

American Chemical Society – Kalamazoo Local Section Newsletter

February 28, 2014

Vol. 4 - Issue 1



Comments from the Chair

John H. Engelmann



John H. Engelmann,
Ph.D. (KACS Chair)

2014 KACS Executive Officers

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Alternate Councilor

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February is a good month for chemistry. Several famous chemists were born in February. Dmitri Mendeleev, the inventor of the periodic table, was born in February 1834. February 7 is a possible date. Josiah Willard Gibbs was born February 11, 1839. Gibbs free energy is named after him. Friedrich Konrad Beilstein was born February 17, 1838. His standard reference work on organic chemistry was first published in 1880-83 and has been updated ever since. Linus Carl Pauling was born February 28, 1901. He made great contributions to the theory of molecular structure, and bonding. He won the Nobel Prize for chemistry in 1954 and the Nobel Peace Prize in 1962. The list goes on. So next time you think that February is nothing but snow and cold, think again. February is a good month for chemists to be born.

KACS website: <http://kalamazooacs.org/>

Do you have questions, comments, or would like to contribute to this newsletter?
Send an email to: ACSkzoo@gmail.com

Chemistry & Culture: Food

By Elke Schoffers with Photos by Roxana Manta-Bielanski

As part of its “Chemistry & Culture” series, KACS hosted a free, public event that focused on food titled “**Sense-ational Molecules in Nutrition**” at Bell’s Eccentric Café on January 29, 2014, 6-10 PM. It attracted 98 people who were curious to see a presentation, enjoy demonstrations and a variety of snacks. Dr. Sara Risch of *Popz Europe* gave the keynote speech connecting nutrition and science by commenting on fats and sodium in foods, among others. She also used jelly beans in order for the audience to experience the difference between *taste* and *flavor*. The talk was followed by hands-on-activities. Several different tables were set up for everybody to visit with and learn more about chemesthesis, natural colors, beer foaming action, and emulsions.



Fruit and meatballs from Bell’s Eccentric Café.



Cream cheese brownies and lemon bars from Victorian bakery



Many Kalsec volunteers helped prepare and demonstrate hands-on activities (left to right): Shane McDonald, Tanushree Tokle, Mark Wolf, Rongmin Huang, Doug Williams, Mark Schulze, Lindsay Bond, Peggy Iler (not shown) and Brian Buffin (not shown).



Elke Schoffers, (Ph.D, KACS Past-Chair) with Don Berdahl, (Ph.D, Kalsec, Executive VP and CTO)



Chemistry major Ashley Mead won a hot pepper pen as door prize.

This event would not have been possible without major funding from Kalsec, Waters Corporation and the Great Lakes Concentrates Company (GLCC). KACS thanks additional supporters who provided food samples or gift cards: Victorian Bakery, Harding’s Friendly Markets, Hunan Gardens, Bacchus Wine & Spirits, Sawall Health Food, and Family Fare Supermarkets.

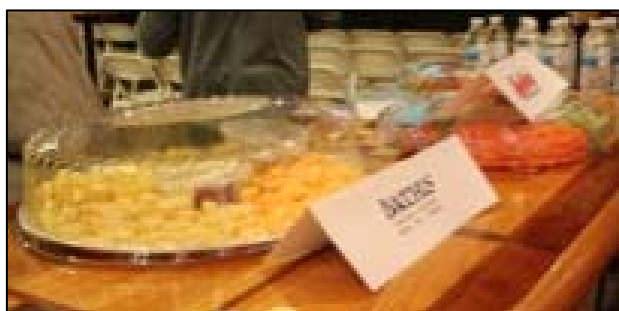


(Continued on Page 3)

Chemistry & Culture: Food

(Continued from Page 2)

More pictures from the event:



Drs John Engelmann (KACS
Chair) and Don Berdahl (Kalsec)

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Chemistry & Culture: Food

(Continued from Page 3)

There were a variety of refreshments and snacks, such as seasonal fruits, meatballs in house-beer-BBQ sauce and stuffed mushrooms from Bell's; crab Rangoon and spring roll appetizers from Hunan Gardens; Victorian Bakery's seeded sour dough bread, cream cheese brownies and lemon bars; cheeses from Bacchus [Wisconsin cheddar, Piave (hard white cheese), Butterkäse (soft, semi-white cheese), and Gourmandise with Kirsch (soft white cheese)], as well as Salsa, hummus, crackers and more.



Shane McDonald explains pungency to Brian Eklov (KACS Chair-Elect) and Tom Runge

Sara Risch, Ph.D

Sara Risch is the Director of Global R&D and QA for [Popz](#) Europe, a microwave popcorn company. Prior to joining Popz, she had her own consulting business, working with food, flavor and packaging companies. Sara moved away from consulting for a couple of years to serve as the Director of the School of Packaging at Michigan State University. She received both her B.S. and Ph.D. in Food Science from the University of Minnesota. She has an M.S. in Food Science from the University of Georgia. Her work has focused primarily on **microwave foods and food-package interactions**. Sara is active in the American Chemical Society, for example as a **member of the Committee on Committees and as the Councilor for the Division of Agricultural and Food Chemistry (AGFD)**. Dr. Risch was elected a **Fellow of the American Chemical Society** in 2012.



Keynote speaker Sara Risch, Ph.D.

Why Chemistry & Culture:

Chemists are not just experts in their field but are also interested in art, history, cooking, baking, brewing, gardening and exercise, among others. "Elements of Dance" invited all chemists, chemistry enthusiasts and the general public to enjoy ballroom dancing. Future "Chemistry and Culture" themes will address topics like "Art Conservation", "Forgery", "Cooking" and "Gardening", for example.

The goals of the "Chemistry and Culture" series are...

- To offer a social networking opportunity for members of the Kalamazoo Local Section of the American Chemical Society (KACS) and the public
- To educate the general public about the goals and activities of KACS
- To highlight the connections between "chemistry" and "culture"
- To encourage student participation
- To instill an appreciation for how chemistry contributes to the world in many ways
- To forge ties with the local community

Miscellaneous

Love Potion #9: The Chemistry of Scent & Fragrance

By Amanda Bolles

A Younger Chemists Committee (YCC) webinar

Three days before Valentine's Day, twenty-three students from chemistry clubs at Kalamazoo College and Western Michigan University came together to participate in a webinar titled **Love Potion #9: The Chemistry of Scent & Fragrance**. Participants learned about the history of perfume, the perfumer's palette, the basics of odor analysis, how to use perfumes in products, careers in fragrance chemistry and much more. The webinar also included a hands-on demonstration, which allowed the students to test their nose for fragrance, and a Q&A session with the experts.

Call for Volunteers

By Maren Zanotti

This year the ACS is celebrating its eleventh annual Chemists Celebrate Earth Day (CCED), an event that is aimed at showing chemists' involvement in preserving the planet we call home. Every year the ACS chooses a unifying theme for CCED celebrations, this year's CCED theme is "The Wonders of Water."

As we have in the past, the KACS will be celebrating CCED by participating in the Kalamazoo Nature Center's Earth Day celebration on Saturday, April 26, 2014 from 10 AM to 5 PM, (www.naturecenter.org). We will be hosting an informational table that will offer hands-on water related chemistry demonstrations and educational resources for the attendees.

As March and April approach there will be more details to come about the Earth Day events we have planned. If you have any suggestions for other Earth Day events or ideas for activities that could be implemented in CCED please contact me directly at maren.c.zanotti@wmich.edu.

As Earth Day nears please consider volunteering to assist with CCED activities. Volunteers are greatly appreciated, if you are interested in helping please contact me directly at the email listed above.

Maren Zanotti
2014 CCED Coordinator

Miscellaneous

Trip Report Summary: ACS Leadership Training

By Brian Eklov

Every year the national ACS holds a Leadership Institute in Dallas on the last weekend in January. Each local section is asked to send one executive committee member for training, and I represented the KACS at this year's meeting. It was a jam-packed schedule, and we were busy! The topics of discussion covered everything imaginable, from funding and planning activities, communications, and working with the national office. We even discussed how to file the local section's taxes. Needless to say, I learned a lot, met a good number of the national ACS staff, and came back with some good ideas for the future. I'm looking forward to applying what I learned over the next year as Chair-Elect of the KACS.

What can ACS do to increase the Quality of Science Education in Grades 7-12?

By Lydia Hines

In the last few years, at Council Meeting at the National ACS meetings, councilors have been given opportunity to comment on a specific issue of particular interest and concern to the Society president; at the Dallas council meeting on March 19 our current president, Thomas Barton (U of Iowa emeritus), who has a great concern about K-12 education in the US, has offered opportunity for councilors to respond to the question "**What can ACS do to increase the quality of Science Education in Grades 7-12?**". During the time allotted I would be happy to present suggestions, which you may want to share with me. [I plan to leave for the meeting on March 16, so if you care to reach me please do so before then, either at 269-375-7349 or at lemhwgh@gmail.com]. The extensive array of curricular and extra-curricular educational offerings for K-16 students, teachers (and members) may be found at www.acs.org/education, and many of these are free to the parties for whom they are intended; I have brought the majority of them to our Section's teachers' attention by means of e-mail or personal contact.



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Final Thoughts

WMU Climate Change Program

By John Miller

The KACS has partnered with the Western Michigan University Climate Change working group (<http://www.wmuclimatechange.info/>) to provide a series of workshops on climate change, focusing on the ACS Climate Change Toolkit (<http://www.acs.org/content/acs/en/climatescience.html>). The target audiences are non-scientists who are in a position to pass along the information to their constituent audiences. This program was funded by a mini-grant from National ACS, and a small grant from WMU.

On the very snowy morning of Saturday 19 January, eight members of local faith communities, primarily education and outreach coordinators, braved the weather for this four-hour workshop on the WMU campus. (Four others were registered, but kept away by the weather.) On a more clement Saturday 22 February, thirteen teachers and educators attended a workshop at KRESA, where they were able to earn CEU or SCECH credits.

At both workshops, which included both presentations and hands-on activities, five WMU faculty members led the program: Dr. David Karowe (Biological Sciences), Dr. Steven Bertman (Chemistry), Dr. John B. Miller (Chemistry), Dr. Denise Keele (Environmental Sciences) and Dr. Terrell Hodge (Mathematics). The participants left with a flash memory drive loaded with copies of the presentations and lots of links to useful and fun activities to help them spread the scientific consensus on the causes, effects, and possible solutions to climate change resulting from human activities.

At least one more workshop is planned, with Boy Scout and Girl Scout leaders the intended audience.

2015 Joint Great Lakes Central Regional Meeting – Call for Sessions

By James Kiddle

The co-program chairs are soliciting suggestions for technical session topics for the 2015 Joint Great Lakes Central Regional Meeting of the American Chemical Society to be held May 27 - May 30, 2015 in Grand Rapids. The overall theme of the meeting is "**Chemistry - A Grand Enterprise**" and will focus on three main areas: Food, Health, and the Environment.

