

## The Chemical Record

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Columbus Section of the American Chemical Society, Inc.

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### ABOUT THE COLUMBUS SECTION

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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.  
[columbus.sites.acs.org](http://columbus.sites.acs.org)

Meeting #894

*Data Mining for Gold (and Tungsten, Tantalum, Titanium....)*

**Prof. Dean Johnston**  
**Professor of Chemistry**  
**Otterbein University**

Sunday, April 8, 2018

**Ohio Dominican University**  
**Bishop James A. Griffin Student Center (Room No. 259/260)**  
**1216 Sunbury Road**  
**Columbus, Ohio 43219**

### PROGRAM DETAILS

4:00 – 5:00 PM	<b>Executive Committee Meeting</b> – All members are welcome to attend.
5:00 – 5:30 PM	<b>Check in, Social Hour</b> – Cash Bar
5:30 – 6:15 PM	<b>Dinner:</b> <ul style="list-style-type: none"><li>• Caesar Salad</li><li>• Entrée<ul style="list-style-type: none"><li>○ Roasted Vegetable Lasagna with Marinara</li><li>○ Sautéed Chicken Marsala</li></ul></li><li>• Sides<ul style="list-style-type: none"><li>○ Broccoli with Garlic and Lemon</li><li>○ Roasted Herbed Red Potatoes</li></ul></li></ul>



	<ul style="list-style-type: none"> <li>• <b>Dessert</b> <ul style="list-style-type: none"> <li>○ Apple Crisp</li> <li>○ Double Chocolate Layer Cake</li> </ul> </li> <li>• <b>Beverages – Water, Iced tea, Coke, Diet Coke, and Sprite</b></li> </ul>
<b>6:15 – 6:30 PM</b> <b>College Awards</b> <b>Presentation</b>	<ul style="list-style-type: none"> <li>• <b>Outstanding College Student Awards for students from Colleges/Universities in the Area</b></li> <li>• <b>Best Poster Awards from YCC Poster Session</b></li> </ul>
<b>6:30 – 7:15 PM</b> <b>Program</b>	<b>Presentation by Prof. Dean Johnston: Data Mining for Gold (and Tungsten, Tantalum, Titanium...)</b>
<b>7:15 – 7:30 PM</b> <b>Closing remarks, if any</b>	<b>End of meeting</b>
<b>Cost</b>	ACS members: \$20 per person. Non-members: \$25 per person. \$5 for retired and unemployed section members and students. New members attending first Section event: Free. Payment will be collected at the door. Cash and checks accepted. There is no cost to attend the program only. Dinner cost will be waived for new members who joined the local section in 2017 and 2018 when they attend their first local section meeting. <i><b>Remember that this is a dinner order and must be paid. Please help control costs by honoring your order.</b></i>
<b>RSVP</b>	Please e-mail at the following e-mail address: <a href="mailto:columbusacs@gmail.com">columbusacs@gmail.com</a> providing the information listed below to reserve.
<b>E-mail</b> <b>Reservations Template</b>	<ul style="list-style-type: none"> <li>• First and last name</li> <li>• Membership category:                             <ul style="list-style-type: none"> <li>○ Emeritus member</li> <li>○ Regular Member</li> <li>○ Retired Member</li> <li>○ Unemployed Member</li> <li>○ Non-member</li> <li>○ Student</li> </ul> </li> <li>• Employer (if applicable)</li> <li>• Please indicate if you will join us for the:                             <ul style="list-style-type: none"> <li>○ <u>Dinner &amp; Program</u> OR</li> <li>○ <u>Program-Only</u></li> </ul> </li> <li>• If you are a new member and attending a Columbus Section event for the first time.</li> <li>• Your phone number, in case we need to contact you.</li> </ul>
<b>Reservation Deadline</b>	<b>Monday, April 2, 2018 at 4:00 pm.</b>
<b>Program Contact</b>	<b>Bob Kroshefsky</b> , Email: <a href="mailto:columbusacs@gmail.com">columbusacs@gmail.com</a>
<b>Directions &amp; Parking</b>  <b>Free Visitor Parking at Gold Lot near Alumni Hall</b>	The Bishop James A. Griffin Student Center at Ohio Dominican University is located on the east side of Sunbury Road.  <b>From the South</b> <ol style="list-style-type: none"> <li>1. Take I-670 to the 5<sup>th</sup>. Avenue exit and get off there.</li> <li>2. Turn towards the Downtown (west) on Fifth Avenue and proceed through two traffic lights to Sunbury Road.</li> <li>3. Turn right on Sunbury Road (north) and continue through two traffic lights and an automatic pedestrian traffic light.</li> <li>4. Turn left into the parking lot at the next traffic light.</li> </ol>

**From the North**

1. Proceed south on Sunbury Road from Morse Road.
2. Go past the turns for Easton, and keep going until Ohio Dominican University brick buildings are seen on both sides of the road.
3. Turn right at the traffic light and go into the parking lot.

