagoacs.org

MAY • 2016

# THE ONE HUNDRED AND FIFTH PRESENTATION OF THE WILLARD GIBBS MEDAL (FOUNDED BY WILLIAM A. CONVERSE) TO PROFESSOR LAURA KIESSLING SPONSORED BY THE CHICAGO SECTION OF THE

**AMERICAN CHEMICAL SOCIETY** 

FRIDAY, MAY 20, 2016

Meridian Banquets 1701 Algonquin Road Rolling Meadows, IL 60008 847-952-8181

# **DIRECTIONS TO THE MEETING**

# From Chicago:

Take I-90 west to Arlington Heights Road. Exit north to the first light, Algonquin Rd., Route 62, turn left/west and travel to Meridian Banquets on the left.

### From I-294 North/South

Take I-294 north or south to the I-90 junction near O'Hare. Travel west on I-90 and follow the directions above.

# From I-290/I-355/Route 53:

Travel north past I-90 as 355 turns into 53. Exit Algonquin Rd., Rt. 62 east and go to Meridian Banquets on the right.

### **ON-SITE PARKING: Free**

# IN THIS ISSUE

- 2 Kiessling Biography
- 2 Menu
- 2 Calendar
- 3 Willard Gibbs Award
- 3 Micron Analytical Services
- 4 Someone You Should Know
- 4 Volunteers Needed For State Fair
- 5 A Company You Should Know
- 6 ChemShorts
- 6 Fran Kravitz Wins Boy Scout of America Silver Beaver Award
- 6 Report of the ACS Council
- 7 Mass-Vac Products



**Dr. Laura Kiessling**, Steenbock Professor of Chemistry, Laurens Anderson Professor of Biochemistry, Director of the Keck Center for Chemical Genomics, University of Wisconsin - Madison

Chemical Probes of Immunity and Tolerance

(continued on page 2)

(continued from page 1)

**The Citation** – For pioneering research in chemical biology, including insights into intercellular communication in bacteria and eukaryotes and elucidation of carbohydrate-mediated cell-surface interactions.

# The Chicago Section's e-mail address is

chicagoacs@ameritech.net

### Abstract:

Design principles for compounds that selectively augment immune responses (vaccines) or mitigate them (treatments for autoimmune diseases) would be transformative. Such principles have been elusive because many immune system receptors (e.g., the B cell receptor) can transmit signals that lead to either immunity or tolerance. A molecular understanding of how to control B cell signaling could enhance our ability to design carbohydrate-based vaccines. New synthetic methods have emerged that can be applied to exert extraordinary control over antigen structure, and these methods provide the opportunity to elucidate how this structure influences signal output. Specifically, features of an antigen's structure (e.g., valency, size, affinity, co-receptor binding) can be altered to optimize its function. We are using living polymerization strategies to generate polymers and nanoparticles that function as antigens. This presentation will focus on our recent results in synthesizing and elucidating the features of antigens that activate targeted immune signaling pathways.

# THE MEDALIST:

**Dr. Kiessling** received her undergraduate training in Chemistry at the Massachusetts Institute of Technology. There she conducted undergraduate research in organic synthesis with Professor Bill Roush. She received her Ph.D. in Chemistry from Yale University where she worked with Stuart L. Schreiber on the synthesis of anti-tumor natural products. Her postdoctoral training at the California Institute of Technology in the research group of Peter B. Dervan led her to explore the recognition of duplex DNA through triple helix formation. She began her independent career in the Department of Chemistry at the University of Wisconsin-Madison in 1991.

She is a member of the American Academy of Arts & Sciences, the American Academy of Microbiology, and National Academy of Sciences. Laura's honors and awards include a Guggenheim Fellowship, an ACS Frances P. Garvan-John M. Olin Medal, a Harrison-Howe Award, an Arthur C. Cope Scholar Award, the Hudson Award in Carbohydrate Chemistry, the Alfred Bader Award in Bioorganic or Bioinorganic Chemistry, and a MacArthur Foundation Fellowship. She is also the founding editor-in-chief of ACS Chemical Biology.

Her interdisciplinary research interests focus on elucidating and exploiting the mechanisms of cell surface recognition processes, especially those involving protein-glycan interactions. Another major research interest is multivalency and its role in recognition, signal transduction, and direction of cell fate.

