

The Chemical Record

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Columbus Section of the American Chemical Society, Inc.

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ABOUT THE COLUMBUS SECTION



The Columbus Section of the American Chemical Society comprises approximately 1,500 members who live and work in the following central Ohio counties: Delaware, Fairfield, Fayette, Franklin, Hocking, Knox, Licking, Madison, Marion, Morrow, Muskingum, Perry, Pickaway, Ross, and Union.

The Mission of the American Chemical Society (ACS) is to encourage in the broadest and most liberal manner the advancement of the chemical enterprise and its practitioners. Toward that end, the ACS advances scholarly knowledge, provides professional services and support, communicates with varied audiences, and is actively involved in the science, education, and public policy arenas.

The Columbus Section of the ACS adheres to this mission and the strategic thrusts of the national organization and leadership by providing programs and networking opportunities for Chemistry professionals in Central Ohio.

We invite ACS members and scientists in the community to lend their expertise and talents to our activities in science education, government and legislative policy issues, safety in our industrial plants and in our communities, and care of our land.



MEETING NOTICE

Columbus Section of the American Chemical Society, Inc.

Meeting #857

<http://columbus.sites.acs.org>

*Aminoxy Applications in Synthesis and
Multiplexed Mass Spectrometry*
by Sébastien Laulhé

Thursday, September 20, 2012

Brio at Polaris Fashion Place
1500 Polaris Parkway
Columbus, Ohio 43240

http://www.brioitalian.com/polaris_fashion_place.html

614-410-0310

PROGRAM DETAILS

5:00 – 6:00 PM	Executive Committee Meeting – Toscano/Carrera Room (All members are welcome to attend.)
6:00 – 7:00 PM	Social Hour – Toscano/Carrera room Appetizers: Spinach artichoke dip, assorted cheeses, and assorted fruits Bar: Beer, wine, soda, juices and water
7:00 – 7:45 PM	Dinner – Toscano/Carrera room Salad Entrée: your choice of Penne Mediterranean (penne pasta tossed with sun-dried tomatoes, mushrooms, spinach, caramelized onions, Feta cheese and pine nuts) Or Grilled Pork Chops (center-cut, marinated in-house and seared on the grill.) Dessert



7:45 – 8:45 PM	Presentation - Aminoxy Applications in Synthesis and Multiplexed Mass Spectrometry by Sébastien Laulhé
Cost	\$25 per person members and non-members, \$20 for retired and unemployed members, \$5 per student. Payment will be collected at the door; cash and checks accepted. <i>Remember that this is a dinner order and must be paid. Please help control costs by honoring your order.</i> There is no charge to attend the Program Only.
RSVP	Please use the voice mail reservations service by calling 614-447-3600 extension 7047. Follow the template for reservations*. Alternatively, please send e-mail with the same information to The Columbus Section at the following e-mail address: acscols@wowway.com or use the Meeting Reservation Form on the Section's website.
*Voicemail/e-mail Reservations Template	<ul style="list-style-type: none"> • First and last name: Please spell last name. • Membership category: member, non-member, retired, emeritus, unemployed, student. • Employer • Your choice of entrée: Pasta or Pork Chops • Please indicate if you will join us for the <u>Dinner & Program</u> OR <u>Program Only</u> • Your phone number, in case we need to contact you.
Reservation Deadline	Thursday, September 13th at noon
Program Contact	Natalie Chilicki , 614-961-0452; natalie.chilicki@yahoo.com
Directions & Parking	<p>From the North: Take I-71 South towards Columbus. Take exit 121 for Gemini Place. Turn right on to Gemini Place. Take the first left on to Lyra Drive. Turn right on to Polaris Parkway. Turn right into Polaris Fashion Place. Brio is located at the Grand Entrance, next to Saks Fifth Avenue.</p> <p>From the South: Take I-71 North towards Columbus. Take exit 121 for Gemini Place/Polaris Parkway; keep right at the fork following signs for OH-750/Polaris Parkway. Turn left onto Polaris Parkway (it is advantageous to be in the right most left turn lane). Turn right into Polaris Fashion Place. Brio is located at the Grand Entrance, next to Saks Fifth Avenue.</p> <p>From the East: Take I-70 West toward Columbus. Take exit 108B for I-270 North (toward Cleveland). Take exit 26 for I-71 North (toward Cleveland). Take exit 121 for Gemini Place/Polaris Parkway; keep right at the fork following signs for OH-750/Polaris Parkway. Turn left onto Polaris Parkway (it is advantageous to be in the right most left turn lane). Turn right into Polaris Fashion Place. Brio is located at the Grand Entrance, next to Saks Fifth Avenue.</p> <p>From the West: Take I-70 East toward Columbus. Take exit 93B for I-270 N (toward Cleveland). Take exit 26 for I-71 North (toward Cleveland). Take exit 121 for Gemini Place/Polaris Parkway; keep right at the fork following signs for OH-750/Polaris Parkway. Turn left onto Polaris Parkway (it is advantageous to be in the right most left turn lane). Turn right into Polaris Fashion Place. Brio is located at the Grand Entrance, next to Saks Fifth Avenue.</p> <p>Parking: General parking is available (for free) in the mall parking lot. Valet parking is available (for a fee) at the mall entrance.</p>