Please follow the link to submit your suggestions.

https://docs.google.com/forms/d/1eyX-D50xt_0z9Ownlx0a587L4x9vq3p4tSqWuFcJvu0/viewform

American Chemical Society – Kalamazoo Local Section Newsletter

April 1, 2014

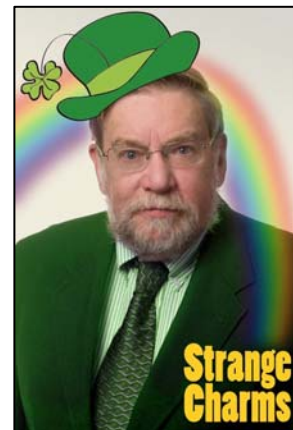
Vol. 4 - Issue 2



Comments from the Chair

John H. Engelmann

Spring is almost here. Plants will soon turn green due to chlorophyll. Chlorophyll has a highly conjugated cyclic structure with heterocyclic nitrogen-containing rings. Two of the nitrogen atoms are negative, and magnesium is the counterion. Chlorophyll absorbs red and blue light, and reflects green light and accordingly makes plants appear green.



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St. Patrick's Day has just passed and of course the Chicago river was once again dyed green to mark the day. Since green is such a common color, artists have looked for green pigments suitable for painting. One of the earliest green pigments is malachite, which was used by the Egyptians in their artwork. Malachite is a copper carbonate hydroxide mineral, having the formula $\text{Cu}_2\text{CO}_3(\text{OH})_2$. In the first century the Romans used malachite as a green pigment. Another copper-containing pigment is verdigris. Verdigris is the green patina which forms on copper as it weathers. It may be formed by exposing copper to acetic acid and scraping the powder off the copper. This would form copper(II) acetate.

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Miscellaneous

(Continued from Page 1)

Alternatively, copper may simply be allowed to weather in which case the verdigris formed is copper carbonate. Verdigris is lightfast and stable in oil paint although it is not stable in other media. It was widely used because of its desirable blue-green color. Another green pigment used since Roman times is Verona green. It is a clay colored by a mixture of iron oxide and silicates of magnesium, aluminum and potassium such as potassium aluminum silicate. Cobalt green is another green pigment which does not contain copper. It is made by heating a mixture of cobalt(II) oxide and zinc oxide. Sven Rinman, a Swedish chemist, discovered this compound in 1780. Chrome green was patented in 1859. The pigment contains chromium oxide dihydrate. It is stable and not toxic. Copper phthalocyanine is a more modern green pigment. By adding substituents the color may be varied from green to blue.

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Please follow the link to submit your suggestions.

https://docs.google.com/forms/d/1eyX-D50xt_0z9Ownlx0a587L4x9vq3p4tSqWuFcJvu0/viewform

Councilor Report – 2014 Spring National Meeting

Lydia Hines

The KACS Councilor Report from the 2014 Spring ACS Meeting in Dallas, TX, March 16-20, 2014, may be accessed at our [KACS website](#).



Special Presentation

Frontiers in Chemistry Lectureship



Dr. M. Christina White

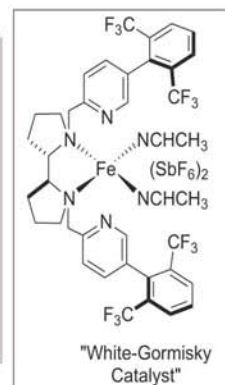
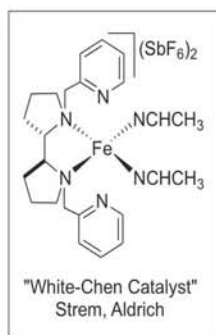
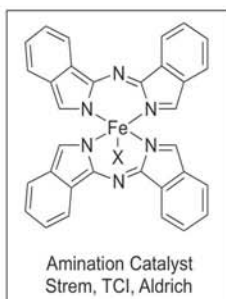
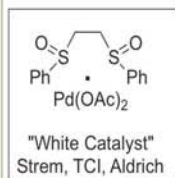
Department of Chemistry
University of Illinois at Urbana-Champaign

“Site-Selective C-H Oxidations”

5:00 PM, April 15, 2014,
1720 Chemistry Bldg., Reception at 4:30 PM



The White Group uses the C-H Bond as a
New Functional Group for Streamlining Organic Synthesis.



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W College of
Arts and Sciences
Department of Chemistry
WESTERN MICHIGAN UNIVERSITY

Contact: Dr. James Kiddle, James.Kiddle@wmich.edu, (269) 387-5440

American Chemical Society – Kalamazoo Local Section Newsletter

May 2, 2014

Vol. 4 - Issue 3



Comments from the Chair

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Spring is upon us and chemistry is all around us. Grass comes to life, flowers bloom and alas the weeds have their moment in the sun. All of this is driven by light from the sun and the chemistry of the soil. The rain which falls from the sky is slightly acid and this acid reacts with rocks in the soil freeing minerals needed for plant growth. This acid arises from many sources.

It used to be that a chief source of acid in rain was lightning strikes which produced nitrogen oxides. Today much of the acid is manmade coming from a wide variety of sources. In addition to acid breaking down rocks, the residues of last year's plants are being broken down to release minerals and form humus. Even the difficult cellulose eventually yields to bacterial and chemical degradation. So go stand in your backyard. You are standing on a chemical operation as amazing and as interesting as any chemical factory.



John H. Engelmann,
Ph.D. (KACS Chair)

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Chemists Celebrate Earth Day Report

April 19 and 26, 2014 and Illustrated Poem Contest

By Maren Zanotti and Lydia Hines

The Kalamazoo Section received 4 entries for the Illustrated Poem Contest from 2 high schools in the area (Allegan High School and Heritage Christian Academy). One was selected and submitted to the National contest for evaluation. Each of the two students, one from each school, whose posters were considered winners in the local evaluation, was awarded a \$15 Jet's Pizza gift card.

It was the first Spring-like day on Saturday, April 19, in Kalamazoo, MI, so there was a very small number of visitors indoors at the Oshtemo branch of the Kalamazoo Public Library for their Earth Day program; nevertheless, youngsters and their parents who were there did stop to avail themselves of the experiments presented by Lydia Hines as well as free copies of ACS materials for Grades 4-6: copies of Celebrating Chemistry from the past several years of CCED, along with this year's "The Wonder of Water"; another "hit" were the stickers and the UV exposure card which everyone was glad to be able to use in the bright outdoor sun, in anticipation of time at the beach when summer arrives.

Saturday, April 26th was a gorgeous spring day for the Kalamazoo Nature Center's (KNC) Earth Day Celebration. For the sixth consecutive year the Kalamazoo American Chemical Society was able to participate in the KNC's Earth Day festivities. We had a very successful turnout with approximately one hundred youngsters stopping by the KACS table. We presented a crowd-pleasing color chromatography experiment that fit well with this year's "The Wonders of Water" theme and allowed kids to make a chromatography flower that they were able to take home as a keepsake. We also provided free copies of the ACS Celebrating Chemistry handout, which presented great information about the properties of water, the importance of water in our environment, and gave instructions for chemistry-related, child-friendly water demonstrations. As always the KACS table was one of the most popular tables at the event! Several parents and KNC staff members complimented us on our exciting demo and informative handouts and as always, all of the kids loved making a chromatography flower. The KNC educational staff also approached the WMU Chemistry Club to ask if we would be interested in participating in other educational science demonstrations at the KNC throughout the upcoming year, which is a very exciting opportunity!

Several student volunteers participated in this year's Chemist Celebrate Earth Day celebration. Jager Hartman, Evan Rasor, Casey Wright and Maren Zanotti from the Western Michigan University Chemistry Club, as well as Katherine Mattison from Kalamazoo College were tremendously helpful in making this event a wonderful success!

(See pictures of event on page 3)

Chemists Celebrate Earth Day Report

April 19 and 26, 2014 and Illustrated Poem Contest

(Continued from page 2)



Evan Rasor (WMU Chemistry Club) assists a participant in making a chromatography flower. (Photo by Maren Zanotti)



Katherine Mattison (Kalamazoo College), Jager Hartman, and Casey Wright (WMU Chemistry Club) volunteering at the KACS Chemists Celebrate Earth Day Table. (Photo by Maren Zanotti)



(Photo by George Hines)

Final thoughts

2014 Kalamazoo Section Awards Night

By Lydia Hines

Our annual Kalamazoo Section Award gathering **will be held on May 12**, Monday, at 6 p.m.; once again, the atrium in the Chemistry Building at WMU (between the Waldo Library and Wood Hall) will be the place to gather for hors d'oeuvres and informal visiting and camaraderie with other members, teachers, and students and their parents. This social time will be followed by our presentation of awards to our Section's High school students, College students, a High school teacher, certificates to 50-year members, and awards to members. So that we can have enough food available we encourage a **response ASAP or by May 6 regarding your positive participation; send your reply to Mrs. Robin Lenkart** either at robin.k.lenkart@wmich.edu or 387-2922. We hope to see you there!

2015 Joint Great Lakes Central Regional Meeting – Call for Sessions

By James Kiddle

The co-program chairs are soliciting suggestions for technical session topics for the 2015 Joint Great Lakes Central Regional Meeting of the American Chemical Society to be held May 27 - May 30, 2015 in Grand Rapids. The overall theme of the meeting is "**Chemistry - A Grand Enterprise**" and will focus on three main areas: Food, Health, and the Environment.

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June 1, 2014

Vol. 4 - Issue 4



Summer from the Chair

John H. Engelmann

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The fireworks season is here. Fireworks are very old. They were developed in India and China, long before the idea of fireworks came to Europe. Fireworks came to Europe somewhat later. However, by 1635, a book published in London showed fireworks very similar to what we have today.



John H. Engelmann, Ph.D.
(KACS Chair)

The book even discloses salts used to provide color. Fireworks are based upon straight forward chemistry. The major components of fireworks are oxidizers, reducing molecules, and metals which provide color. An oxygen-containing molecule provides oxygen to oxidize a reducing agent.

The major oxygen containing molecules used on fireworks are potassium nitrate (KNO_3), potassium chlorate (KClO_3), and potassium perchlorate (KClO_4). The major reducing molecules are carbon, and sulfur. The metals include magnesium, aluminum and iron. Various metal salts are added to provide color. Strontium provides red color; barium provides green color, and copper provides blue color.

(Continued on Page 2)

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Miscellaneous

(Continued from Page 1)

Black powder, that is, a mixture of potassium nitrate, sulfur, and charcoal is the most common composition used in fireworks. Aerial displays use black powder as the propellant to get the fireworks display into the air. Another common mixture used in fireworks is flashcracker powder used to make firecrackers which explode with a loud report and a bright flash. Flashcracker powder is a mixture of potassium perchlorate, aluminum and sulfur. It is used in aerial devices to provide explosions accompanied by a bright flash. Colored displays include flakes of various metals or metal salts which are added to the composition to produce colored stars which twinkle as they burn. So look up to the night sky and enjoy fireworks.

KACS makes educational donation

By John Miller

Thanks to a recommendation to the Executive Committee of the KACS, we have donated two sets of study guides, one each, to the libraries of Western Michigan University and Kalamazoo College. These guides were provided as an additional resource to help students prepare for the American Chemical Society's *General Chemistry*, *Organic Chemistry*, and *Physical Chemistry* subject examinations. (The Kalamazoo Valley Community College library declined a similar offer.)