# RECEPTION WITH HORS D'OEUVRES 6:00 - 7:00 P.M. Cash Bar

DINNER 7:00 - 8:30 P.M.

# ACS AWARD CEREMONY 8:30 - 8:45 P.M.

- A History of the Willard Gibbs Award by Mary Jo Boldingh, Chicago Section Chair
- Introduction of Professor Kiessling by Thomas O'Halloran, Northwestern University
- Presentation of the Gibbs Medal

# GIBBS AWARD LECTURE BY PROFESSOR KIESSLING

8:45 – 9:45 P.M.

NETWORKING 9:45 P.M. –

# **DINNER MENU**

- Cream of Tomato Basil with Bleu Cheese
- Meridian Salad
- Wine
- Choice of entree:
  - o Roast Top Sirloin of Beef with rosemary merlot sauce
  - Fresh Broiled Norwegian Salmon with dill sauce
  - o Portobello Mushroom with zucchini
- Green Beans Almondine
- Duchess Potato
- Hot Fudge Brownie with Vanilla Ice Cream and Hot Fudge Sauce

# Cash Bar

The cost is \$50 to Section members who have paid their local section dues, members' families, and visiting ACS members. The cost to members who have NOT paid their local section dues and to non-members is \$52.

Dinner reservations are required and should be received in the Section Office via phone (847-391-9091), email (chicagoacs@ameritech.net) or website (http://chicagoacs.org/meetinginfo.php?id=109&ts=1460244101) by noon on Monday, May 16. PLEASE HONOR YOUR RESERVATIONS. The Section must pay for all dinner orders. No-shows will be billed.

# CALENDAR

May 7: The Marie S. Curie Girl Scout Chemistry Day program at College of Lake County, Grayslake. See details in this issue.

May 14: STEAM Conference, Northeastern Illinois University. <a href="http://www.steam.conf.org/">http://www.steam.conf.org/</a>

May 20: Chicago Section ACS Willard Gibbs Award Banquet. Dr. Laura Kiessling, University of Wisconsin, Madison, is the recipient of the 2016 Willard Gibbs Medal. See details in this issue.

May 28: Chicago Section Scholarship Exam at North Central College. See details in this issue.

August 11-21: The Illinois State Fair in Springfield. Come volunteer at the ACS booth. <a href="http://chicagoacs.org/lllinoisState-Fair">http://chicagoacs.org/lllinoisState-Fair</a>

August 21-25: The 252nd National ACS Meeting in Philadelphia. The theme will be "Chemistry Of The People, By The People, For The People." See details at <a href="http://www.acs.org/content/acs/en/meetings/fall-2016.html?cid=homemeetings">http://www.acs.org/content/acs/en/meetings/fall-2016.html?cid=homemeetings</a>

# WILLARD GIBBS AWARD

The Willard Gibbs Award, has been presented by the Chicago Section of the American Chemical Society since 1910. It was founded by William A. (1862-1940), a former Converse Chairman and Secretary of the Chicago Section and named for Professor Josiah Willard Gibbs (1839-1903) of Yale University. Gibbs, whose work with Maxwell and Boltzmann developed the field of Statistical Mechanics and is known to millions of undergraduates for Gibbs Free Energy (developed in 1933), as he solved the question of the maximum amount of work that can be done by a system on the universe during a change in state of the system  $(\Delta Gsys = -T\Delta S_{unv})$  and ultimately the more familiar  $\Delta G = \Delta H - T\Delta S$ .

The purpose of the award is "To publicly recognize eminent chemists who, through years of application and devotion, have brought to the world developments that enable everyone to live more comfortably and to understand this world better." Gibbs was chosen to be the model for the award as an outstanding example of creativity in scientific investigation. Medalists are selected by a national jury of twelve eminent chemists from different disciplines elected by the Chicago Section ACS Board. The nominee must be a chemist who, because of the preeminence of their work in and contribution to pure or applied chemistry. is deemed worthy of special recognition.

Mr. Converse supported the award personally for a number of years, and then established a fund for it in 1934 that had subsequently been supported by the Dearborn Division of W.R. Grace & Co. Considerable contributions to the award have also been made by J. Fred Wilkes and his wife. The award consists of an eighteen-carat gold medal having, on one side, the bust of J. Willard Gibbs, for whom the medal was named. On the reverse is a laurel wreath and an inscription containing the recipient's name.

