



ISOTOPICS

The Cleveland Section of the American Chemical Society

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On Deck:

May 20, 2015

59th Annual
SAS/MSNO/ACS/AVS
May Conference

John Carroll University

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Isotopics

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April Meeting Notice

Wednesday, April 15, 2015

Cleveland State University, Cleveland, OH

4:30 pm	Executive Committee Meeting
5:30 pm	Social/Networking
6:00 pm	Dinner
7:00 pm	Presentation and Awards

Eat More Chocolate: Are You Kidding Me?

Joe A. Vinson, Ph.D.

Department of Chemistry, University of Scranton

Food and beverages derived from cocoa beans have been consumed by humans for 1500 years, and the beverage was originally used as a currency and in religious rites by the Mayans and Aztecs. A short history of chocolate will give some perspective to the science of chocolate. Cocoa pods from the cacao tree *Theobroma cacao* are harvested and the beans removed from the pods and fermented. Dried and roasted beans contain about 300 chemicals including unique fats, alkaloids, and simple and complex polyphenols. The manufacturing process results in the production of the various types of chocolate including white chocolate, milk chocolate, dark chocolate, and cocoa powder. Chocolate is purported to have aphrodisiac properties and one ingredient acts on the cannabinoid (marijuana) receptor. Chocolate's antioxidant properties will be outlined and compared with other foods. How chocolate's fat and antioxidants are related to heart disease will be discussed in terms of epidemiological, animal and human supplementation, and mechanistic studies. New studies indicate that chocolate improves brain function. Recent animal and human studies will be described to determine whether chocolate should be considered a guilt-free food.

DINNER RESERVATIONS REQUIRED:

Please RSVP to Theresa Nawalaniec by email at t.nawalaniec@csuohio.edu with the names and number of people in your party by 5:00 p.m. on Wednesday, April 8. Dinner will include Chicken Parmesan, Tuscan Pasta Bake, Garlic Green Beans, Italian Salad, Dinner Rolls, and Beverages, with Chocolate Layer Cake for dessert. We now can take credit card payments, checks made out to "Cleveland ACS," or cash. \$20 for members and guests, \$10 for retirees or unemployed, \$5 for students.

Directions to Cleveland State University

Parking will be in the Prospect Garage (PG) 2350 Prospect Ave, Cleveland, OH 44115. Please take a parking ticket when you enter the garage. You will then receive another parking validation ticket at the dinner, so you do not have to pay for parking. Both tickets will be needed to exit the garage. Cross Euclid Ave for the dinner and presentation, which will be held in the Fenn Tower (FT) Ballroom located on the third floor in Room 303. 1983 E 24th St, Cleveland, OH 44115.



Speaker's Bio

Dr. Joe Vinson was born in Arkansas and grew up in the San Francisco Bay Area. He attended college at the University of California at Berkeley where he received his B.S. in Chemistry in 1963. He received a joint PhD in Physical Organic Chemistry and Analytical Chemistry (two theses) in 1967 at Iowa State University. After a stint in industry at J.T. Baker Chemical Company, he is now Professor of Chemistry at the University of Scranton in Northeast Pennsylvania. His current research interests include the effect of foods, vitamins, and antioxidants on nutrition and health. He is a consultant for several nutritional supplement companies. Dr. Vinson is the author of over 100 publications and has presented his research at meetings and venues around the world. He is best-known for his work with chocolate, tea, grape juice, cranberry juice and popcorn. Dr. Vinson has been featured on ABC Good Morning America Sunday and National Public Radio "The

People's Pharmacy" and "All Things Considered" and even had a humorous cartoon in Time Magazine and a rant by Rush Limbaugh for his coffee work. For the last 30 years he has been a National Tour Speaker for the American Chemical Society.

2015 Meeting-in-Miniature

The annual Meeting-in-Miniature of the Cleveland Section of the American Chemical Society was held at Notre Dame College on Wednesday, March 11 on a beautiful pre-spring day. The local chair of the meeting was John Moran. Eight students received awards for excellent presentations. The awards were supported by Amalgamated Tuna, Dwight and Ann Chasar, the Department of Chemistry of Cleveland State University, Energizer, Lubrizol, Sherwin-Williams, and the Cleveland Section of the ACS.

Undergraduate Student Awards (\$350)

Hannah Bowie – Baldwin Wallace University – "Detection of Estrogenic Activity in Water Using a Yeast Bioassay"

Eric Bruckner – Case Western Reserve University – "Computational Techniques for the Design of Mechanically Interlocked Molecules"

Calvin Gang – Oberlin College – "Synthesis of Lead Oxide Carboxylate Single Crystals and Nanostructures"

Ren Wiscons – Oberlin College – "Chiral Channels in Molecular Co-Crystals: Unexpected Structures that Arise from the Co-crystallization of 2,4,6-Tris(4-X-phenyl)arenes"

Graduate Student Awards (\$400)

Haitham Kalil – Cleveland State University – "Graphene-Based Composites for Detection and Quantification of Peroxynitrite"

Brian Michal – Case Western Reserve University – "Stimuli-Responsive Liquid Crystalline Elastomer Actuators"

Marvin Pollum – Case Western Reserve University – "Enhancing the Phototherapeutic

Potential of Sulfur-substituted DNA and RNA Analogues”

Kerri Shelton – University of Akron – “Synthesis and Anti-proliferative Activity of N,N'-Bis(arylmethyl)imidazolium Salts with Lipophilic or Hydrophilic Substituents on the Imidazole Rings”

ACS Special Award Winners at the 2015 Northeastern Ohio Science and Engineering Fair