Webinar Redux

By Elke Schoffers

On May 6, 2014, the Kalamazoo Local Section participated in an "LSAC Best Practices Webinar", which was organized by the National ACS Committee on Local Section Activities (LSAC). LSAC Chair Martin Rudd facilitated the webinar, which included the discussion of three local sections' events – those adaptable to any section size. KACS Past-Chair Elke Schoffers was one of three presenters; she explained how our Zoetis-sponsored "Sustainable Science-Recycle A Poster" activity at Bell's Eccentric Cafe was organized, how it is currently executed and clearly communicated its success as a forum for bringing together students and professional chemists from industry and academia. A transcript and the presentation slides can be viewed under the Training & Support subheading at www.acs.org/getinvolved.

Special Event



JUNE 6TH, 2014 **CGSA PICNIC**

Fun in the Sun!

On Friday June 6, the Chemistry Graduate Student Association (CGSA) will be hosting a picnic at Oshtemo Park (7275 West Main) from 5-8pm. The purpose of this event is to introduce chemistry graduate and undergraduate students to the KACS community outside of the university. There will be vegetarian and non-vegetarian food options provided. All members of the local chemistry community and their families, are welcome at this event. Please come join us for a fun afternoon at the park on June 6th!

**June 6th from
5-8pm**

**Free Food-
Vegetarian and
Non-Vegetarian
Options Provided**

**Open to all Local
Chemists and
their Families**

**Family Friendly
Activities!**

**Hope to see you
there!**

CHEMISTRY GRADUATE STUDENT ASSOCIATION

1903 West Michigan Ave.
Kalamazoo MI, 49008

www.wmich.edu/CGSA

KACS Awards Ceremony

By Megan Grunert

The 41st KACS Awards presentation was held on Monday, May 12, on the Western Michigan University campus with a record-number of attendees. Awardees included four individuals celebrating 50 years of ACS membership, the Outstanding High School Chemistry Teacher, Outstanding College Chemistry Student awards, several high school student awards, and awards recognizing service to the KACS section.



The awards for high school students are based on outstanding achievement on the Competitive Examination Competition, organized by Dr. James Kiddle, or on nominations from teachers at local schools. The Outstanding High School Chemistry Teacher is nominated by the high school principal. Dr. Sherine Obare and Dr. Andre Venter were instrumental in reviewing nominations and selecting this year's award winner. Both Western Michigan University and Kalamazoo College selected an Outstanding College Chemistry Student.

The Kalamazoo Section Award Winners were Sherine Obare for her many years of service on the Education Committee, Charissa Oliphant for her many years of participation as presenter at Chemistry Day at the Museum, and Doug Williams and Elke Schoffers for their enthusiastic, positive, and continuing leadership in the Section. The section would also like to recognize the significant contributions from the Education Committee (Megan Grunert, James Kiddle, Sherine Obare, and Andre Venter), Lydia Hines, Elke Schoffers, and Robin Lenkart in organizing another outstanding awards ceremony. Congratulations to all awardees who are recognized below.

(Continued on Page 5)

KACS Awards Ceremony

(Continued from Page 4)

Fifty-Year Members

Dr. David R. Buss

Dr. Rex Hornish

Dr. Ferenc J. Kezdy

Mr. Eldon George Nidy

Outstanding College Chemistry Students

William B. Thayer - WMU

Amanda Bolles - K-College

2014 KACS Outstanding High School Chemistry Teacher

Jennifer Billington - Parchment High School

Outstanding High School Chemistry Students

Brian Bartley - Loy Norrix High School

Sean Brennan - Paw Paw High School

Denise Garner - Gull Lake High School

Logan Hughey - Kalamazoo Central High School

Callahan Katrak - Mattawan High School

Doug Keto - Comstock High School

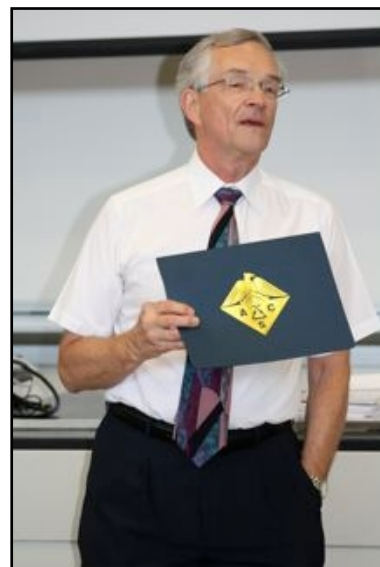
Emily Konkel - Portage Central High School

Felicia Murry - Portage Northern High School

Ashley Pepple - Plainwell High School

Justin Richardson - Kalamazoo Christian High School

Katherine Wu - KAMSC



Fifty Year Member Dr Rex Hornish



2014 Outstanding High School Chemistry Teacher Jennifer Billington (Parchment High School), with Education Chair Dr. Megan Grunert



2014 Outstanding High School Students

(Continued on Page 6)

KACS Awards Ceremony

(Continued from Page 5)

2014 Competitive Scholarship Winners

Andrew J. Bingham – Plainwell
Amanda G. Gibson – Mattawan
Anastasia C. Kupstas – Gull Lake
Callahan K. Katrak – Mattawan
Kaylie E. Colyer – Plainwell
Chandler L. Stockwell – Gull Lake
James C. Gibson – Gull Lake
Kade C. Katrak – Mattawan
Tyler A. Leverton – KAMSC / Loy Norrix
Brian Bartley – Loy Norrix
Anna K. Lane – Gull Lake



2014 Competitive Scholarship Winners

2014 Competitive Scholarship Honorable Mention

Allison E. Bartz – Portage Central
Sydney Bodzianowski – KAMSC / K-Central
Jacob A. Cipich – Portage Northern
Malachi C. Cox – Loy Norrix
Sarah J. Melbow – Gull Lake
Joshua M. Mussche – KAMSC / Comstock
Ashley L. Pepple – Plainwell
Evan M. Stoll – Portage Northern
Trenton L. Thelen – Wayland
Ryan T. Vennard – Gull Lake



2014 Competitive Scholarship Honorable Mention

Kalamazoo Section Award Winners

Sherine Obare
Charissa Oliphant
Doug Williams
Elke Schoffers



Kalamazoo Section Award Winners.
Left to right: Dr. Doug Williams, Dr. Sherine Obare, Dr. Lydia Hines,
Ms. Charissa Oliphant, Dr. Elke Schoffers

Important News from ACS

By Lydia Hines

- In the spring of 2014 there was a report of an accident in a New York High School Chemistry class after a presentation of the Rainbow Demonstration. **The Committee on Chemical Safety of the American Chemical Society responded to that incident with a comment in the March 17, 2014 (p. 43) issue of C&ENews, along with an offer of a website, www.acs.org/safety , where teachers can find alternative demonstrations, suitable for the HS classroom, which can be carried out safely.** Our Councilor, Lydia Hines, sent this information by e-mail to all of our K-12 teachers immediately upon her return from the Spring ACS Meeting in Dallas, in March.
- Another item which our councilor sent out to our **Section's HS teachers** was an e-mail informing them that in addition to the many educational chemistry resources available to teachers at acs.org/education, the ACS offers opportunity for them to **apply for grants up to \$1500** for enhancing their students' educational experience. Application and further information may be found at www.acs.org/hachgrants.
- [Coming in September, The American Association of Chemistry Teachers \(AACT\)!](#) Serving K–12 teachers of chemistry everywhere, AACT will offer specialized chemistry teaching resources, a periodical about teaching chemistry in the K–12 classroom, an online community for sharing, and more.
- For our **unemployed members** the ACS offers links to career-assistance tools, benefits and other resources at www.acs.org/unemployed. {Also, our own KACS offers the **ChemAble grant** to our unemployed members – visit our website www.kalamazooacs.org/jobs/chem-able/ }



American Chemical Society – Kalamazoo Local Section Newsletter

August 5, 2014

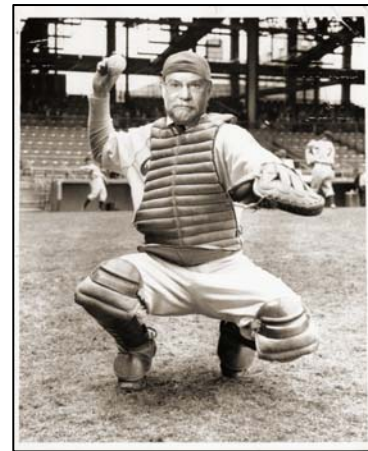
Vol. 4 - Issue 5



Chemistry of Baseball

John H. Engelmann

The baseball season is here. Baseball is all about striking out, flying out, base hits, runs batted in, and of course home runs. What makes baseball possible? It is leather and wood. The bat is wood and it receives a varnish treatment before use. The player's gloves are leather. The baseball itself is covered in leather.



John H. Engelmann, Ph.D.
(KACS Chair)

We take leather for granted, but where does it come from? Leather starts out as an animal hide. In baseball, the animal is often a cow or a steer. However, kangaroo hide is also used. The fresh animal hide is dried in salt to preserve it before it can be tanned. The tanning process begins by treating the animal skin with CaCO_3 or NaOH , and scraping to remove the hair and any fat. The skin is soaked in water to remove the basic reagents. Bacterial growth during the soaking period is prevented by biocides such as dithiocarbamates. Fungicides, such as TCMBT, that is, 2-(Thiocyanomethylthio) benzothiazole, are used to protect wet hides from mold growth.

(Continued on Page 2)

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Miscellaneous

(Continued from Page 1)

Tanning can be performed by either vegetable or mineral methods. Vegetable tanning involves treating the hide with tannin. Tannin is a bitter plant polyphenolic compound that binds to and precipitates proteins. Mineral tanning involves treating the hide with chromium III salts. Either way the product is leather. Without chemistry we would have no leather. Without leather we would have no baseball. Without baseball where would America be?

Volunteer your Time and Expertise

By Lydia Hines

[Share Science as a Chemistry Ambassador](#)

You can help kids learn to understand and love science as a [Chemistry Ambassador](#), and ACS is ready to help you do it. You may volunteer with youth groups, summer camps, and scouts in your community - the Chemistry Ambassadors program has tips and resources to support outreach to your neighbors or students in your area. In addition to the many sample experiments offered by the Chemistry Ambassadors program, the ACS National Office has a limited number of free "Kids & Chemistry" kits you can request if you wish to conduct hands-on activities with groups of up to 32 kids. Find out more information about the kits and [order one today](#). Once you experience the rewards of helping youngsters learn about chemistry, consider doing it again. The Chemistry Ambassadors program makes it easy to stay involved, whether you have a lot of time, or just a little. Visit www.acs.org/chemistryambassadors to get more details and get started!