Most of the awardees that you see below are familiar to chemists regardless of specialty. This fame may result from later recognition, including, in many cases, the Nobel Prize, or the reason may be that textbooks have permanently associated many of these names with classic reactions or theories.

# PAUL BRANDT





https://chicagoacs.starchapter.com/ meet-reg1.php?id=107

1964 Izaak M. Kolthoff 1911 Svante Arrhenius 1965 Robert S. Mulliken 1912 Theodore William Richards 1966 Glenn T. Seaborg 1913 Leo H. Baekeland 1967 Robert Burns Woodwa 1914 Ira Remsen 1968 Henry Eyring 1915 Arthur Amos Noyes 1969 Gerhard Herzberg 1916 Willis R. Whitney 1970 Frank H. Westheimer 1917 Edward W. Morley 1918 William M. Burton 1919 William A. Noyes 1973 Paul John Flory 1920 F. G. Cottrell 1974 Har Gobind Khorana 1921 Mme. Marie Curie 1975 Herman F. Mark	rd
1912 Theodore William Richards 1913 Leo H. Baekeland 1914 Ira Remsen 1915 Arthur Amos Noyes 1916 Willis R. Whitney 1917 Edward W. Morley 1918 William M. Burton 1919 William A. Noyes 1920 F. G. Cottrell 1921 Mme. Marie Curie 1936 Glenn T. Seaborg 1967 Robert Burns Woodwa 1968 Henry Eyring 1969 Gerhard Herzberg 1969 Gerhard Herzberg 1970 Frank H. Westheimer 1971 Henry Taube 1972 John T. Edsall 1973 Paul John Flory 1974 Har Gobind Khorana	rd
1913 Leo H. Baekeland 1914 Ira Remsen 1915 Arthur Amos Noyes 1916 Willis R. Whitney 1917 Edward W. Morley 1918 William M. Burton 1919 William A. Noyes 1920 F. G. Cottrell 1921 Mme. Marie Curie 1937 Robert Burns Woodwa 1968 Henry Eyring 1968 Henry Eyring 1969 Gerhard Herzberg 1970 Frank H. Westheimer 1971 Henry Taube 1972 John T. Edsall 1973 Paul John Flory 1974 Har Gobind Khorana 1975 Herman F. Mark	rd
1914Ira Remsen1968Henry Eyring1915Arthur Amos Noyes1969Gerhard Herzberg1916Willis R. Whitney1970Frank H. Westheimer1917Edward W. Morley1971Henry Taube1918William M. Burton1972John T. Edsall1919William A. Noyes1973Paul John Flory1920F. G. Cottrell1974Har Gobind Khorana1921Mme. Marie Curie1975Herman F. Mark	rd
1915Arthur Amos Noyes1969Gerhard Herzberg1916Willis R. Whitney1970Frank H. Westheimer1917Edward W. Morley1971Henry Taube1918William M. Burton1972John T. Edsall1919William A. Noyes1973Paul John Flory1920F. G. Cottrell1974Har Gobind Khorana1921Mme. Marie Curie1975Herman F. Mark	
1916Willis R. Whitney1970Frank H. Westheimer1917Edward W. Morley1971Henry Taube1918William M. Burton1972John T. Edsall1919William A. Noyes1973Paul John Flory1920F. G. Cottrell1974Har Gobind Khorana1921Mme. Marie Curie1975Herman F. Mark	
1917Edward W. Morley1971Henry Taube1918William M. Burton1972John T. Edsall1919William A. Noyes1973Paul John Flory1920F. G. Cottrell1974Har Gobind Khorana1921Mme. Marie Curie1975Herman F. Mark	
1918William M. Burton1972John T. Edsall1919William A. Noyes1973Paul John Flory1920F. G. Cottrell1974Har Gobind Khorana1921Mme. Marie Curie1975Herman F. Mark	
1919William A. Noyes1973Paul John Flory1920F. G. Cottrell1974Har Gobind Khorana1921Mme. Marie Curie1975Herman F. Mark	
1920 F. G. Cottrell 1974 Har Gobind Khorana 1921 Mme. Marie Curie 1975 Herman F. Mark	
1921 Mme. Marie Curie 1975 Herman F. Mark	
4000 managed 4070 Kanaged C DV	
1922 no award 1976 Kenneth S. Pitzer	
1923 Julius Stieglitz 1977 Melvin Calvin	
1924 Gilbert N. Lewis 1978 W. O. Baker	
1925 Moses Gomberg 1979 E. Bright Wilson	
1926 Sir James Colquhoun Irvine 1980 Frank Albert Cotton	
1927 John Jacob Abel 1981 Bert Lester Vallee	
1928 William Draper Harkins 1982 Gilbert Stork	
1929 Claude Silbert Hudson 1983 John D. Roberts	
1930 Irving Langmuir 1984 Elias J. Corey	
1931 Phoebus A. Levene 1985 Donald J. Cram	
1932 Edward Curtis Franklin 1986 Jack Halpern	
1933 Richard Willstätter 1987 Allen J. Bard	
1934 Harold Clayton Urey 1988 Rudolph A. Marcus	
1935 Charles August Kraus 1989 Richard B. Bernstein	
1936 Roger Adams 1990 Richard N. Zare	
1937 Herbert Newby McCoy 1991 Günther Wilke	
1938 Robert R. Williams 1992 Harry B. Gray	
1939 Donald Dexter Van Slyke 1993 Peter B. Dervan	
1940 Vladimir Ipatieff 1994 M. Frederick Hawthorn	е
1941 Edward A. Doisy 1995 Sir John Meurig Thoma	ลร
1942 Thomas Midgley, Jr. 1996 Fred Basolo	
1943 Conrad A. Elvehjem 1997 Carl Djerassi	
1944 George O. Curme, Jr. 1998 Mario J. Molina	
1945 Frank C. Whitmore 1999 Lawrence F. Dahl	
1946 Linus Pauling 2000 Nicholas Turro	
1947 Wendell M. Stanley 2001 Tobin J. Marks	
1948 Carl F. Cori 2002 Ralph Hirschmann	
1949 Peter J. W. Debye 2003 John I. Brauman	
1950 Carl S. Marvel 2004 Ronald Breslow	
1951 William Francis Giauque 2005 David A. Evans	
1952 William C. Rose 2006 Jacqueline K. Barton	
1953 Joel H. Hildebrand 2007 Sylvia T. Ceyer	
1954 Elmer K. Bolton 2008 Carolyn R. Bertozzi	
1955 Farrington Daniels 2009 Louis Brus	
1956 Vincent du Vigneaud 2010 Maurice Brookhart	
1957 W. Albert Noyes, Jr. 2011 Robert G. Bergman	
1958 Willard F. Libby 2012 Mark A. Ratner	
1959 Hermann I. Schlesinger 2013 Charles M. Lieber	
1960 George B. Kistiakowsky 2014 John E. Bercaw	