ABOUT THE TALK

Title: *Aminoxy Applications in Synthesis and Multiplexed Mass Spectrometry*

Abstract:

The concept of "Click Chemistry" was promoted by K. Barry Sharpless in 2001 as a call to chemists to conduct simple-to-perform, high yielding and stereospecific reactions between select functional groups. Click reactions must also generate inoffensive byproducts, be wide in scope and, ideally, require nonchromatographic purification of products. Mainly, this concept was promoted as a way to connect building blocks, mimicking nature's ability to join small molecular units with high efficiency. Instead of attempting traditional synthetic carbon-carbon bond formations, Sharpless proposed using robust and physiologically stable carbon-heteroatom bond formation. The oximation reaction between aminoxy functionality (-ONH₂) and an aldehyde or ketone has the advantage of not requiring any catalyst. Indeed, the aminoxy functionality reacts chemoselectively with aldehydes and ketones at room temperature, in a large variety of solvents, including water, and the oxime ether linkage formed is extremely robust. These attractive properties led us to use this reaction as a key feature in our research.

Extending Click Chemistry to Functional Group Interconversion

Our interest in aminoxy chemistry led us to consider an alternative use of *O*-(diphenylphosphinyl)hydroxylamine (DPPH), an electrophilic amination reagent, as a possible chemoselective nitrogen transfer reagent. The nucleophilic and chemoselective properties of the aminoxy functionality in DPPH are used to smoothly transform aldehydes to corresponding nitriles by heating in toluene. The reaction can be accomplished in the presence of alcohol, ketone, ester, or amine functionality.

Designing the First Derivatizing Agent for Quantitative, Multiplexed GC-MS Analysis

We describe an isotopically labeled, chemoselective derivatizing agent for relative quantification of ketone and aldehyde metabolites using multiplexed gas chromatography-mass spectrometry (GC-MS). A three step synthesis imparts the reagent with both a stable isotope tag (¹³C or ²H, or a combination) for ready identification/analysis by MS and a reactive aminoxy group (-ONH₂) for selective derivatization of carbonyl metabolites. Metabolite adducts of our aminoxyethyl propionate (AEP) fragment on electron-impact ionization to release an ethyl carbenium ion isotope tag via α -cleavage of a propionyl ester moiety. Thus, observation of the tag ions in a zone of minimal interference (ZMI) in the range m/z 32-34 allows for an unobstructed, relative quantification of carbonyl metabolites. A panel of ¹³C- and ²H-labeled isotopologues of the derivatizing reagent AEP allows for the simultaneous profiling of carbonyl metabolites in three separate complex mixtures. Finally, ion selection tool applied to fragment ions within the ZMI range facilitates profiling of the derivatized metabolites by metabolite tag-promoted rapid isotopic profiling (m-TRIP).

ABOUT THE PRESENTER

Sébastien Lauhé grew up in Venezuela, Mexico and France. After passing the entry exams for the French "Grande Ecole" of engineering in 2006, he obtained his Master Degree from the National Engineering Graduate School of Chemistry (ENSCM) in Montpellier in 2009. While finishing his last year at the ENSCM, he started a Ph.D. program at the University of Louisville in Fall 2008. In Spring 2009 he joined Dr. Nantz's organic group in the Department of Chemistry where he worked on the development of a new synthetic route to heterobifunctional linkers. His main project has been the development of a new strategy for quantitative high throughput GC-MS analysis of biological samples.





NATIONAL CHEMISTRY WEEK, OCTOBER 21-27, 2012



National Chemistry Week encourages chemists and chemistry enthusiasts to build awareness of chemistry at the local level. Local Sections, businesses, schools, and individuals are invited to organize or participate in events in their communities with a common goal: To promote the value of chemistry in everyday life.