**Once in the Parking Lot:**

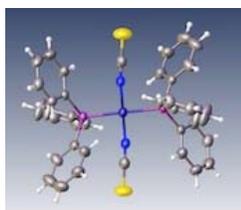
Go forward through the parking lot and turn left in order to get to the southerly end. Find parking there near the new brick building. This building is the Bishop Griffin Student Centre. Enter the building by using the walkway between the brick structures and use the door on the right hand side. For the Executive Committee Meeting go upstairs to room #276 just at the top of the stairs. For the meeting, turn right at the top of the stairs and walk along the corridor to rooms 258, 259 and 260.

**ABOUT THE TALK:*****DATA MINING FOR GOLD (AND TUNGSTEN, TANTALUM, TITANIUM...)***

The Cambridge Structural Database (CSD) is a rich resource containing over 900,000 highly-curated entries on a wide range of organic and organometallic compounds. These data can be "mined" using various tools including the CSD Python Application Programming Interface (API). In one project, we have surveyed the diversity of metal cluster chemistry by tabulating the connectivity and total electron counts of some of the over 20,000 metal cluster structures in the CSD. In a second project, we have looked at the distribution of atomic displacement parameter (temperature factor) data and the possibility of using this information to validate reported data collection temperatures for newly-deposited data. Finally, applications and opportunities for using the CSD to illustrate fundamental chemical concepts will be presented.

**ABOUT THE SPEAKER:****PROF. DEAN JOHNSTON*****OTTERBEIN UNIVERSITY – PROFESSOR OF CHEMISTRY***

Dr. Dean Johnston has taught general and inorganic chemistry at Otterbein University for over 20 years. His research focuses on the synthesis and crystallographic characterization of metal cluster compounds. He received his B.A. in Chemistry from the College of Wooster and his M.S. and Ph.D. from Northwestern University working with Professor Duward Shriver. After a postdoctoral fellowship working with Holden Thorp at UNC-Chapel Hill, he began working at Otterbein. Most recently, in the Fall of 2017, he spent a sabbatical working with the Cambridge Crystallographic Data Centre in the UK and at Rutgers University.






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**UPCOMING ACS WEBINARS**  
*FROM THE ACS WEBSITE*


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**A Nanomedicine Overview for mRNA Delivery:  
 Innovative Methods Using Lipid Nanoparticles**

March 29, 2018 @ 2-3pm ET



Nanomedicines as drug delivery vehicles are attractive as they can pack the drug product more efficiently, enhance their bioavailability, and target specific cells but currently lack a safe formulation. Marianna Yanez Arteta of AstraZeneca will share how different scattering techniques are being employed to characterize lipid nanoparticles for efficient mRNA delivery.

**Creating New Models to Combat Neglected Disease  
 Through, Industry, Government, and Public-Private  
 Partnerships**

April 5, 2018 @ 2-3pm ET



Michael Pollastri of Northeastern University discusses a successful model of distributed neglected tropical disease drug discovery that involves collaborators in industry, government, and public-private partnerships.

**NSF's Big Ideas: Understanding the Rules of Life and  
 The Quantum Leap**

April 12, 2018 @ 2-3pm ET



Join Angela Wilson of NSF, Cynthia Burrows of the University of Utah, Theodore Goodson of the University of Michigan, and Glenn Ruskin of ACS for an introduction of two of the most impactful "Big Ideas" as well as an overview of this innovative NSF program that will advance prosperity, security, health, and well-being in the United States.

***Why Attend ACS Webinars®?***

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**CONVENIENT** – Listen from the comfort and convenience of your home or desk.

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**AFFORDABLE** – A free weekly online event provided to by the American Chemical Society.

*All recordings of ACS Webinars® are available as a benefit to current ACS members. Live weekly ACS Webinars® continue to be available to the general public.*

Editor's Note: For more details about the webinars described above, please visit <https://www.acs.org/content/acs/en/acs-webinars.html>

UPCOMING ACS SHORT COURSES  
FROM THE ACS WEBSITE



## Upcoming Laboratory/Lecture Courses

ACS offers week-long courses that combine traditional lectures with a hands-on component. In conjunction with our partners, Virginia Tech and Axion Labs, these innovative courses are taught by world-renowned experts in their fields and have limited seats to ensure you make the most of your experience. [Register today to secure your seat.](#)

Editor's Note: For more details about the short courses described above, visit [www.proed.acs.org/](http://www.proed.acs.org/).

