Vol 111, No. 4 April 2024

THE CHEMICAL BULLETIN

Chicago Section of the American Chemical Society Newsletter

April Monthly Program Event

Earth Day Chicago Park Clean-Up

Saturday, April 20, 2024 9:00 AM – Noon CST

CHEMISTS CELEBRATE EARTH WEEK

In celebration of Earth Week, the Younger Chemists Committee of the Chicago Local ACS Section is teaming up with Friends of the Parks (https://www.fotp.org) for a free event to help beautify the parks in Chicago Park District and Forest Preserves of Cook County. Join us in cleaning up the park grounds of AIDS Garden Chicago, while socializing with fellow chemists and learning more about recyclables. Come prepared with comfortable outdoor clothing and closed-toed shoes. Cleaning supplies, tools, and gloves will be provided. Refreshments served afterwards. All are welcome. We hope to see you there!

EVENT INFORMATION

9:00 AM	Meet at park location for orientation
9:15 AM	Begin clean-up
11:00 AM	Gather for refreshments

REGISTRATION

By phone (847-391-9091), email chicagoacs at ameritech.net, or online

REGISTER HERE

There is no cost to participate

AIDS Garden Chicago

3003 N Lakefront Trail Chicago, IL 60657

https://www.aidsgardenchicago.org

pexels-mohammed-babateen-13544506.jpg (Chicago image)

113th Willard Gibbs Award Celebration

Friday, May 17, 2024 6:00 PM – 10:00 PM CST

Selectivity and Generality in Small-Molecule Catalysis

Eric Jacobsen

Sheldon Emory Professor of Organic Chemistry
Department of Chemistry and Chemical Biology,
Harvard University

ABSTRACT

My research program has been dedicated to the discovery of catalytic systems that control stereochemical outcomes in organic reactions of interest. In the course of our efforts, we have had occasion to perform deep mechanistic analyses of the catalysts we have discovered. In this lecture, I will relate different stories where seemingly minor "misbehaviors" in our experimental data were examined closely and found to reveal unexpected insights into the catalytic mechanisms and ultimately led us to improved or entirely new catalytic systems.

MEETING PROGRAM

6:00 PM to 7:00 PM	Reception with hors d'oeuvres and two complimentary drinks
7:00 PM to 8:30 PM	Dinner
8:30 PM to 8:45 PM	ACS Award Ceremony • "A History of the Willard Gibbs Award" Vivian Sullivan, ACS Chicago Section Chair • Introduction of Professor Jacobsen Mark Levin, University of Chicago • Presentation of the Gibbs Medal
8:45 PM to 9:45 PM	Gibbs Award Lecture by Professor Jacobsen

REGISTRATION

$50.00: Chicago ACS members, guests and non-Chicago ACS members

QUESTIONS OR NON-WEB RESERVATIONS?

Please contact the Section Offi e via phone (847-391-9091) or email

(chicagoacs at ameritech.net)

Deadline to Register:
Monday, May 13 at noon

REGISTER HERE

CITATION

For discoveries of fundamentally important catalytic reactions which have led to:

- the rede ning of the way molecules are synthesized
- the uncovering of effective methods for a wide variety of stereoselective reactions
- the development of chiral Schiff base complexes of main group and transition metals
- the discovery and application of novel organic catalysts

DINNER

Starter:	Minestrone soup
	Meridian salad
Entrée: (Choice of one)	Roast top sirloin with rosemary merlot sauce
	Fresh broiled Norwegian salmon with dill sauce

Meridian Banquets

1701 Algonquin Road
Rolling Meadows, IL 60008

REGISTRATION

$50.00: Chicago ACS member
$50.00: Guest and Non-Chicago ACS member

QUESTIONS OR NON-WEB RESERVATIONS? Please contact the Section Offi e via phone (847-391-9091) or email (chicagoacs at ameritech dot net).

Note that all unpaid reservations will be billed.

REGISTER HERE

Deadline to Register:
Monday, May 13 at noon

BIOGRAPHY

Eric Jacobsen was born in New York City to Cuban parents, received his primary and secondary education at the Lycée Français de New York, and graduated from New York University in 1982 with a B.S. in Chemistry. His Ph.D. work was done at U.C. Berkeley under the direction of Robert Bergman. In 1986, he returned to the East Coast of the U.S. for an NIH postdoctoral fellowship with Barry Sharpless. In 1988, he began his independent career at the University of Illinois. He moved to Harvard University as a full professor in the summer of 1993. He was named the Sheldon Emory Professor of Organic Chemistry in 2001 and served as Chair of the Department of Chemistry and Chemical Biology between 2010 and 2015.