DowBQ Report

By Amanda Bolles

On May 29th, 2014, the Kalamazoo College Chemistry Club held their annual DowBQ, where students and faculty socialize while eating some great food and playing yard games. The DowBQ gets its name from the fact that both Chemistry and Biology majors are housed in the Dow Science Building. All chemistry and biology students, as well as faculty, were invited to the barbecue; it is a great time for underclassmen to ask seniors and faculty for advice on internships, completing the Senior Individualized Project (SIP), and applying to medical school or graduate school. Over 70 students attended the event and took the time to celebrate being part of the scientific community at Kalamazoo College.



Announcements

Let your children's/grandchildren's teachers know of the following resources:

(NEW) Coming in September, The American Association of Chemistry Teachers (AACT)! □ Serving K–12 teachers of chemistry, AACT will offer specialized chemistry teaching resources, a periodical about teaching chemistry in the K–12 classroom, an online community for sharing, and more.

Career Videos for Youth

As part of this year's "Chemists Celebrate Earth Day" effort, ACS produced three [downloadable videos that are a great, age-appropriate resource for showing an elementary/middle school audience what chemists and chemical engineers do](#). Teachers can use these videos in a career-day program or for classroom use. The three chemists interviewed provide insight on what they do in their everyday jobs. [Visit the CCED website](#) for descriptions of the videos and download links.

First call for volunteers for our 2015 National Chemistry Week (NCW) outreach event at the Kalamazoo Valley Museum. We count on you to volunteer your time and engaging disposition for its success again this year!

National Chemistry Week will be upon us before we know it; the Week itself is October 19-25 but **our annual outreach event** at the Kalamazoo Valley Museum will be on **Saturday, October 11, from noon to 4 p.m.** This year's **theme is "The Sweet Side of Chemistry – Candy"** and our hard-working collaborator at the Museum, Annette Hoppenworth, is looking forward to our participation and successful execution of this immensely popular program once again. Parents, grandparents, teachers, scout leaders and children are always rewarded with fun hands-on activities, and with written materials which they may take to their homes and their schools for encouragement in their science learning – we have all heard of STEM education; this informal science learning experience is a big part of it at an age when children are "scientists in the making" - inquisitive and truly curious. To volunteer for the event please contact Lydia E. M. Hines at lemhwgh@gmail.com or 269-375-7349; if you are at a loss for an activity, she has a list she can send you, and she can train you in an activity of your choice.

Special Event

Plan to attend the next KACS Local Section Meeting on the ever-current topic of SAFETY at 6:00 p.m. on Tuesday, September 23, 2014, in the Dow Science Building Lecture Hall at Kalamazoo College

We have scheduled **Dr. Kenneth Fivizzani**, Nalco Company (retired) and Chair, ACS Division of Chemical Health & Safety as our speaker.



Dr. Kenneth Fivizzani

Who pays for safety failures in the chemistry laboratory?

The chemistry community and the general public have become more aware of incidents in chemical laboratories. Some serious accidents in both academic and industrial laboratories have had widespread repercussions to the organizations in which these accidents occur. If a regulatory agency, such as OSHA or EPA, cites a violation of a law or regulation, fines and remediation costs can be significant. Legal expenses for responses, trials, and appeals can grow quickly. But there are broader costs to the reputations of principal investigators, departments, institutions, and even for the science of chemistry. If students do not feel safe in undergraduate and research laboratories, they will be less likely to choose a career in science. If the general public does not trust chemical professionals to work safely in laboratories, there could be calls for more regulation of lab activity, and funding for chemical research might be reduced. There are many good reasons for organizations to establish strong safety cultures and ensure that laboratory personnel are well trained in lab safety procedures and policies.

There will be time at the end for questions.

Dr. Fivizzani will meet with graduate and undergraduate students before his lecture for a “roundtable discussion” concerning the large variety of “non-traditional” careers available to students who earn degrees in chemistry. Please let me know (lemhwgh@gmail.com) if you are interested in participating. For additional career-related information see the “careers” page in the first monthly issue of C&ENews, and visit www.acs.org/careers

ChemLuminary Awards

Good news about us!

Based on our **KACS 2013 Annual Report submission**, our Section has been nominated as a **Finalist for ChemLuminary Awards in 3 categories**:

- Outstanding Local Section Industry Event (Recycle-a-poster event)
- Outstanding Performance by a Local Section (Medium Size)
- Best New Public Relations Program of a Local Section (Elements of Dance)

If you will be at the **ACS Meeting in San Francisco, plan to attend the ChemLuminary Awards Party on Tuesday evening (August 12) at the Palace Hotel from 8 pm to midnight to find out whether or not our Section was selected as a winner in any or all of those categories!** Here is the schedule:

- 8:00 - 8:45 pm, you may look at all the finalists' posters and enjoy hors d'oeuvres.
- 8:45 pm, the doors open to the awards ceremony (which lasts about one hour)
- 10 pm to midnight, the floor opens to those who want to celebrate by dancing.

Below is what our LSAC (Local Section Activities Committee) reviewer, Lucy Eubanks, had to say about our Section after reading our Annual Report:

"The Kalamazoo Local Section's website states: 'We are a dynamic and visionary organization committed to improving people's lives in our community through the transforming power of chemistry. We strive to advance the broader chemistry enterprise and its practitioners for the benefit of Kalamazoo, Allegan and Van Buren counties'. That vision and mission are being fulfilled and your Section continues to impress me with the scope and quality of your many activities. Several significant anniversaries were celebrated in 2013, including the "Awards Ceremony" (40 years), "High School Chemistry Symposium" (40 years), "Chemistry Day at the Museum" (as part of NCW, 27 times over 26 years), "Project SEED" (23 years), and "Chemists Celebrate Earth Day" (10 years)! What a splendid record of continuous effort and yet these activities and events continue to grow and improve. "Chemistry Day at the Museum" featured nearly 30 hands-on activities or displays and reached over 700 visitors this year with 87 volunteers, including new student helpers. The innovative Chemistry & Culture event, *Elements of Dance*, was held again this year and attracted more than 200 participants. Inviting the Mayor of Kalamazoo to be the Celebrity MC certainly did increase the Section's visibility! A Science Café Mini-Grant resulted in "Horticultural Chemistry— Color in Flowers" event. The innovative "Recycle a Poster" event is one that would fit well into many Local Sections seeking to increase industry involvement. The stated plan of the ACS Climate Science Grant is to integrate the ACS Climate Science Toolkit into its educational outreach activity involving education directors or mission leaders in faith-based congregations with middle and high school science teachers, and with Scout leaders. In partnership with the WMU Climate Science Study Group, this ambitious and innovative plan is slated for implementation in 2014. It will provide an interesting model for other Sections to consider. Many more examples of the Kalamazoo Section's activities could be cited, but it is clear that the Kalamazoo Section sets and achieves a high standard of activity. KACS goals are also well coordinated with the goals of the ACS Strategic Plan (www.acs.org/strategicplan). Congratulations on all of your high-impact events that both serve your members and involve your local community."

CGSA BBQ Report

Report from the 2014 WMU Chemistry Graduate Student Association (CGSA) picnic

By Sarut Jianrattanasawat

On June 6, the CGSA hosted its 4th annual cookout for local chemists at the Oshtemo Township Park. First and foremost, CGSA would like to thank KACS for the generous financial support. The event was successful. We had more than 40 attendees, including faculty, staff, undergraduate and graduate students from WMU, and KACS members from around Kalamazoo, as well as some chemists-to-be. Many participated in activities such as tennis and soccer. We are glad to see this event gaining popularity as a local tradition.

Here are some pictures from the event (photographer: Minglian Lin)



Jared Wabeke and Brianna Hyder making ice cream using liquid nitrogen



Future chemist? With grad student dad



Future chemist?



Grilling burgers

American Chemical Society – Kalamazoo Local Section Newsletter

September 2, 2014

Vol. 4 - Issue 6



Ink

John H. Engelmann

Soon our students are going back to school. Soon they will be listening to teachers, going to the library and writing things. Many of the final copies of their writing efforts will be printed using laser jet printers. These printers use a Xerographic process which does not involve inks.



John H. Engelmann, Ph.D.
(KACS Chair)

However, printed materials the students use in their studies involve inks. In addition, the students may write notes about the lectures which they attend, and the references which they read. These notes may be written using graphite pencils, but in many cases they are written in ink. Thus, even in this digital age, ink plays a large part in education. There are many varieties of inks. There are fountain pen inks, ballpoint pen inks, roller ball inks, printer inks, colored inks and, of course, the traditional black ink. The most ancient inks are black inks. Ancient Chinese inks used soot and collagen from animal sources. In India similar carbon based inks were used. Inks based upon carbon black and gelatin are still on the market today under the name "India Ink."

(Continued on Page 2)

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Miscellaneous

(Continued from Page 1)

Colored inks may be based upon soluble dyes or pigment particles. The soluble dyes are soluble in the carrier, and once the ink is applied to the paper, the carrier evaporates, and the ink remains in the substrate. This is fine unless the substrate becomes wet and the dye migrates. In general dye inks are not as stable as pigment inks, although in recent years dye inks have improved. Pigments are solid colored particles suspended in a carrier. They can be very stable although they provide a smaller color pallet than dye inks. So as the new school year starts let the ink flow.

Second and last (?) call for volunteers for our 2015 National Chemistry Week (NCW) outreach event - Chemistry Day at the Kalamazoo Valley Museum

By Lydia Hines

National Chemistry Week is creeping up on us as September approaches! The Week itself is October 19-25 but our annual outreach event at the Kalamazoo Valley Museum will be on **Saturday, October 11, from noon to 4 p.m.** This year's theme is "**The Sweet Side of Chemistry – Candy**" and our hard-working collaborator at the Museum, Annette Hoppenworth, is looking forward to the successful execution of this immensely popular program for the 28th time! A sincere Thank You to the six individuals who have already said they would help, but we truly need many more! Adults as well as the children become active learners at the activity smorgasbord, and they all appreciate the written information which they take to their homes and their schools for encouragement in their science learning - inquisitive and truly curious patrons and happily engaged presenters make for a great experience.

To volunteer for the event please contact **Lydia E. M. Hines** at lemhwgh@gmail.com or **269-375-7349**; if you are at a loss for an activity, she has a list she can send you, and she can train you in an activity of your choice. We count on you to volunteer your time and engaging disposition for its success again this year. Thank you!