The 2015 NEOSEF was held at Cleveland State University, and over 500 students in grades 7-12 participated in the fair. During the judging session on March 10, 2015 volunteer judges for the Cleveland section of the ACS reviewed about 90 projects entered into the Chemistry Category and selected the award winners:

First Place (\$150): Ashley Elston – Mentor High – “The Effect of Concentration and Environmental Factors on the Process of Phytoremediation”

Second Place (\$100): Hilary Vogelbaum – Hawken Upper – “Conjugated 3D Electron Accepting Materials for the Next Generation of Organic Photovoltaic Cells”

Third Place (\$75): Bryan Borodkin – St Vincent St Mary High – “Mesh Size Determination of Oxime Hydrogels with Tunable Mechanical Properties that Vary with pH and Buffer Strength”

Honorable Mention (\$50): Swathi Srinivasan – Beachwood High – “The Effect of Polyphenols in Spices on the Aggregation of the Amyloid-Beta Peptide 1-40; An in Vitro Study”

Honorable Mention (\$50): Aylisa Grenald – Horizon Science Academy – “Is Soap Scrubbing Away Too Much?”

Honorable Mention (\$50): Ian Thompson – St Raphael Elem – “Refraction Action”

Honorable Mention (\$50): Shivangi Mohta – Solon Middle – “Do Holy Basil Leaves Affect Fluoride Content in the Water?”

Honorable Mention (\$50): Bridget McCourt – St Angela Merici Elem – “Metal Corrosion and Acid”

In recognition of their achievements, the award winners and their families have been invited to attend the April ACS meeting, display their posters at the social hour, and receive their awards.

Call for Papers 59th Annual SAS/MSNO/ACS/AVS May Conference

This year's 59th Annual May conference Co-sponsored by the Cleveland Sections of Society for Applied Spectroscopy, American Chemical Society: Analytical Topics Group, and American Vacuum Society, partnering with the Microscopy Society of Northeastern Ohio will be held Wed. May 20 at John Carroll University.

Poster abstracts are still being accepted; please send your title and abstract (150-200 words) to Min Gao mgao@kent.edu by April 15, 2015. Monetary awards for the best student papers are available.

For a list of sessions, confirmed invited speakers, and for more details please see <http://www.msneo.org/2015-may-meeting.html>.

Determining recipes for some of the world's oldest preserved beers

Journal of Agricultural & Food Chemistry

Some breweries have taken to resurrecting the flavors of ages past. Adventurous beer makers are extrapolating recipes from clues that archeologists have uncovered from old and even ancient brews found at historical sites. Now scientists have analyzed some of the oldest preserved beer samples from an 1840s' shipwreck to try to provide insight into how they were made. They report their findings in ACS' Journal of Agricultural & Food Chemistry.

Brian Gibson and colleagues explain that in 2010, divers discovered an old schooner at the bottom of the Baltic Sea near Finland. Archeological evidence suggested the ship went down about 170

years ago. It was loaded with goods including bottles of champagne and beer. The beer was diluted with salt water, but it contained enough of the original ingredients for the researchers at VTT Technical Research Centre of Finland Ltd. and the Technical University of Munich to analyze and get an idea of the initial recipe.

When the researchers took a sip, they weren't able to discern the beers' intended flavors. High levels of organic acids, produced by bacteria growing in the bottles for years, gave the samples vinegary, "goaty" and soured milk flavors that overpowered the original fruity, malt or hop profiles. However, analytical testing created a picture of what the beer may once have been composed of. For example, they determined that samples from two bottles were different beers based on their hop content. They also found that yeast-derived flavor compounds were similar to those of modern beers, though with a higher than usual content of rose-like phenylethanol.

The authors acknowledge funding from the Regional Government of Aland and the Stallhagen Brewery, which developed a replica brew based on the researchers' analysis.

ACS Akron Section 2015 Crano Memorial Lecture

Thursday April 23, 2015

Day Lecture: University of Akron (Student Union Theater)

10:00 – 11:00 am: Semiconductor Nanocrystals for Robust and Efficient Solar Hydrogen Production

Evening Lecture: Hiram College (Kennedy Center)

5:30 – 6:30 pm: Undergraduate Poster Session

6:30 pm: Dinner

7:00 – 8:00 pm: Crano Memorial lecture - Nanoscience and Nanotechnology: When Size Matters

Biography: Dr. Krauss received his B.S., M.S., and Ph.D. in Applied Physics all from Cornell University, the latter under Frank Wise. Upon graduation in 1998, he moved to Columbia University, serving as a postdoctoral fellow under Louis Brus until 2000 when he joined the Chemistry faculty at the University of Rochester as an Assistant Professor. In 2006, Krauss was promoted to the rank of Associate Professor of Chemistry and in 2008 he received a joint appointment with the Institute of Optics. In 2010 Krauss was promoted to Professor of Chemistry and Optics and assumed the Directorship of the Rochester Materials Science Program. In July 2013, Krauss became the Chair of the Department of Chemistry. The author of more than 75 publications in peer reviewed journals, his research focuses on the optics of nanometer scale materials. Krauss is a Fellow of the American Physical Society (2012) and the Optical Society of America (2014).

Reservations: The evening lecture and dinner will be held at Hiram College. Alcoholic beverages will not be provided through ACS but will be available for purchase. Please contact Michael Davis at mdavis.nmr@gmail.com by April 16 to RSVP. The price will be \$25.00 for professionals and \$10.00 for students.

Isotopics is looking to highlight local chemistry professionals, companies, teachers, research groups, students, events, and more. If you have an idea for an *Isotopics* article, please contact the editor. *Isotopics* is also looking for local members to join our staff. Time commitments for staff members are minimal (a few hours a year!) and your contributions will be invaluable to our local section. If you are interested in joining *Isotopics*, please contact the editor.