Louis Plack Hammett

Lars Onsager

1961

1962

# Micron Analytical Services

John F. Hartwig

2015

COMPLETE MATERIALS CHARACTERIZATION

MORPHOLOGY CHEMISTRY STRUCTURE

SEM/EDXA, TEM/SAED, EPA/WDXA, XRD, XRF, ESCA, AUGER, FTIR, DSC/TGA

3815 Lancaster Pike Wilmington DE. 19805 Voice 302-998-1184, Fax 302-998-1836 E-Mail micronanalytical@ compuserve.com Web Page: www.micronanalytical.com

# SOMEONE YOU SHOULD KNOW



Susan Shih is someone we all know. She is a regular at most Chicago Section Monthly Dinner meetings and an integral part of the board and the Section office. I first met Susan when we co-chaired the 2001 National ACS meeting host committee. She is a warm and friendly individual who is always on the go. Susan chaired the Section in 2002-2003 and is currently one of the ten Chicago Section's Councilors, chair of the Office Affairs Committee and chair of the Great Lakes Regional Meeting Committee.

Susan was born in Melrose, Massachusetts which is a suburb of Boston. Her father was a sales executive with an A.B. in the classics and her mother was a stay-at-home mom. Susan has three sisters and a brother. The science bug was genetic with her mother's father and sister being a physician and her mother earning an A.B. in chemistry. Susan's uncle is also a chemist.

Ms. Shih was inspired by a female high school chemistry teacher to become a chemist. She earned an A.B. in chemistry, cum laude, from Rosemont College just outside of Philadelphia. Susan went on to earn a M.S. in Inorganic Chemistry from Ohio State University. Her thesis was on tin complexes with acetlyacetonate. She also completed an additional 150 credit hours beyond her master's degree.