248th ACS National Meeting and Exposition

By Lydia Hines

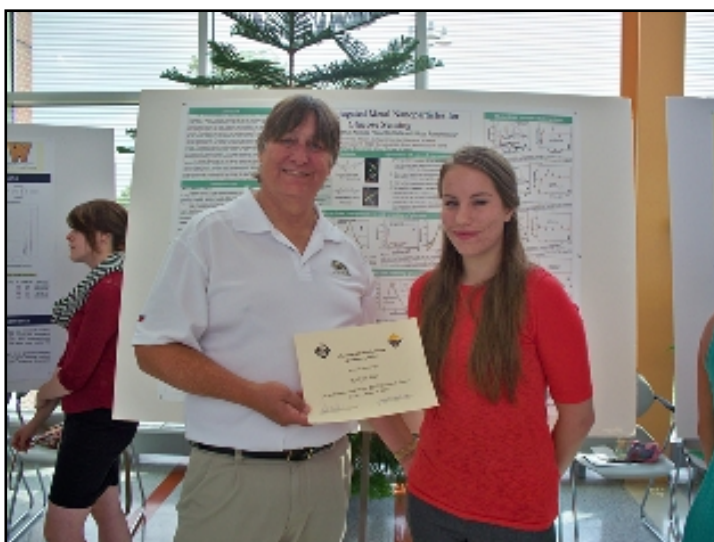
To learn more about recent ACS news and plans, you may read our Councilor's, Lydia E. M. Hines', written report from the recent Council meeting in San Francisco on the website, KalamazooACS.org

Project SEED Student Posters

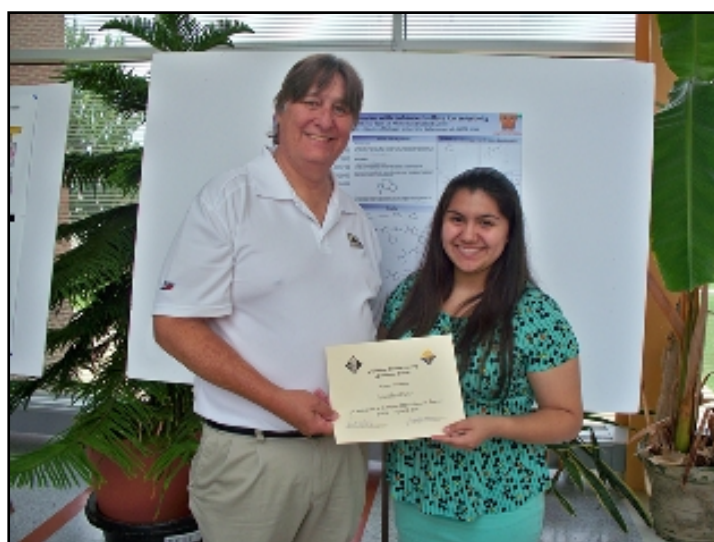
By Lydia Hines (with photos by Fayth H. Moore)

Over two summer months our KACS, once again under the leadership of Dr. Donald Schreiber of WMU, helped to support the research engagement of 2 SEED [Science Experience for the Economically Disadvantaged] students from high schools in our Local Section's geographic area. **Kathryn Way**, a junior from Comstock High School, worked in the laboratory of **Dr. Ramakrishna Guda**, and **Ixtlazihuatl Soto**, a senior from Loy Norrix High School, studied in the lab of **Dr. Gellert Mezei**; both mentors are faculty in the chemistry department at WMU and we appreciate their generous contribution to our students' growth as aspiring scientists.

Each of these 2 students prepared a poster and responded to visitors' queries concerning their work, from 10 a.m. to 12 noon on Wednesday August 6, 2014 in the Haenicke Hall atrium on the WMU campus. Several KACS members came by to visit with these students; Kathryn, a junior, anticipates being back next year, and Ixtlazihuatl is now enrolled at Northern Michigan University to study criminal justice/forensics and, because of her summer experience, thinks she may also major in chemistry!



Dr. Donald Schreiber presenting Kathryn Way her participation certificate



Dr. Donald Schreiber presenting Ixtlazihuatl Soto with her participation certificate



A KACS member chats with Ixtlazihuatl Soto.

Upcoming Events

Tuesday, September 23

A Reminder about the talk on “**Who pays for safety failures in the Chemistry Laboratory?**” by **Dr. Ken Fivizzani**, which will be held in the lecture hall of the Dow Science Building on the Kalamazoo College Campus at 6:00 p.m. on Tuesday, September 23. Dr. Fivizzani, has also offered his time and expertise from 4:30-5:30 p.m. to meet in a “roundtable discussion” with students (graduates and undergraduates) who would want to speak with him about the variety of career options available to those with chemistry degrees. Please avail yourselves of these opportunities and show our guest your appreciation.

Saturday, October 11

Chemistry Day at the Kalamazoo Valley Museum, October 11, 12-4 p.m. This year’s theme is “**The Sweet Side of Chemistry – Candy**”. Hands-on activities, take-home science fun information for anyone ages 2-102.

Thursday, October 23

We will be having another Science Café, this time on the theme of Art! Mark your calendars for Thursday, October 23 (mole Day), our speaker will be **Mr. James Engelmann**, Exhibition Designer, Cleveland Museum of Art, on “**Chemistry in Art – Paintings, Materials, Restoration and Forgery**”. Invite any friend or colleague interested in the subject. Location and time TBA.

Early November

Recycle-a-Poster at Bell’s Eccentric Café. Look for more information in the next newsletter.

Joint Great Lakes Central Regional Meeting

By Lydia Hines



Grand Rapids, MI | jglcrm2015.com

On May 27-30 of 2015 the Great Lakes and Central Regions of the American Chemical Society have the privilege of hosting a Joint Regional Meeting at the Amway Grand Plaza Hotel and DeVos Place in downtown Grand Rapids, Michigan. Capitalizing on the interests in our geographic area, the three **focus themes** chosen for the meeting are **Food, Health, Environment**.

Encompassing primarily the full states of Illinois, Indiana, Michigan, Minnesota, Ohio, North Dakota and Wisconsin this meeting offers affordable accessibility to faculty and students as well as industrial members to present their research, hear lecturers of renown and to network with other science professionals. Our plenary speaker on Wednesday, May 27, will be **Dr. Scott Denmark**, an award-winning faculty member at the University of Illinois in Urbana-Champaign.

At our website <http://jglcrm2015.com> you will find contact information so that you may get involved, register to attend the meeting, a form for submitting symposium recommendations, and forms to nominate deserving individuals for awards which will be presented at the Awards Banquet during the meeting. Please check the website regularly for updates on the preliminary program, keynote speakers, and events that will make the Joint Great Lakes-Central Regional Meeting a Grand Enterprise.

ChemLuminary Awards

KACS earns two ChemLuminary Awards in San Francisco

By Elke Schoffers



It was a privilege to represent our Local Section at the 16th Annual ChemLuminary Awards celebration during the 248th ACS National Meeting in San Francisco, CA, on August 12, 2014. The goal of the ceremony was to recognize local sections, regional meetings, and divisions for their efforts to promote chemistry and the chemical sciences during 2013.

The evening began with a reception during which finalists displayed posters and banners to highlight their outstanding activities being recognized. The awards presentation was opened by ACS President Tom Barton and followed by a keynote address by Dr. Robert A. Pribush (Butler University) titled "Volunteerism and the Ripple Effect – Drop a Pebble Today!" He was the recipient of the 2014 ACS Volunteer Service Award and was recognized for his exemplary volunteer efforts in the Indiana Local Section, with ACS Governance, with the ACS Exams Institute, and with Regional Meetings. Afterwards, the celebration continued on the dance floor until midnight.

A total of 17 committees identified outstanding volunteer work by 187 ACS Local Sections, 32 Divisions and 8 Regional Meetings in 2013. This year, KACS was a ChemLuminary finalist in three categories and won the coveted price in two of them. As the designated representative, it was my distinct pleasure to walk up to the stage and accept both awards on behalf of our Local Section. Dr. David Gottfried, chair of the Committee on Public Relations and Communications, gave the first award "to recognize Local Sections for outstanding efforts in promoting chemistry to the public." The "Chemistry & Culture: Elements of Dance" event at the Kalamazoo Institute of Arts on November 1, 2013 was acknowledged as the "Best New Public Relations Program of a Local Section". It was made possible through funding by AAAS, Aldrich Chemistry, WMU President Office, WMU-BTR, and Bader Fine Arts Collection.

The second award was given by the chair of the Corporation Associates Committee, Dr. Dawn Mason, "to recognize outstanding efforts in producing an event that benefits industry members or students seeking a career in industry." Our section received it for the poster session at Bell's Eccentric Café titled "Sustainable Science – Recycle a Poster," which took place on Oct. 8, 2013 for the third year in a row. It was made possible through a generous grant from Zoetis and attended by about 100 people.

Last but not least, I would like to thank everybody who has graciously volunteered his / her time when I chaired the Local Section for two years in a row. This recognition would not have been possible without this team effort!

For a complete listing of the 2014 ChemLuminary awards and additional photos, visit <http://www.acs.org/content/acs/en/funding-and-awards/awards/community/chemluminary.html>

(Continued on Page 6)

ChemLuminary Awards

(Continued from Page 5)

KALAMAZOO LOCAL SECTION AWARDS:

Committee on Public Relations and Communications

Best New Public Relations Program of a Local Section

“The section spearheaded a ballroom dance event for the public with the Kalamazoo Institute of Arts. The mayor of Kalamazoo served as the Master of Ceremonies and a total of 217 people participated, including 70 students.”



The mayor of Kalamazoo, Bobby Hopewell (left), was the MC and participated in a line dance with chemistry graduate and undergraduate students at the KIA.

Corporation Associates

Outstanding Local Section Industry Event

“For the third consecutive year, the Kalamazoo local section hosted a poster session titled “Sustainable Science – Recycle a Poster” at a local brewery. There were 100 attendees from industry and academia, including graduate and undergraduate students.”



(Continued on Page 7)

ChemLuminary Awards - Photos

(Continued from Page 6)



Denis Billen (Zoetis) and Elke Schoffers (WMU)



Elke Schoffers presented the KACS poster during the ChemLuminary reception in the San Francisco Palace Hotel



Left to right: David Gottfried (chair of the Committee on Public Relations and Communications), Elke Schoffers and ACS President Tom Barton



Left to right: Dawn Mason (chair of the Corporation Associates Committee), ACS Past-President Marinda Wu, Elke Schoffers, and Denis Billen

American Chemical Society – Kalamazoo Local Section Newsletter

October 2, 2014

Vol. 4 - Issue 7



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Fall Leaf Color

John H. Engelmann

Spring has come, given way to summer, and now the fall season is upon us. Leaves which turned so happily green, due to chlorophyll, are now turning brown or red. It is easy to understand why leaves turn green in the spring



John H. Engelmann, Ph.D.
(KACS Chair)

The chlorophyll, which the leaves use to convert carbon dioxide and water into carbohydrates is bright green which accounts for the green color of leaves. In the fall, when chlorophyll is no longer being produced the leaves lose their green color and the background brown or red color shows.

During the growing season chlorophyll is consumed in the production of carbohydrates and accordingly, chlorophyll is produced continuously so that leaves remain green and continue to produce carbohydrates. In the fall, the veins that carry fluids into and out of the leaf are gradually closed off by a layer of cells which form at the base of the leaf. As this layer becomes thicker, the plant provides less water and minerals to the leaf and chlorophyll production decreases and eventually stops.