This year celebrates 25 Years of National Chemistry Week! The American Chemical Society has partnered with the Nanoscience Informal Science Education Network (NISE Network™). View resources devoted to nanoscience outreach and this year's theme "Nanotechnology – The Smallest BIG Idea in Science" as well as connect with a NISE Network™ partner near you!

Your Columbus Section will be partnering with COSI on Wheels for NCW. Volunteers are needed to perform hands-on chemistry demonstrations for children of all ages at the Main Branch of the Columbus Metropolitan Library, 96 South Grant Avenue, from 10:00 AM until 3:00 PM on Saturday, October 27, 2012. No previous experience is necessary; we will provide everything you need and show you how to perform the demonstrations on the day of the event. You are not required to work the entire time; you may sign up for a two- or three-hour "shift." Please contact **Professor John Blaha** at 614.287.5930 or jblaha@cscce.edu for more details.

**ESPECIALLY FOR SENIOR CHEMISTS**

The Columbus Section has an active Silver Circle (Senior Chemists) group and would welcome new members. If you would like to be added to the e-mail list, contact Priscilla Ratliff (pratiff@wowway.com), Tom Weeks (tomweeks@aol.com), or the current Section Chair.



WELCOME NEW MEMBERS!

By DAVID SPETH, CHAIR-ELECT AND MEMBERSHIP CHAIR

Please join us in welcoming the following members who have joined the Section recently: The Columbus Section cordially invites new members to our monthly meetings. The Section will pay for new members' meals the first time they attend a meeting.

Greg Abernathy
Aleyamma Abraham
Kristen Belesky
JESSE BIEL
Francis Burns
Ryan Butke
CALEB CALVARY
Christopher Check
Patrick Dugan
Gary Faler
Kavin Fatehchand
BRANT FINZER
ANDREW GRIBBEN
ROBIN GROTE
Gregory Hager
Patrick Heilman
CORTNEY HOCH
LALINTIP HOCHAROEN
Kristin Hofferberth

Cynthia Hummel
Jeff Joyner
ADAM KARL
Sehye Kim
Elizabeth Kitchen
Jingwei Li
Zi Li
Yi Ann Lii
Katherine Linkens
Xiaoping Liu
ZHEYUN LIU
James Lloyd
LINDSAY MAIN
Mona Maalouf
Jamie Meegan
Debdutta Mekherjee
Jose Mendez Adino
Max Mullen
VIPIN NAIJ
Michael Nicholl

Mark Ormiston
Dennis Peterson
Annie Pulcini
Samuel Ranjitsingh
JOSEPH ROMANO
Alex Salyer
Bruce Sass
Molly Semones
REBECCA SHACKOW
Akiai Stewart Fenn
CHUANG TAN
Lev Ternorutsky
A Tobin
Rodney Tucker
Murali Ukkalam
John Woodruff
Wenying Yu
XI ZHANG
Xiao Zhou

MYSTERY OF MATTER AT COSI

Amy Parker, the Teen Program Coordinator at COSI is planning programs related to the NOVA series on the Mystery of Matter. This series will present historical stories about the elements using archival documents, actors, and other media. The series was scheduled to be broadcast this fall, but production is behind schedule. No schedule for airing the program has been set yet, but it will likely be at least next spring.

COSI is still planning to do a Chemistry Day Program on October 20, 2012 as part of National Chemistry Week. The program will involve student demonstrators from Africentric HS presenting chemistry related experiments to the general public. Members of the Local Section could help in one of two ways.

- Do you know of safe demonstrations COSI could use for demonstrations to a general audience. COSI has some experiments on file, but they are always looking for alternatives.

- Would you want to volunteer to help train the students during the program on Saturday October 20? Having real chemists to talk to may help stimulate these students to consider chemistry as a career.

Amy is also planning a Discover Chemistry Day activity for middle school students on April 13, 2013. Volunteers are encouraged to consider helping with this activity as well.

If you are interested, please contact Amy at 614.629.3159 or aparker@mail.cosi.org

AWWA ANNOUNCES ACE12 GREEN RIBBON RECIPIENTS

DENVER, CO -- The American Water Works Association (AWWA) has announced the recipients of its 2012 Green Ribbon Award. Recipients will be designated with a green ribbon on their exhibit booth during AWWA's Annual Conference and Exposition (ACE12) at the Dallas Convention Center in Dallas, Texas, June 10-14.