## 22<sup>ND</sup> ANNUAL GREEN CHEMISTRY & ENGINEERING CONFERENCE JUNE 18-20, 2018



### 22<sup>nd</sup> Annual Green Chemistry & Engineering Conference

Product innovation  
**using** greener chemistries

PORTLAND, OR | JUNE 18 - 20, 2018

#gcande | @ACSGCI | [gcande.org](http://gcande.org)



The 22nd Annual Green Chemistry & Engineering Conference (GC&E), hosted by the ACS Green Chemistry Institute®, will be held in Portland, Oregon on June 18-20, 2018.

GC&E provides an opportunity for a diverse network of over 500 academic, industrial and government stakeholders to network and learn about the newest ideas in sustainable approaches to chemistry, chemicals and processes and products. This year's conference is highlighting the theme, "Product innovation using greener chemistries."

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STATE SCIENCE DAY 2018: VOLUNTEERS NEEDED!

By BOB KROSHEFSKY

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On Saturday, May 12<sup>th</sup>, State Science Day 2018 will be hosted by The Ohio State University at the French Field House in Columbus – just up the road from the ‘Shoe. This is the Saturday BEFORE Mother’s Day this year. Since 1998, as part of its commitment to chemical education at all levels, the Columbus Section has sponsored awards for outstanding projects in the chemical sciences. The objective is to acknowledge and reward those students who have not only understood the scientific method, but also have exhibited creative thought. The section awards \$2,500 in prizes to the various winners.

Clearly, these students are some of the best that Ohio has to offer and are already showing an interest in chemistry. What better way to encourage them and show them the human face of the chemical enterprise? Professors and employers, it might also be a good way to do early recruiting for future students and interns.

### WE NEED YOUR HELP!!!

The number of projects entered is large and we need around 30 judges to evaluate them and decide on the winners. A general knowledge of some branch of chemistry is desirable, but being a chemist or ACS member is not required. And even having limited knowledge in one area can be supplemented and effectively utilized through interactions with judges having complementary skills.

Judging is scheduled to run from 9:00 a.m. to noon. Refreshments and orientation will occur from 7:00 to 8:30 a.m. Access and parking get more difficult the later it gets, but you really need not be there much before 8:00 a.m. in order to get a clear idea of what will be happening that morning. You will be well-informed in advance. Previous judges have thoroughly enjoyed the experience.

Please consider taking one morning out of the entire year to offer encouragement and advice to someone who could be taking the first steps in an illustrious career. If you would enjoy the opportunity to meet the next generation of chemical scientists, e-mail me at [bobkro@embarqmail.com](mailto:bobkro@embarqmail.com) or call me at 937-707-9276.

Refer to The Ohio Academy of Science Web site <http://www.ohiosci.org/ssd.htm> for more details.




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**FROM CHEMICAL & ENGINEERING NEWS MARCH 26, 2018**  
***MONSANTO JOINS WITH PAIRWISE TO DEVELOP BASE-EDITED CROPS***

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Monsanto is getting a head start in accessing a new type of gene editing tool called DNA base editing that it hopes will help it improve major row crops.

The agriculture giant says it will invest \$100 million in a plant genome start-up called Pairwise. The firm was founded by gene-editing heavy-hitters David Liu and Feng Zhang of the Broad Institute of Harvard & MIT and J. Keith Joung of Massachusetts General Hospital and Harvard Medical School.



Base editing is a type of gene editing that uses guide RNA and a form of the CRISPR Cas9 enzyme to change the base pairs adenine and thymine to guanine and cytosine, respectively. In contrast, older CRISPR Cas9 tools cut the double-stranded DNA at a particular point and natural repair mechanisms put it back together, generally stopping the function of a gene. In human health, the instability of cytosine can create genetic mutations that lead to inherited diseases. Gene editing can turn back the clock on those mutations. But in plant genetics, mutations are desirable as they can lead to better-performing hybrids.

Tom Adams, head of Monsanto's biotechnology effort, will become the CEO of Pairwise. Adams says Monsanto has been involved with the start-up from its inception and was an early venture investor. The firms will collaborate to make base editing work well in plants. "The tools need to be advanced even farther than they are now. We want to drive them farther and faster than would happen otherwise," Adams tells C&EN.

The agreement gives Monsanto exclusive rights to edited corn, soybeans, wheat, cotton, and canola crops. Pairwise will also be able to strike other deals with companies for different crops, including fruits and vegetables.

### COLUMBUS SECTION ACS CALENDAR OF EVENTS

Year	Month	Date	Day	Location	Comments
2018	April	2	Monday		4:00 pm: Deadline for reservations for March, 2018 Section meeting.
2018	April	8	Sunday	Ohio Dominican University	Monthly Section Meeting; see details elsewhere in this issue of <i>The Chemical Record</i> .

### 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 **Ashish Deshmukh**, 2690 Fishinger Road, Columbus, Ohio 43221, [ashishdeshmukh@hotmail.com](mailto:ashishdeshmukh@hotmail.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](mailto: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.