(Continued on Page 2)

KACS website: <http://kalamazooacs.org/>

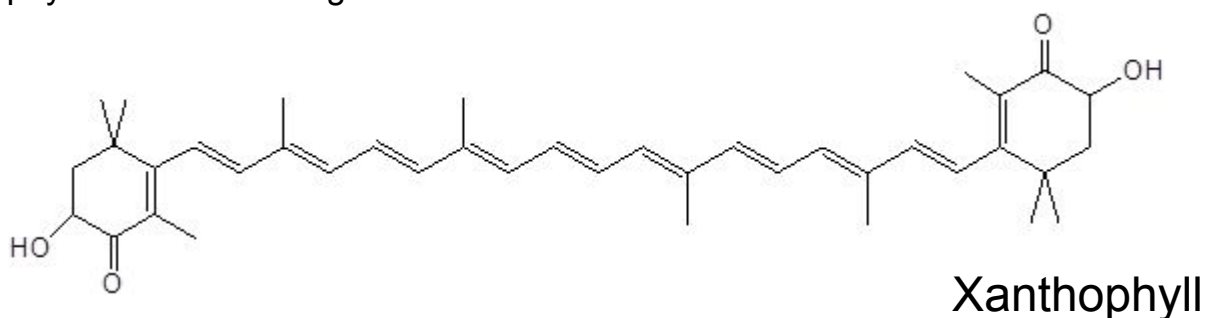
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Fall Leaf Color

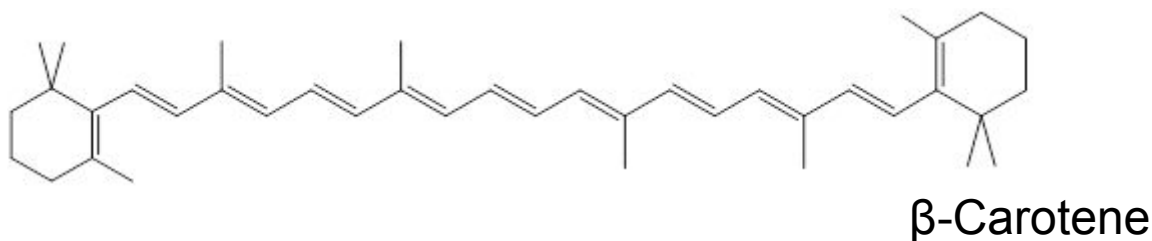
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The chlorophyll and the light harvesting complex of the leaf is degraded into colorless products including amino acids. In annual plants the amino acids are either further degraded or enter the soil. In perennial plants, including trees, the amino acids are stored in the roots, branches, stems, and trunk and are recycled in the spring. The brown and red colors of fall leaves does not come from the degradation products of chlorophyll, but rather from the yellow xanthophylls and orange β -carotene which are present throughout the year, but are concealed by the green chlorophyll. In addition the leaf may synthesize red anthocyanins.

Xanthophyll has the following structure:



β -carotene is similar in structure to Xanthophyll:



Anthocyanins are not present during the growing season but are synthesized by the leaves in fall. Anthocyanins have the following structure:

Where:

R_3 is OH

R_5 is OH or OCH_3

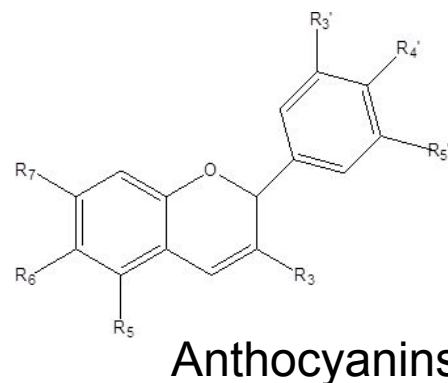
R_6 is H or OH

R_7 is OH or OCH_3

$R_{3'}$ is H, OH, or OCH_3

$R_{4'}$ is OH and

$R_{5'}$ is H, OH, or OCH_3



So when you look at the pretty fall colors on the trees remember it is all about chemistry.

Announcements

GreenUp

By Doug Williams

The 6th Michigan Green Chemistry and Engineering Conference will take place on November 12, 2014 at the Kellogg Center, Michigan State University. This year's theme is "Cultivating Next Generation Solutions." Keynote speakers are Eric Beckman, (Co-director, Mascaro Center for Sustainable Innovation, University of Pittsburgh), Bruce Dale (Professor of Chemical Engineering and Associate Director of Bio-based Technologies, Michigan State University) and Deanna Cullen (chemistry teacher at Whitehall High School). The conference will feature a student poster contest and sessions on pollution prevention, lowering product toxicity, leveraging non-competitive industry partnerships and bio-manufacturing. The event is cohosted by the Michigan Dept. of Environmental Quality and Michigan State University. Major sponsors include Dow Chemical, Ecology Center, Herman Miller, Steelcase and PVS Nolwood Chemicals. Registration is \$100 (\$25 for students). See http://www.michigan.gov/deq/0,4561,7-135-3585_49005-329144--,00.html for more details.

Year of Science – Gull Lake Community Schools

By Doug Williams

The Gull Lake Community Schools Foundation will kick off its 2014-15 Spark Series "Year of Science" with a Science & Engineering Festival on Nov 7-8 at Gull Lake High School (7753 N. 34th St., Richland, MI). The Nov 7 program is for 3000 area middle school students but events on Saturday, Nov 8 are open to the public from 9 am – 4 pm, free of charge. Mind Trekkers, a nationally acclaimed STEM roadshow from Michigan Tech University, will be featured (see <http://mindtrekkers.mtu.edu/>). Our Kalamazoo Section of ACS is a financial sponsor of this event. We encourage you to mark your calendar and check it out.

Join the Executive Committee of your Kalamazoo Local Section

By Lydia Hines

We have an immediate need for candidates for **Kalamazoo Section Chair-Elect** and **Treasurer**.

There is also an urgent need for a **Chair for the KACS Education Committee**, a very important role in our Local Section organization, as Education is a highly valued outreach for us.

Descriptions of the responsibilities for these roles can be found on our website in the section's Operations Manual: www.kalamazooACS.org (look under About Us → [Operations Manual](#))

Upcoming Events

Saturday, October 11

Chemistry Day at the Kalamazoo Valley Museum, October 11, 12-4 pm. This year's theme is "**The Sweet Side of Chemistry – Candy**". Hands-on activities, take-home science fun information for anyone ages 2-102.

Thursday, October 23

We will be having another Science Café, this time on the theme of Art! Mark your calendars for Thursday, October 23 (mole Day), our speaker will be **Mr. James Engelmann**, Exhibition Designer, Cleveland Museum of Art, on "**Art Changes**". Invite any friend or colleague interested in the subject. Location and time: Richmond Center, 2nd Floor, WMU Campus, 6:02 pm.

Wednesday, November 5

Recycle-a-Poster at Bell's Eccentric Café, 5-10 pm. KACS will host **Prof. Timothy F. Jamison** from MIT as the keynote speaker. More details to follow.

Art Science Café

By Lydia Hines

Plan now to attend our Art Science Café on Mole Day, Thursday, October 23, 2014 at 6:02 pm. We will meet at the Richmond Center on the WMU campus on the 2nd floor; there will be refreshments in the lobby.



James Engelmann

Our speaker will be **Mr. James Engelmann**, an Artist, Teacher and Designer. He works as an Exhibition Designer at the Cleveland Museum of Art and teaches Design Principles at Kent State University; he is a son of our current KACS chair and creator of the unique pictures of our Section chair for his column in our newsletters.

The title of his presentation is **Art Changes**. Jim explains: "We live in an age of visual abundance where the tools of art production and distribution are remarkably accessible. Brilliantly colorful and durable imagery, which would have been printmaking feats in the past, are now sent as throw away mailers to our homes. Art innovation, however, is not unique to our time. Material and technical innovations are as old as art itself and they have consistently changed the way images are produced, the nature of those images, and the art experience. In this lecture I will examine some of these developments from the past - from techniques for synthesizing pigments to the development of optics. These innovations and many others have changed what we expect art to be and have gradually made possible the pictorial mania of today".

Miscellaneous

Lab Safety Talk Report

By Brian Eklov

Ken Fivizzani, the retired Manager of Chemical Safety Programs at Odeco Nalco and chair of the ACS Committee on Chemical Safety gave a talk titled, "Who Pays for Safety Failures in the Chemistry Laboratory?" on Sept. 23 at Kalamazoo College. Twenty three members of the section (From K College, WMU, and a variety of industrial groups) attended Dr. Fivizzani's talk, which highlighted a number of recent cases where safety issues were brought to the attention of the broader community and the public. A discussion of the wide-ranging ramifications followed, and continued into the questions after the talk. It is clear that issues of chemical safety have a broad impact - from those who suffer injuries or lose work, to institutions that lose stature, and perhaps even a loss of future funding for research and chemical education.

Joint Great Lakes Central Regional Meeting

By Lydia Hines, co-General Chair

Mark your calendars and offer to assist in the successful implementation of this **ACS Meeting** to be held at the Amway Grand Hotel/DeVos Place in **Grand Rapids** on Wednesday through Saturday, May 27-30, 2015. Participate along with about 1000-1400 other chemist in an affordable venue.

Offer to **chair a symposium** in your area of Chemistry, and/or invite your students and colleagues to **present papers orally or in poster form**, to help with **registration**, with **assisting our visitors** to the area, with **keeping exhibitors happy** with their surroundings, and by **attending technical sessions and social events**, etc.

Dr. Scott Denmark (University of Illinois at Urbana–Champaign), **Dr. Joan Brennecke** (University of Notre Dame) and **Dr. Dustin Mergott** (Eli Lilly) have agreed to be our keynote speakers, and **Dr. Tom Lane** (Past-chair, ACS) will be giving the Award address at the banquet on Friday evening.

Visit our website at www.JGLCRM2015.com for updates on program and other "breaking news"....



Special Event



Chemistry Day at the Museum

Hands-on activities and resources for all ages!

Saturday, Oct. 11 • noon — 4 p.m.

Kalamazoo Valley Museum • 230 N. Rose St., Kalamazoo

Free!

Co-sponsored by the Kalamazoo Section of the American Chemical Society (kalamazooacs.org)

and the Kalamazoo Valley Museum (kalamazoovalleymuseum.org)



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American Chemical Society – Kalamazoo Local Section Newsletter

November 3, 2014

Vol. 4 - Issue 8



From the Chair

John H. Engelmann

2014 KACS Executive Officers

Chairperson

Dr. John H. Engelmann, Miller Canfield
jengelma@hotmail.com

Past-Chairperson

Dr. Elke Schoffers, WMU – Chemistry
elke.schoffers@wmich.edu

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Thanksgiving is almost here. Thanksgiving involves hunting various game birds, and hunting involves gun powder. Gun powder is a complex mixture containing potassium nitrate, sulfur and charcoal which has evolved over time.



John H. Engelmann, Ph.D.
(KACS Chair)

Gun powder was first used in pyrotechnics, but as the name suggests its quickly spread to fire arms. The early history of gunpowder is shrouded in obscurity. Gunpowder seems to have been invented in China. It came to Europe through trade with China, or perhaps it was invented independently in Europe. Whatever its early development may have been, it is well documented that by 1242 Francis Bacon knew of gunpowder, and by 1350 gun powder and guns existed in Europe. Gunpowder was used in grains, and the grain size differed for different guns. Small firearms, such as pistols, used small grains, while cannons used large grains.