Professor Jacobsen's research group is dedicated to discovering useful catalytic reactions, and to applying state-of-the-art mechanistic and computational techniques to the analysis of those reactions. Several of the catalysts developed in his labs have found widespread application in industry and academia. These include metal-salen complexes for asymmetric epoxidation, conjugate additions, and hydrolytic kinetic resolution of epoxides; chromium-Schiff base complexes for a wide range of enantioselective pericyclic reactions; and organic hydrogen-bond donor catalysts for activation of neutral and cationic electrophiles. Eric's mechanistic analyses of these systems have helped uncover general principles for catalyst design, including electronic tuning of selectivity, cooperative homo- and hetero-bimetallic catalysis, privileged catalysis, hydrogen-bond donor asymmetric catalysis, and anion binding catalysis. The recognitions he has received include the Arthur C. Cope Medal of the American Chemical Society, the Chirality Medal, and elections to the U.S. National Academy of Sciences and the American Academy of Arts and Sciences.

SUMMER OUTING

ACS Chicago Section Summer Outing: Chicago Dogs Baseball!

Plans for the ACS Chicago Section summer social meeting are set for a day at the ballpark on **Sunday, June 23**, when the Chicago Dogs will host the Kansas City Monarchs at Impact Field in Rosemont, Illinois. Tickets are available at a cost of $23.75 per person, which includes a game ticket and a food voucher valid for a hot dog, chips, and a soda. A table for the ACS Chicago Section will be set up on game day near the main entrance to distribute tickets and food vouchers.

Parking will be available at Impact Field adjacent to the stadium at a rate of $3 per vehicle. Public transportation is also available by taking either the CTA Blue Line or Metra to the Rosemont Station stop. A Rosemont Entertainment Connector Trolley will be available for transport between Rosemont Station and Impact Field. See the Chicago Dogs website for more direction information.

The Chicago Dogs, named for the city's famous hot dog preparation, are the most recent addition to the American Association of Independent Professional Baseball, having joined in 2018. The Dog's mascot, "Squeeze", is a fuzzy, yellow anthropomorphic mustard bottle. Their opponent, the Kansas City Monarchs, joined the league in 2010. The Monarchs name is a tribute to Kansas City's Negro League franchise of 1920 to 1965, a team that featured numerous Hall of Famers including Ernie Banks, Buck O'Neil, Satchel Paige, and Jackie Robinson.

WHEN: Sunday, June 23, 3 PM to 8 PM

WHERE: Impact Field, 9850 Balmoral Ave, Rosemont, IL, 60018

TICKETS: $23.75 (includes food voucher)

Click here to REGISTER

IN THIS ISSUE

UPCOMING EVENTS

"Taking Responsibility for Advancing Global Sustainable Development"

Chinese American Chemical Society Great Lakes Chapter 26th Annual Conference

GL CACS 华美化学与化工学会
Chinese American Chemical Society Great Lakes Chapter

Saturday, April 27, 2024, 9:00 am - 5:00 pm
Abbott Laboratories, AP52 Conference Center
200 Abbott Park Road, Abbott Park, IL 60064

9:00 am – Noon: Plenary Presentations by guest speakers below for details

12:00 – 14:00: **Career Fairs**, **Workshop** and **Networking**

- Meet with representatives from **Abbott**, **Baxter**, **Honeywell UOP**, **AbbVie**, **NL Chemical Technology**, **Valent BioSciences**, etc.
- Participate in Career Development Workshop: *"Pursuing Your Passions"*, moderated by Dr. **Ling Ye**, President of CM Square Consulting, and Dr. **Lilly D'Angelo**, Founder and CEO of Global Food and Beverage Technology Associates

14:00 – 17:00: **Student Research Presentation and Contest**

- Open to all university students and post-docs to participate
- Submission of application packages in advance is required

17:30 – 19:00: Dinner Reception (optional)

Online registration is required for all conference participants by 4/22/2024

Student Research Presentation Contest application is open; Click **here**

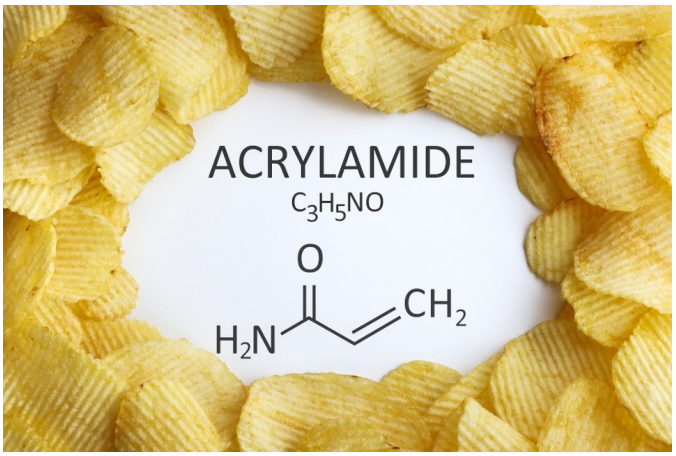
Free registration, parking, and lunch

Find more details and register now by visiting **www.greatlakecacs.org**

SAFETY FIRST

Acrylamide in Foods

How do you like your fries? Golden or a little darker? How brown do you like to toast your bread? You may want to reconsider the temperature and color at which you prefer these food products, as they may contain a hazardous chemical called acrylamide.