Criteria for the award included either an ISO 14001 Environmental Management Systems certification, or a combination of environmental programs, policies and initiatives. Based on the criteria, recipients were determined by AWWA's Manufacturers/Associates Council.

Recipients of the 2012 Green Ribbon Award are: ADS LLC; Akzo Nobel - International Paints; **AMCO Clear®: A Division of GFS Chemicals, Inc.**; Capstone Metering LLC; Clarion Lubricants; Data Flow Systems; EBAA Iron, Inc.; Fairmount Water Solutions; Ford Meter Box Company Inc.; GF Piping Systems; HOBAS PIPE USA; Kruger Inc.; Layne Christensen Company; Mitsubishi Electric; Monroe Environmental; Motion Computing; Mueller Co.; MWH Constructors, Inc.; Neptune Technology Group Inc.; NO-DES, Inc.; NSF International; Orica Watercare Inc.; PAX Water Technologies; Performance Pipe, a division of Chevron Phillips Chemical Company LPlive; POLLUTION EQUIPMENT NEWS / Rimbach Publishing Inc.; PSI/Pikotek; Sigelock Systems, LLC; Tetra Tech; The Chlorine Institute and Trojan Technologies.

For more information about ACE12 and a full list of exhibitors, please visit www.awwa.org/ACE12.

AWWA is the authoritative resource for knowledge, information, and advocacy to improve the quality and supply of water in North America and beyond. AWWA is the largest organization of water professionals in the world. AWWA advances public health, safety and welfare by uniting the efforts of the full spectrum of the entire water community. Through our collective strength we become better stewards of water for the greatest good of the people and the environment.

CALL FOR NOMINATIONS: THE GUSTAVUS JOHN ESSELEN AWARD FOR CHEMISTRY IN THE PUBLIC INTEREST

The Northeastern Section of the American Chemical Society (NESACS) is inviting nominations for its prestigious Gustavus John Esselen Award for Chemistry in the Public Interest. This award is given annually to a chemical scientist, whose scientific and technical work has contributed to the public well-being and has thereby communicated the positive values of the chemical profession. The significance of this work should have become apparent within the five years preceding nomination. The awardee shall be a living resident of the United States or Canada at the time of the nomination.

There is no limitation to the field of chemistry. The selection committee focuses on the general public recognition of the work, as well as its scientific/technical significance.

The Award consists of a bronze medal and the sum of \$5,000. Travel expenses incidental to the conferring of the award will be reimbursed. The award will be presented at the April 2013 meeting of the Section. The Awardee is expected to deliver an address on the subject of the work for which the honor is conferred, or for work in progress which is also directed toward chemistry in the public interest.




Nominations should be submitted as a single pdf file including: 1) a letter signed by the primary sponsor with a description of the nominee's work recognized as making a major contribution to the public welfare and as communicating positive values of the chemical profession, plus the names of two co-sponsors; 2) short supporting co-sponsor statements; 3) the nominee's professional biography including a list of no more than ten of the nominee's publications selected for their pertinence to the work nominated for recognition; and 4) copies of popular and technical press news or feature articles indicative of public benefit and interest.

Nominations Are Due October 15, 2012 to asromek@mclean.harvard.edu with cc to piper281@verizon.net. Award recipients will be notified by February 1, 2013.

Inquiries may be directed to the above or to Dr. Anna Sromek, Tel. (617) 855- 3591 or Karen Piper, Tel. (978) 456- 8622. Address: 19 Mill Rd., Harvard, MA 01451

COLUMBUS SECTION ACS CALENDAR OF EVENTS

Year	Month	Date	Day	Location	Comments
2012	September	13	Thu		Noon: Deadline for reservations for September, 2012 Section meeting.
2012	September	20	Thu	Brio at Polaris Fashion Place	Monthly Section Meeting; see details elsewhere in this issue of <i>The Chemical Record</i> .
2012	October	21-27	Sun-Sat	Here, There, Everywhere	 National Chemistry Week (NCW). See information elsewhere in this issue of <i>The Chemical Record</i> .
2012	October	27	Sat	Columbus Metropolitan Library Main Branch, 96 South Grant Avenue	NCW chemistry demonstrations for children of all ages. Volunteers are needed; contact Professor John Blaha (Jblaha@csc.edu) for more information.
2013	May	15-18	Wed-Sat	Central Michigan University, Mt. Pleasant	44 th ACS Central Regional Meeting: <i>Building Blocks for a Sustainable World</i> . See http://2013.cerm.sites.acs.org for more details.
2013	April	7-11	Sun-Thu	New Orleans	245 th ACS National Meeting and Exposition
2013	September	8-12	Sun-Thu	Indianapolis	246 th ACS National Meeting and Exposition
2014	March	16-20	Sun-Thu	Dallas	247 th ACS National Meeting and Exposition
2014	August	10-14	Sun-Thu	San Francisco	248 th ACS National Meeting and Exposition

UPCOMING ACS WEBINARS

<http://acswebinars.org/>

ACS Webinars™ are provided by the American Chemical Society as your chemistry source for live weekly discussions and presentations that connect you with subject matter experts and global thought leaders in the chemical sciences, management, and business, concerning today's relevant professional issues.