(Continued on Page 2)

KACS website: <http://kalamazooacs.org/>

Do you have questions, comments, or would like to contribute to this newsletter?
Send an email to: ACSkzoo@gmail.com

Miscellaneous

(Continued from Page 1)

Black powder was the propellant explosive of the world until 1884, when Paul Vieille invented a smokeless powder called Poudre B made from 68.2% insoluble nitrocellulose, 29.8% soluble nitrocellulose gelatinized with ether and 2% paraffin. Firearms have used smokeless powder similar to Poudre B ever since. One thing has not changed -- small guns use small grain powder and large guns use large grain powder. The largest grain powder is used in large cannons because this large grain powder will continue to burn for the relatively long time it takes to drive a projectile from a cannon barrel.

KACS Position Open for Volunteer (Urgent)

By Lydia Hines

We have an immediate need for an **Education Committee Chair**, a very important role in our Local Section organization, as Education is a highly valued outreach for us. Descriptions of the responsibilities for this role can be found on our website in the section's Operations Manual: www.kalamazooACS.org (look under About Us → [Operations Manual](#))

Section Election News

By Lydia Hines

We want to extend our thanks to **Dr. André Venter** for agreeing to be a candidate for the position of **treasurer**, to **Dr. Lydia Hines** for agreeing to stand for re-election as **councilor**, and to **Dr. Brian Eklov** for agreeing to continue as **chair** for a second year.

Ballots for this election will be distributed through Survey Monkey and we trust that you will vote.

Please consider offering your service to your Section - our immediate need right now is to identify one or more members who are willing to serve the Section in the capacity of chair-elect beginning in 2016 (election to be held in 2015). Descriptions of the responsibilities for this role can be found on our website in the section's Operations Manual: www.kalamazooACS.org (look under About Us → [Operations Manual](#))

Special Upcoming Event

Kalamazoo Sci-Mix Poster Session



“Sustainable Science - Recycle a Poster”

5-9 pm, Wednesday, November 5, 2014



Bell's Eccentric Café

(355 E. Kalamazoo Ave)

Free and open to the public

*Complimentary hors d'oeuvres will be provided**

**Poster
Cash
Prizes!**

- 5 pm** Poster Setup, Registration, Reception
- 6 pm** Keynote Speaker Prof. Tim Jamison (MIT)
- 7-9 pm** Poster Session, Network with Scientists and Speaker
- 8 pm** Announcement of Poster Prizes

Student poster presenters can win a prize!

Undergraduate and graduate students are encouraged to participate.

The Kalamazoo area has historically been rich with exciting chemistry. Please join us and share the area's wealth of exciting chemistry by bringing a poster of your chemistry accomplishments. Your poster can either be newly prepared or a "recycled" poster of your accomplishments. This Mixer invites local academic and industrial chemists from all areas of chemistry: Analytical, Biochemistry, Inorganic, Organic, and Physical, in addition to Food and Medicinal Chemistry are invited to this mixer. See you there!

Presenters should email Elke.Schoffers@wmich.edu by **Monday, November 3** to reserve an easel by sending: (a) the title of the poster, (b) a list of authors, and (c) institution information.

Present Science, Network, Mingle, Celebrate Kalamazoo Chemistry
Stay in touch with KACS at <http://KalamazooACS.org/>

“Continuous Flow Multistep Synthesis”

by Keynote Speaker Prof. Tim Jamison (6 pm)

ABSTRACT: Flow chemistry has the potential to revolutionize the synthesis of organic molecules. Flow systems can reduce reaction times, increase efficiency, and obviate problems often encountered in scaling up. In addition to these important practical advantages, flow chemistry expands the “toolbox” of organic reactions available to scientists engaged in the synthesis of molecules – from small-scale experiments to large-scale production. These benefits are a direct result of several features of flow synthesis that batch synthesis typically cannot achieve, for example, the ability to control fluid flow precisely, the access to temperature and pressure regimes not usually considered to be practical, and the enhanced safety characteristics of flow chemical systems. In this lecture we will discuss some of our investigations in this area in the form of case studies, wherein a specific target or family of organic molecules has served as an inspiration for the development of new methods of organic synthesis in flow.

*Please note that each attendee who is (1) a current ACS member, or (2) a poster presenter or (3) a Zoetis employee will receive two complimentary drink tickets.

Funding provided by

National Chemistry Week 2014

By Lydia Hines

A. Chemistry Day at the Kalamazoo Valley Museum

Saturday, October 11, was a beautiful day in Kalamazoo, a day for families to take a trip to the Kalamazoo Valley Museum for our Section's annual **National Chemistry Week** outreach event. As in the past 27 years the staff and volunteers at the Museum collaborated with KACS members to present a **successful event** which was excitedly received by all who attended, parents and children alike – at least 800 visitors.

More than fifty volunteers from our Section – from Kalamazoo College, WMU, KVCC, Zoetis, Pfizer, Gull Lake High School and Kellogg's, to name some – presented 24 hands-on activities for 4 hours non-stop; some of the activities were the old stand-bys like slime, "dancing milk", volcano, and super-absorbent polymer; others were new, like how to detect sour candies from those which are not, to ways to be a "Kitchen spy"; the Mentos-pop geyser was another favorite. The theme this year was *The Sweet Side of Chemistry – Candy*. A large number of written materials for Grades 4-6 and High-School-age young people were happily received by eager children and adults – parents, scout leaders, teachers – who were there.

Our event got some publicity through the AP Wire service (courtesy a Press release from the Museum Director); there was additional publicity in the Museum's quarterly publication Museon and their Volunteer Newsletter; an article in the Three Rivers Commercial-News; advertisements in the Kalamazoo Gazette; articles and invitations in our Section e-newsletter, and e-blasts; and a flier supplied to K-12 teachers with the request that it be sent home with their students – some were. On the morning of the event, museum staff presented one of our activities live on our local TV station! Three weeks prior to the date of the event the publication Celebrating Chemistry, for children Grades 4-6, along with the announcement flyer, was distributed through our Section's Public Libraries' children's rooms.

Through this article I would like to extend a **heart-felt Thank You to all our volunteers and the able staff at the Kalamazoo Valley Museum.**

B. Illustrated Poem contest

Since the deadline for submission of entries to National ACS is not until November 15, the results of this part of the event are not in yet, but all K-12 teachers whose e-addresses are in hand received an invitation (and a subsequent reminder) to have their students participate in this opportunity for prize \$. The deadline for submission locally is not until November 10, so stay tuned...

Miscellaneous

Successful Fall Welcome Ice Cream Social for WMU chemistry Students

By Sarut Jianrattanasawatt

On September 12, 2014, the WMU Chemistry Club and the Chemistry Graduate Student Association hosted an ice cream social for the graduate and undergraduate students, faculty and staff of the Department of Chemistry. With more than 40 people in attendance, students were able to make new connections, get to know the student organizations*, as well as catch up with old friends. All in all, this event met its aim of introducing the new students to the more established members of the department.

* WMU Chemistry Club for undergrads, Chemistry Graduate Student Association (CGSA), and NOBCChE (National Organization for the Professional Advancement of Black Chemists and Chemical Engineers)

Joint Great Lakes Central Regional Meeting

By Lydia Hines, co-General Chair

Mark your calendars and offer to assist in the successful implementation of this **ACS Meeting** to be held at the Amway Grand Hotel/DeVos Place in **Grand Rapids** on Wednesday through Saturday, May 27-30, 2015. Participate along with about 1000-1400 other chemist in an affordable venue.

Offer to **chair a symposium** in your area of Chemistry, and/or invite your students and colleagues to **present papers orally or in poster form**, to help with **registration**, with **assisting our visitors** to the area, with **keeping exhibitors happy** with their surroundings, and by **attending technical sessions and social events**, etc.

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Dr. Tom Lane (Past-President, ACS) will be giving the Award address at the banquet on Friday evening.

Visit our website at www.JGLCRM2015.com for updates on program and other “breaking news”....



Final Thoughts

Congratulations!

We congratulate our Kalamazoo-based **Stryker** in being ranked as **#42 in the list of Top Chemistry-Related Companies to Work for** in the January 16, 2014 issue of *Fortune* magazine (see page 34 of C&ENews October 13, 2014).

2015 Joint Great Lakes Central Regional Meeting – Call for Sessions

By James Kiddle

The co-program chairs are soliciting suggestions for technical session topics for the 2015 Joint Great Lakes Central Regional Meeting of the American Chemical Society to be held May 27 - May 30, 2015 in Grand Rapids. The overall theme of the meeting is "Chemistry - A Grand Enterprise" and will focus on three main areas: Food, Health, and the Environment.

Please follow the link to submit your suggestions.

https://docs.google.com/forms/d/1eyX-D50xt_0z9Ownlx0a587L4x9vq3p4tSqWuFcJvu0/viewform



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American Chemical Society – Kalamazoo Local Section Newsletter

December 3, 2014

Vol. 4 - Issue 9



The Tastes of the Holidays

John H. Engelmann



John H. Engelmann, Ph.D.
(KACS Chair)

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The cookies, pies and other holiday sweets derive their flavor from spices including vanilla, ginger, and cinnamon. Another group of chemicals responsible for flavor, especially citrus flavors, are the terpenes. This is a large group of molecules based upon isoprene which deserves a discussion of its own.

The common spices, vanilla, ginger, and cinnamon, derive their flavor and odor from aromatic compounds. Interestingly, the term "aromatic" came about because the first known aromatic compounds were fragrant substances. These fragrant molecules were found in balsams, and essential oils. In view of the origin of the term "aromatic," perhaps it is not surprising that the flavor of these common spices comes from aromatic compounds. All the spice flavoring compounds noted below, contain oxygen in the form of phenols, alcohols, aldehydes, ketones and ethers. Here are some of the compound which give the common spices their flavor. As I have noted before, chemistry is everywhere -- even in a pumpkin pie.

(Continued on Page 2)

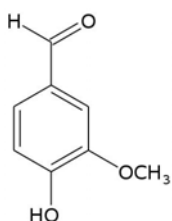
KACS website: <http://kalamazooacs.org/>

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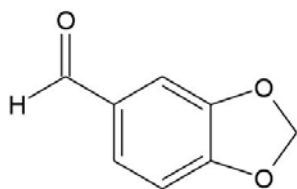
Miscellaneous

(Continued from Page 1)

VANILLA



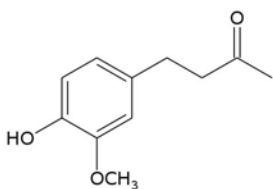
Vanillin (main component)



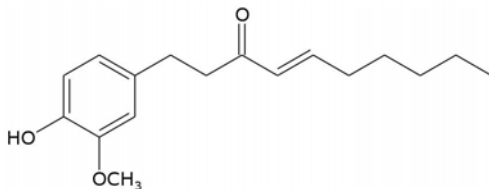
Piperonal (minor component)

Many other components

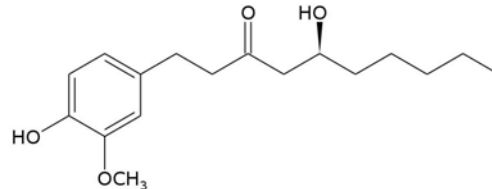
GINGER



Zingerone

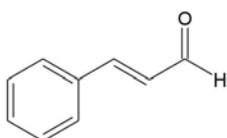


[6]-Shogaol



[6]-Gingerol

CINNAMON



Cinnamaldehyde (main component)

October Science Café Report

By Brian Eklov

James Engelmann, Exhibition Designer at the Cleveland Museum of Art, was the speaker at this fall's Science Café. Mr. Engelmann discussed how art has changed throughout history based upon the chemical technologies available at the time an artist was working. This then led to a discussion of how modern restoration work at the Cleveland Museum employs spectroscopy to determine where works have been altered based upon the different colorant chemistries employed when the work was created, and then later restored or edited. This information can then be used to accurately restore a work to an earlier state, and to repair earlier restoration attempts. The talk was very well received and was well attended.