Susan's first position was as an instructor at Roosevelt University where her responsibilities included teaching as well as lab supervision of students. She developed a course for non-science majors while at Roosevelt University. Her

second position was with Joliet Junior College as an instructor for two years. Susan took a break from teaching and returned eight years later as an adjunct at the College of DuPage. She worked her way up to become a full professor and coordinator of the chemistry program and retired 27 years later in 2008. Susan's passion is being in the classroom and the lab. She finds interactions with students challenging but rewarding. She modernized the laboratory experience in general chemistry and eliminated "cookbook" labs.

Ms. Shih has been a member of the ACS for 52 years. She joined as a student affiliate while earning her bachelors degree. Susan has served on many Chicago Section committees and volunteered for Chemistry Week, the Boy Scout Chemistry Merit Badge program, the Marie Curie Girl Scout Chemistry Day program including authoring a chapter in the chemistry booklet given out during that program and served on the IL State Fair Committee during its early years. She serves regionally as a member of the Great Lakes Regional Board and chaired it for two years. Nationally, she serves on SOCED and served on the Two Year College Advisory Board. She has also been a long time member of DIVCHED and currently serves on two of its committees.

Susan married a few years after graduate school and has two grown children. Her daughter has a degree in Math with Computer Science as well as an MBA in International Business and works as a consultant on financial IT issues. Her son has a degree in English and does PR for a health related non-profit. Besides chemistry, her passions include reading, travel and gardening. I can attest to the fact that she has a beautiful yard. Most of us don't know that Susan has rafted down the Grand Canyon twice. She also volunteers at a local food pantry and a non-profit foundation raising funds for a congregation in Tanzania.

I asked Susan who she might want to have lunch with, dead or alive. She chose Hiram Bingham. He revealed Machu Picchu to the world in the early 1900s. She confessed that she would love to talk to him about his discovery. It is interesting that this relates to her passion of travel. She also noted that she would have become an archeologist if her undergraduate school had a major in archeology. That is a loss to the world of archeology but a gain for us that she chose chemistry.

Susan's final words of wisdom to all of us are to find a position where you really enjoy the chemistry that you do. May, 2016 Vol. 103, No. 5. Published by the Chicago Section of The American Chemical Society, Editorial Staff: Paul Brandt, Editor; Ken Fivizzani, Proofreader. Address: 1400 Renaissance Dr., Suite 312, Park Ridge, Illinois 60068; 847/391-9091. Subscription rates: \$15 per year. Frequency: monthly-September through June.

# VOLUNTEERS NEEDED FOR THE ILLINOIS STATE FAIR SCIENCE TENT

The 2016 Illinois State Fair is just around the corner and **WE NEED YOU!** Illinois Local Sections of the ACS will have a Chemistry Tent in Conservation World at the Illinois State Fair. This will be our 13th year for this community outreach project. The Illinois State Fair is scheduled from Friday, August 12 through Sunday, August 21.

Our tent provides information to the public on chemistry by way of demos, hands-on activities, literature and giveaways. Last year, we had over 17,000 people come through our tent. **WE CAN'T DO THIS WITHOUT YOU!** 

We are looking for volunteers to help us at this year's fair. This is a very rewarding activity and a chance to meet new colleagues from other Sections while reaching out to the public. We need demonstrators, individuals willing to help with hands-on activities and individuals who are a "jack of all trades". Come for a shift or for the day or participate for several days. Parking and admission to the fair is FREE for volunteers who participate. There are nearby reasonably priced hotels, motels & campgrounds for accommodations during the fair.

Please contact either Fran Kravitz at fk1456@sbcglobal.net or Milt Levenberg at milt22a@chicagoacs.net if you are interested in more information on this fun, rewarding and challenging opportunity. You may also register soon, directly on line at <a href="http://chicagoacs.net/statefair/volunteers.html">http://chicagoacs.net/statefair/volunteers.html</a>. Registration opens May 1 for volunteers.

Thank you in advance for helping us make this program a continued success!!!