September 13: **Tips for Reporting Green Chemistry Achievements to the U.S. EPA's Toxics Release Inventory.** Learn how to broadcast your efforts to go green from an agency insider.

September 20: **Tasty Culinary Chemistry.** Join Guy Crosby, science adviser to America's Test Kitchen as he explains culinary chemistry!!

September 27: **Genes and Geniuses: How Humans Became "All Too Human."** Our DNA makes us who we are, but what made our DNA the way it is? Find out from best selling author Sam Kean

October 2: ***Special Broadcast* Secrets from the Other Side – What Recruiters Know that You Don't.** Join Dennis Guthrie, for a special broadcast as he coaches us through the most dreaded interview questions!

October 4: **Intrapreneurs – How to Build Successful Ventures within Large Companies.** Like to develop your entrepreneurial spirit with the resources of a large corporation? Learn how you can be the change agent in your corporation!

October 11: **More Tips from the Trenches: Successful Project Summaries.** Celia Elliott is returning to share the secrets of writing a winning project summary.

October 18: **The Sweetest Day and the Chemistry of Sweetness.** Learn about the chemistry of sweetness!

November 1 **Finance 201 – Startup Equity: What Investors Want.** Valuations, term sheets, tranches, waterfall, etc. You learned the language of chemistry, now it is time to learn the language of investing. The experts are here to help.

MOLECULE OF THE MONTH

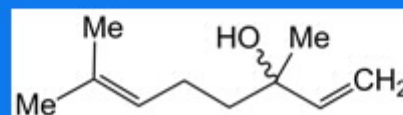
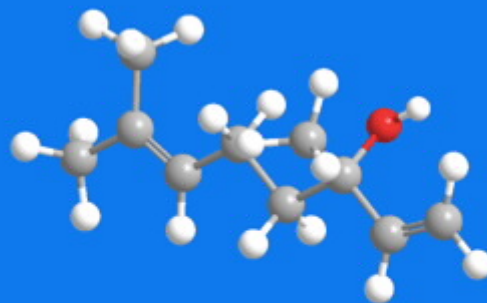
From the ACS Website

Linalool

Linalool, first described by F. Tiemann in 1898, is a terpene alcohol found in many essential oils, including orange, rosewood, lavender, rose, and coriander. Both of its enantiomers occur in nature: The (+)-isomer has a floral fragrance, and its stereoisomer has a woody aroma. Linalool is a scent component in most perfumed hygiene products and many cleaning agents. When oxidized, however, it can cause allergic reactions. In the past few years, researchers have found that linalool and other terpenes are active against some cancer cell lines.



More about this molecule from CAS, the most authoritative and comprehensive source for chemical information.





ABOUT *THE CHEMICAL RECORD*

The Chemical Record, official newsletter of the Columbus Section of the American Chemical Society, Inc., is published monthly, February-May and September-December (eight issues per year.) Opinions expressed by editors or contributors do not necessarily represent the official position of the Columbus Section or of the editorial staff. We welcome your contributions to your *Chemical Record*. Please submit them via postal or electronic mail to **George Greene**, PO Box 360941, Columbus, Ohio 43236-0941, george.greene@abbott.com. Electronic mail contributions should be in MS Word file attachments (preferred) or plain-text messages. *Thank you very much!*

CHANGE OF ADDRESS

Changes in postal or e-mail address should be reported to the Membership Chair, **David Speth**, 614-688-5162, drspeth@sbcglobal.net. David will forward the change-of-address information to ACS Headquarters.

ADVERTISING RATES

Advertising rates for *The Chemical Record* are as follows (per single insertion): Full Page, \$250; Half page, \$150; Quarter Page, \$120; Eighth Page: \$60; Business Card, \$50. Discounts: 5% for four insertions or 10% for eight insertions during a calendar year. There is no charge for "help wanted" ads.

PLEASE SUPPORT OUR SPONSOR...

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