Wally Hines in Memoriam

By Doug Williams

We are saddened by the death of 67-year ACS member Wallis Gartside Hines on October 31, 2014. Wally was born in Chicago, Ill. on Feb. 2, 1919, the fifth son of Herbert Waldo and Helen (Gartside) Hines. He graduated from Springfield High School (IL) in 1935. As a young man Wally had his heart set on becoming a surgeon; he became turned on to Chemistry after being in Dr. John C. Bailar's freshman chemistry class at the U of Illinois where he began his collegiate studies and completed a B.S. degree in applied science from Michigan State College in 1941. Following WWII, he earned an M.S. in organic chemistry from Michigan State University (MSU) in 1948, and his Ph.D. in organic chemistry from Louisiana State University in 1968. Wally had a long and adventurous career in chemistry that included laboratory jobs with Ditzler Color Co. of Detroit, E. I. duPont at the Kankakee Ordnance Works of Joliet, IL, the Michigan State Department of Agriculture Labs of Lansing, the Burlington Railroad, Armour Pharmaceutical Co., and The Upjohn Co. He also had an academic career as professor and head of the chemistry department at Aurora College (now University) in Illinois for 16 years and 20 years as director of chemistry labs at Kalamazoo College, from which he retired at age 84. He also had brief teaching assignments at Southwestern Michigan College in Dowagiac, Kalamazoo Valley Community College, and Nazareth College. We fondly remember Wally's faithful service to the KACS in many capacities, including his term as our local section Chair in 1986. Wally was awarded our section service award in 1991. He is survived by his wife, Lydia (Moissidou) Hines of Kalamazoo, two sons, three daughters, one brother, three sisters-in-law; three grandchildren; six great-grandchildren; three great-great-grandsons; many, many nieces, nephews and cousins. He was predeceased by one son, one grandson, six brothers, and two sisters. Wally served in WWII with the Third Chemical Mortar Battalion in Italy, France, Belgium and Germany. He served eight years as a member of Gideons International, and was a member of Berean Baptist Church in Portage. Whatever Wally did he pursued with a passion – and he had a passion for his genealogical research, which he began in 1970. He demanded perfection of himself and others and did everything to the best of his ability. His life verse was Galatians 6:2 “Bear ye one another's burdens and so fulfill the law of Christ”. His body has been willed to the MSU Medical School; it will later be cremated and ashes scattered over Isaacs Harbour, Nova Scotia (ancestral homesite).

School Outreach Events

By Angela Willson

A) Gobles Elementary School Science Day

October 23, 2014

On Mole day our KACS secretary, Angela Willson, spent the afternoon at Gobles Elementary School in response to their preschool teacher's request for assistance with a grant she had received to promote STEM at her school. It was their first ever school-wide celebration of science. Over 50 students and parents went from room to room open house style and got to see many experiments to get them interested in science. Our celebration of chemistry included activities dealing with soap, like surface tension of water and milk and foaming hydrogen peroxide (elephant toothpaste). The elementary students definitely enjoyed their afternoon of learning about chemistry through hands on activities.



B) Haverhill Elementary School's Halloween Science Celebration

We celebrated another fun day of science with some of our local elementary schoolers by demonstrating science experiments at the all-school assembly on October 30th. Demonstrations included the colors of gobstoppers, dry ice bubbles, elephant toothpaste in a pumpkin, and other festive Halloween science-themed activities. Deb VanAntwerp, a third grade teacher, gave the following glowing review about the presentation: "Your experiments were festive, meaningful, interesting, and fun, and you explained everything in such a positive, understandable manner! You really made Chemistry "come alive" for all of us!"



Miscellaneous

Kalamazoo College Chemistry Club Activities

By Mara Birndorff and Sarah Glass

In an effort to promote chemistry and membership in Kalamazoo College's ACS student group, a Mole Day event was held in the lounge of the Dow Science Center on October 23d, 2014. There were donuts, hot chocolate, and mole jokes around the room for students along with faculty to come and enjoy throughout the day. Many students use this as a way to relax after getting out of lab. This is an important opportunity for chemistry and biology majors to socialize with each other and for first-years and sophomores to ask upperclassman about their Senior Individualized Projects (SIPs), classes, and plans for after graduation. Overall, Mole day brings the science majors of Dow together to celebrate an integral part of National Chemistry Week while piquing students' interest in chemistry in a fun environment. This was a successful event which was made possible with the financial support from KACS.

Joint Great Lakes Central Regional Meeting

By Lydia Hines, co-General Chair

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Grand Rapids, MI | jglcrm2015.com

Sci-Mix Poster Session at Bell's Eccentric Café

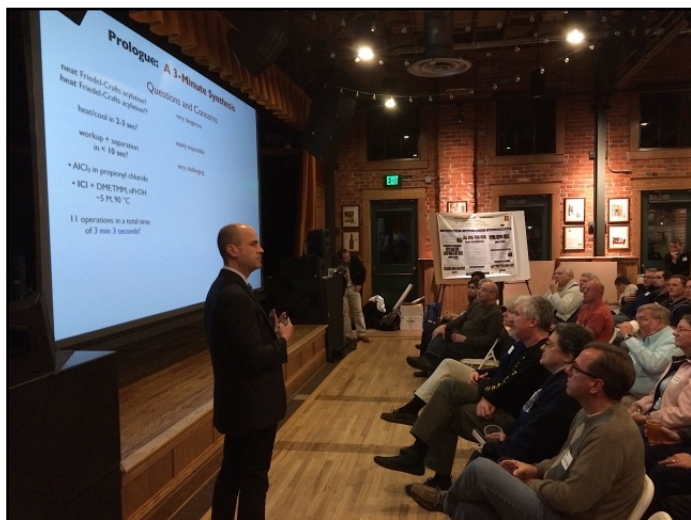
By Elke Schoffers with photos by Brian Eklov

Now in its fourth year, KACS hosted the annual poster session titled "Sustainable Science - Recycle a Poster" at Bell's brewery downtown Kalamazoo on Nov. 5, 2014. An unprecedented crowd of over 120 participants visited the local pub.

For the first time KACS hosted an out-of-state speaker for this event series. The audience was excited to hear an engaging presentation by Prof. Tim Jamison from Massachusetts Institute of Technology. Jamison is known for his novel methods in organic synthesis and their implementation in the total synthesis of natural products. In his seminar on "Continuous Flow Multistep Synthesis" he outlined how flow chemistry holds so much potential to reduce reaction times and increase efficiency.

Visitors had a chance to enjoy hot appetizers and beer while listening to the presentation, which was followed by the poster session. There were dozens of presenters, including 27 students. Some posters were newly prepared or "recycled" from a previous conference. Poster contributions were based on research carried out at Carnegie Mellon University, Kalamazoo College, KAMSC, Michigan State University, Oklahoma State University, Rutgers University-Newark, Western Michigan University and Zoetis. Attendants were able to mingle, enjoy a relaxed atmosphere and continue informal discussions with Jamison and other scientists from academia and industry.

This last event of the year was also an opportunity to thank all volunteers without whom KACS could not fulfill its goals and missions. For example, Dr. Lydia Hines received the ACS "2014 Outreach Volunteer of the Year" award. The event was made possible through a generous grant by Zoetis.



Keynote speaker Prof. Tim Jamison, Massachusetts Institute of Technology, in front of a captivated audience.

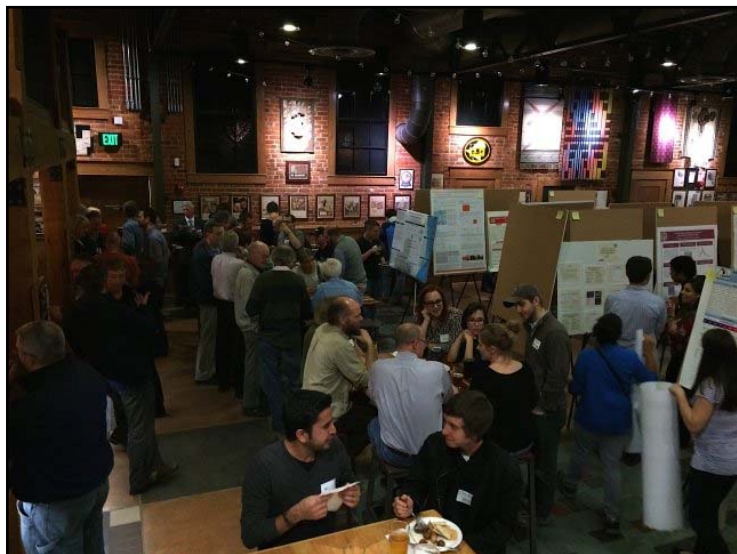


Listening to the keynote presentation.

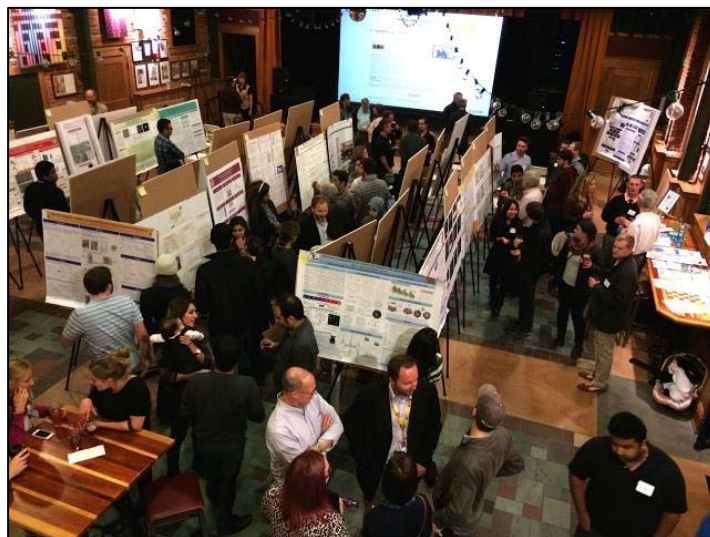
(Continued on Page 7)

Final Thoughts

(Continued from Page 6)



Sci-Mix attendees mingling.



Poster session.



Lydia Hines (KACS Councilor) receiving the ACS "2014 Outreach Volunteer of the Year" award, presented by Elke Schoffers (KACS Past-Chair).



Doug Williams (KACS Past-Chair, Alternate Councilor), and Elke Schoffers celebrating the two ChemLuminary awards received at the 248th ACS National Meeting, San Francisco, CA.



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