Fran Kravitz (fk1456@sbcglobal.net)
Milt Levenberg (milt22a@chicagoacs.
net) Co-Chairs of the Illinois Sections of
the ACS State Fair Project

Fran Kravitz

# A COMPANY YOU SHOULD KNOW

The Water Quality Association (WQA) is a not-for-profit association for the residential commercial, and industrial water treatment industry. WQA represents more than 2,700 member companies around the globe, including large firms such as Dow Water and Process Solutions, Culligan International, and The Brita Products Co. Our membership is comprised of equipment manufacturers, suppliers, dealers and distributors of water quality improvement products and services. WQA proudly serves as an educator of water treatment professionals, certifier of water treatment products, public information resource and voice of the water quality improvement industry.

WQA was created in 1974 from the merger of two trade associations. WQA's mission is to be the recognized resource and advocate for the betterment of water quality, with a vision of improving water quality to enhance quality of life through sustainable technologies and services.

The industries devoted to treating and delivering water are complex and varied. WQA primarily represents the sector of the water treatment industry devoted to treating water on the homeowner's or business-owner's property. We often refer to this aspect of treatment as the Final Barrier that prevents waterborne contaminants from entering a home or business.

Earlier this month, WQA unveiled its newest service, a career center specifically for the drinking water treatment industry. The WQA Career Center will offer employers access to the brightest and best talent within and outside of the water treatment industry across all categories of employment. The Career Center also provides job seekers with professional development tools, networking opportunities and access to high-quality jobs with the most respected employers in our industry.

Many professionals in point-of-use/ point-of-entry (POU/POE) water treatment reinforce their expertise through a voluntary professional certification program provided by the WQA. This program, recognized in 1977, helps consumers and employers identify individuals in the industry who have demonstrated a certified level of professional expertise and are dedicated to high professional standards. WQA's online education and training program for professional certification includes: installation, design, service, and sales. Master levels are also available for service and design that incorporate a higher level of knowledge of water chemistry and hydraulics.

POU is water treatment installed at the

point where water is consumed, at the tap, and is considered a Final Barrier of protection. POU technology includes activated carbon, ion exchange resins, membranes (reverse osmosis, nano-, ultra-, and micro-filtration), UV light devices, ozone, distillation, and other specialty or selective media. The WQA advocates the Final Barrier as a proactive risk management tool for the protection of public health from the unpredictability of drinking water contamination events.

The Water Quality Research Foundation (WQRF) was formed in 1949 to serve on behalf of the WQA as a universally recognized, independent research organization. Last year, WQRF concluded its largest fundraising campaign ever, raising over \$2.8 million for research. One of the WQRF's most recent projects includes a qualitative analysis of data trends relative to reported frequency, causes/sources and spatial/temporal characteristics of boil water notices (BWN) in the United States from 2012-2014. A BWN, also referred to as a boil water advisory, is issued by a public water system when there is a known or suspected microbial contaminant in the drinking water distribution system. BWN situations specifically involving microbiological contamination can be adequately handled by home water treatment devices, such as the POU devices mentioned above, certified as capable of producing microbiologically-safe water. An increase in water main breaks and, therefore, BWN's were warning signs of the corrosion issues occurring in Flint, Michigan that ultimately caused lead poisoning of residents.

Lead can exist in water in a broad array of forms, therefore, more than one type of technology may be needed for adequate removal at the tap. Soluble (or dissolved) lead may be removed by ion exchange, reverse osmosis, adsorption, or distillation. Insoluble (or particulate) lead may be removed by fine filtration and adsorption as well as by reverse osmosis and distillation. System perfor-

mance characteristics should be verified by tests conducted under established test procedures and water analysis. Thereafter, the resulting water should be monitored periodically to verify continued performance.

Product certification helps ensure public safety of products being used and sold in households and community water systems across the United States. WQA has been testing drinking water treatment products since 1959 and certifying products since 1960. Gold Seal certifies drinking water treatment units for contaminant reduction claims, material safety, compliance with lead-free laws, and drinking water additives to accredited industry standards. The WQA lab is fully accredited through International Accreditation Service (IAS) according to ISO 17025, and is equipped with analytical instrumentation including a Perkin Elmer Elan 9000 ICP-MS, Dionex IC, Thermo Fisher GC-MS, and an LC-MS-MS will be another addition later this year.

After reports of lead contamination in the Flint drinking water started being released in 2015, WQA offered assistance to government and public health officials as well as the public to provide information on POU/POE water treatment applications. WQA helps professionals in the field provide education on water treatment products and the importance of proper maintenance to residents in areas, like Flint, who are faced with water contamination issues.