Acrylamide is a chemical generated through the Maillard reaction between reducing sugars (i.e. glucose and fructose) and an amino acid (mainly asparagine) at high temperatures, causing browning in food and desirable flavors. Acrylamide forms in starchy foods during high-temperature cooking, such as frying, roasting, and baking. It is primarily found in potato- and grain-based foods and coffee. French fries and potato chips contain high levels of acrylamide. Acrylamide is also produced in cereal-based foods such as cookies, crackers, breakfast cereals, and toasted bread. The darker the color, the higher the concentration of acrylamide, such as in French fries and toasted bread. Roasting of coffee beans also generates acrylamide.

Acrylamide was recognized as a possible carcinogen in animals when exposed to very high doses. Although there is no epidemiological evidence on the effect of acrylamide from food consumption on cancer, it is a human health concern.

Consumers should follow several steps to help mitigate acrylamide levels in their food:

- Bake or cook potatoes at a low temperature for a reduced amount of time. Fry foods at 170° C (338° F) or lower to avoid overcooking or burning.
- Use alternative cooking methods, such as boiling or steaming.
- Bake and toast bread and other baked goods to a light brown, not a dark brown color, and avoid crunchy textures.
- Fry potato strips such as French fries to a yellow rather than a brown color.
- Allow raw potato slices to soak in water for 15-30 minutes before frying or roasting. Dry before cooking.
- Keep raw potatoes in a cool, dry place rather than in the refrigerator.
- Vary your diet by consuming fried potatoes and cereal-based products in moderation while eating fruits and vegetables, lean meats, fish, high-fiber grains, and beans.

References:

U.S. Food and Drug Administration. Acrylamide. Feb. 25, 2022. Accessed Jan. 1, 2024. https://www.fda.gov/food/process-contaminants-food/acrylamide.

National Institute of Environmental Health Sciences. Acrylamide. Aug. 8, 2022. Accessed Jan. 1, 2024. https://www.niehs.nih.gov/health/topics/agents/acrylamide

FADWA AL-TAHER

CHEMSHORTS FOR KIDS

Seeing Sound

Last month we heard a popping sound when the pressure inside a straw was increased and then suddenly popped. Let's look at how we were able to hear that sound.

Materials:

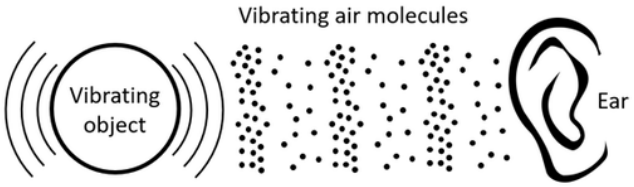
- Bowl
- Saran or plastic wrap
- Sugar or salt or rice
- Something to make noise with

Experiment:

Cover the top of a bowl tightly with the plastic wrap. You may need adult help for this. Sprinkle the salt, sugar, or rice onto the plastic wrap. Get close to the edge of the bowl and hum loudly or bang on something next to the bowl. You may even put your top lip on the edge of the bowl while you hum.

What's happening?

You should see that the solid particles are bouncing around on the plastic wrap. Sound is all about vibrations. When you hum, you are causing vibrations. Your humming causes the air molecules to vibrate or move back and forth. When they do this, they hit molecules next to them which then do the same thing. They keep passing this energy along. When those vibrations hit the plastic wrap, they cause the plastic wrap to vibrate which causes the solid particles to vibrate or bounce. The same thing happens when you bang on a drum, the tight skin over the drum vibrates causing the drum to make the noise.



Extension:

Are there other items that make sound that are effective at causing the solid particles to jump around such as a kazoo or other musical instrument? You can also get extreme with it by putting oobleck on a speaker as seen here:

https://www.youtube.com/watch?v=HojmEUFall8.

For a real wild ride in viewing sound waves go see the Blue Man Group!

References:

https://premeditatedleftovers.com/naturally-frugal-mom/sound-and-volume-vibrations-science-experiment/

https://www.youtube.com/watch?v=W2h3VVVlpls

To view all past "ChemShorts for Kids", go to:

https://chicagoacs.org/ChemShorts

PAUL BRANDT

UPCOMING EVENTS

April 10	Articles due for the May 2024 Bulletin issue
April 11	Chicago Section Board of Directors Meeting
April 20	YCC Earth Day Volunteer Event
May 9	Chicago Section Board of Directors Meeting
May 10	Articles due for the June 2024 Bulletin issue
May 17	Gibbs Award Dinner
June 23	Chicago Dogs Baseball Game

The Chemical Bulletin
April 2024, Vol. 111, No. 4
Published by the
Chicago Section of the American Chemical Society

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