In February 2016, WQA staff and members visited Flint to provide education on common concerns and misconceptions with water purification. WQA members also provided the community with free water treatment products certified for lead reduction. This on-the-ground effort is another example of WQA's mission for the betterment of water quality, ensuring that our industry continues to be a part of the solution and provide best practices and technologies to keep people's water as safe as ever.



# "CHEM SHORTS" For Kids

## Hot Steel Wool - Part II

Kids, back in 2010, we looked at the reaction of iron in steel wool with oxygen by combining the wool with vinegar to remove the protective coating on it and saw the temperature rise as the wool was wrapped around a thermometer - <a href="http://chicagoacs.org/articles/212">http://chicagoacs.org/articles/212</a>. The temperature went up because of the reaction of the steel wool with the atmospheric oxygen.

Now that camping season is upon us, we can take advantage of this very hot reaction to help us make our campfire. You know that when starting a campfire, it is often best to have some very small twigs or dried leaves to get the fire started because logs don't catch fire easily. We'll take advantage of the very fine steel wool for the same reason – the small twigs and the steel wool both have a lot of surface area for the reaction to take place.

### Materials:

- Very fine steel wool (grade 000 or 0000)
- A 9V battery
- An aluminum pan

Make sure that an adult is present anytime fire is involved.

Try this:

- Pull a piece of steel wool off from the pad and pull it apart so that it is not a compact ball.
- put the leads of the 9V battery to the steel wool

Did you see the sparks in the wool? If you're looking to start a campfire you will want some tinder nearby to get the fire started. Blowing on the sparks will allow them to travel through the wool more completely.

By touching the leads of the battery



to the wool, you complete the circuit of the battery. Electricity will begin to flow through the wire (just like in an incandescent light bulb). As electrons flow, friction is created and the fine wire heats up and the iron is able to react with the oxygen in the atmosphere. Blowing on it keeps oxygen coming to the wire for the reaction to continue. The wool may also have a bit of an oil residue on it and that oil will also combust. The reaction that is occurring is:

 $4 \text{ Fe} + 3 \text{ O}_2 \rightarrow 2 \text{ Fe}_2 \text{O}_3$ 

Although it may not seem like it, the mass of the combusted wool should be significantly more than the mass of the initial wool because it has added to it the mass of the oxygen from the atmosphere.

To view all past "ChemShorts for Kids", go to: <a href="http://chicagoacs.org/articles.php?article\_category=1">http://chicagoacs.org/articles.php?article\_category=1</a>

Paul Brandt

# FRAN KRAVITZ WINS BOY SCOUT OF AMERICA SILVER BEAVER AWARD

Fran Kravitz has been active for many years in the Three Fires Council of the Boy Scouts of America which services 14,000 youth in Cook, DeKalb, DuPage, Kendall, and Will Counties, IL. She is one of the winners of 2016 Silver Beaver Award!

The Silver Beaver Award is the councillevel distinguished service award of the Boy Scouts of America. Recipients of this award are registered adult leaders who have made an impact on the lives of youth through service given to the council.

Fran was instrumental in making the BSA Chemistry Merit Badge Program available in the Chicagoland area in conjunction with the Chicago Section of the American Chemical Society. 2015 was Fran's 11th year running the program.

Each year 128 scouts register to attend the merit badge clinics. The program is held at different locations in Chicago and NW Indiana on three Saturdays in the fall. She designs experiments in congruence with the Merit Badge booklet, gets volunteers and venues for the events. During the clinic there is time for the students to interact with chemists in a casual setting. It's a very popular program, as evidenced by the feedback from scouts and parents alike.

This is the highest honor a Boy Scout council can bestow on adult volunteers. These individuals will officially be recognized, June 16 at the Three Fires Council's Annual Dinner.

The Chicago Section congratulates Fran Kravitz for her achievements and this award!

# REPORT OF ACS COUNCIL MEETING IN SAN DIEGO ON MARCH 16, 2016

The 251st National Meeting of the ACS was held in San Diego, CA, from March 13 - 17, 2016. The theme of this meeting was "Computers in Chemistry." The Chicago section was represented by Charles Cannon (Local Section Activities), Dave Crumrine (Constitution and Bylaws), Russ Johnson (Chemistry and Public Affairs), Fran Kraviz (Local Section Activities), Michael Koehler (Chemical Safety), Margaret Levenberg (Meetings and Exposition), Milt Levenberg (Public Relations and Communication). Inessa Miller, Barbara Moriarty (Science) and Susan Shih (Education). The national activities committees for each, as I know them, are in parentheses.

**Governance:** The Council elected two candidates for the fall 2016 ACS national election for President-Elect 2017. The candidates are Peter K. Dorhout and Thomas R. Gilbert. Ballots will be distributed on September 29, 2016.

Finances: The Society's 2015 year-end financial position was reviewed. The Society ended 2015 with a Net Contribution from operations of \$16.6 million on revenues of \$511.7 million and \$495.1 million in expenses. This was favorable to the 2015 Approved Budget. The Society's financial position strengthened in 2015, with Unrestricted Net Assets, or reserves, increasing from \$144.7 million at December 31. 2014 to \$163.3 million at vear-end 2015. Even with the positive financial picture of 2015 the Society only met four of the five Board-established Financial Guidelines, but did not meet the reserve adequacy guideline again in 2015.

Additional information can be found at www.acs.org, at bottom, click 'About ACS', then 'ACS Financial Information'. There you will find several years of the Society's audited financial statements and IRS 990 filings.

The Council voted to set the member dues for 2016 at the fully escalated rate of \$166. This rate is established pursuant to an inflation-adjustment formula in the ACS Constitution and Bylaws.

Meetings and Expositions: The attendance at the San Diego meeting was reported to be 16,327 with 8,398 attendees and 5,979 students. The Exposition has 415 booths with 270 exhibiting companies. This is a slight decrease in the number of exhibitors compared to the Boston Meeting. The early meeting registration fee for 2017 was recommended to be \$440.

Committee on Economic and Profes-

(continued on page 7)

(continued from page 6)

sional Affairs (CEPA): The Committee on Economic and Professional Affairs (CEPA) reported that the unemployment rate for member chemists was 3.1%, compared to the overall US unemployment rate of 5.5%. However, the new graduate unemployment rate was 13.0%. The on-site career fair at the meeting had 739 job seekers and 30 employers with 106 positions. Résumé reviews (360) and mock interviews (217) were held at this meeting.

The revised Academic Professional Guidelines were approved by Council, subject to approval by the Board of Directors. The guidelines apply to those members of the academic community whose job function impacts directly or indirectly on scientists practicing the profession of chemistry. A revised Chemical Professional's Code of Conduct was presented to Council.

Membership: As of December 31, the ACS membership was nearly 157,000, which is 0.96% less than at the end of 2014. The number of new members who joined in 2015 is 25,000. The Society's overall retention rate is 84%. The committee also reported that the number of international members has increased to 26,022 and that the number of student members increased. The international growth rate is 3.85%.

**Local Sections:** The theme for National Chemistry Week in 2016, is "Solving Mysteries Through Chemistry." The theme for Chemist Celebrate Earth Day, to be celebrated in April 2016, is "The Great Indoors – The Home Ecosystem."

Special Discussion: The Council discussed the topic of the US Employment of Chemists. This discussion topic is of special interest to President Donna J. Nelson who has assembled a task force on employment in the chemical sciences. Councilors discussed the factors which determine supply and demand, employment options for chemical technicians, possible certification of chemical professionals, preparation of graduates for industrial employment and global employment. In addition, a presidential symposium was held at this meeting and a symposium entitled "Standing Up for Science: Difficult discussions about jobs" is planned for the next ACS national meeting in Philadelphia.

If you have any questions and/or comments about the above actions, please contact me or one of your other representatives. You may contact me by email (barbaramoriarty0@gmail.com).

# Posi-Trap<sup>™</sup>Positive Flow Vacuum Inlet Traps



□ Variety of Elements

□ Positive Trapping

It's bye-bye to "blow-by" with Posi-Trap™. Unlike others, our filter is sealed at both the inlet and the exhaust so that all the particles must flow through the element. We've got the perfect trap for your system, and should your application change, simply choose from our wide variety of filter elements and you're back on-line! Protect your vacuum pump and system with Posi-Trap™ from MV Products.

TEL 978-667-2393 FAX 978-671-0014 E-MAIL sales@massvac.com WEB www.massvac.com

For more information on these and other fine vacuum products contact

