



ISOTOPICS

The Cleveland Section of the American Chemical Society

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September 2017

On Deck:

Oct. 18, 2017
T.B.D.

September Meeting Notice

Joint meeting with Akron Section

Wednesday, Sept. 20, 2017

The Oak Barrel

5975 Canal Road, Valley View, OH 44125

<http://theoakbarrel.com/>

5:30 – 6:15 pm Social/Networking

6:15 – 7:00 pm Dinner

7:00 – 8:00 pm Presentation

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Isotopics

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“A Multi-Element Sediment Record of Hydrological and Environmental Changes from Lake Erie Since 1800”

Dr. Fasong Yuan, Associate Professor of Environmental Geosciences at Cleveland State University

Abstract: Concentrations of several elements were measured in a surface sediment core from the Sandusky basin of Lake Erie to detail the history of hydrological and environmental changes back to 1800. The results from hierarchical cluster and principal component analyses revealed four elemental groups. Each of these elemental groups will be discussed. Following the enactments of stringent regulations in the early 1970s, many of these elemental inputs have reduced considerably. But the concurrent reductions in the Sandusky basin were much slower than previously thought. Large increases in inputs from local storages (internal loading) were required to account for the slow reductions. The increased internal loading was caused by augmented organic materials from accelerated eutrophication which facilitated the transfer, transport, and cycling of many trace metals. This work has implications in ongoing research efforts to tackle the eutrophication problem because the complex ecosystem including the internal loading has changed considerably over the past two centuries.

DINNER RESERVATIONS REQUESTED:

Please R.S.V.P by September 13th to mlevy@envantage.com. At the event, we can take credit card payments, checks made out to “Cleveland ACS”, or cash. The cost is \$20 for members and guests, \$10 for retirees or unemployed, and \$5 for students.

Speaker's Biography:

Dr. Yuan is an associate professor of Environmental Geosciences. He received his B.S. in Geology (1986) and M.S. in Environmental Chemistry (1989) from Zhejiang University, and Ph.D. in Geology (2003) from State University of New York at Albany. He worked as an environmental engineer for City of Hangzhou in China from 1989-1998 and did some research on the Rio Grande and the Pecos River for Texas A&M University Research Center at El Paso from 2003 to 2006. He has served as a faculty member of Cleveland State University (CSU) since 2006 and a member of the American Geophysical Union (AGU) since 2002.

Over the last half decade, Dr. Yuan has been working on several different projects supported by state and federal funding agencies such as Ohio Lake Erie Commission, Environmental Protection Agency (EPA), and National Science Foundation (NSF). He is interested in the use of geochemical and isotopic tracers (e.g., chloride, deuterium, and oxygen-18) to study modern and ancient aquatic systems. His primary research goal is to improve our understanding of the environmental processes for better anticipating future changes from the ongoing influence of the anthropogenic disturbances.

From:

<http://www.csuohio.edu/sciences/bges/fasong-yuan>

You're invited! Grand Assembly of Kits Day for NCW

Next Saturday, Sept. 9, 2017, is the day when volunteers label, cut, sort, count, mix, fill and seal the materials to create the kits that we use for the Section's National Chemistry Week (NCW) Demonstration Programs in October. We call this GAK Day--Grand Assembly of Kits Day.

We can use all the help we can get, so please consider coming, bringing friends of all ages and joining your colleagues. We'll be there until kit assembly is complete (usually around 3 or so),

but you don't need to stay the entire day--we'd appreciate your coming even if only for an hour or so. We'll have breakfast items, beverages and snacks available all day. Our famous pizza lunch will be served around noon for all participants.

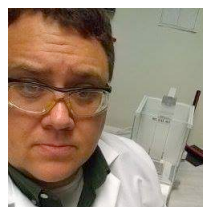
GAK Day starts at 8:30 AM in room W318 of the Dolan Science Center at John Carroll University in University Heights. Once you've arrived at Dolan, we recommend that you take the stairs or elevator at the rear of the WEST wing to the third floor and then turn left. Signs will be posted.

If you have any questions about GAK Day or any phase of our NCW Program, please contact Bob Fowler at jrfowler@cox.net.

Announcement: Local talk of interest "Is Arsenic an Aphrodisiac?"

Dr. Michael Fricke, a chemist specializing in elemental impurities in pharmaceuticals, will be giving a talk on Arsenic poison, Sept. 26 at 7:30 pm at the Euclid Tavern. This talk is a humanistic approach to the element as told thru the lens of our species' experience. Fear not, the Euclid Tavern hot dogs and beer are arsenic-free.

Presented by the Institute for the Science of Origins.



Relevant actions at the National ACS Meeting in Washington DC, Aug. 2017:

Election Results: Dwight Chasar, Cleveland Local Section Councilor, lost his bid for election to the Council Policy Committee (CPC).

A recommendation by the Committee on Membership Affairs that Council approve the Petition on International Chemical Sciences Chapters narrowly failed to achieve the two-

thirds majority required to amend the Bylaws. The proposal would have amended Bylaw IX, Section 4, to permit financial support for International Chemical Sciences Chapters and to remove language from the Bylaws prohibiting Chapters from having representation on Council.

The Council defeated a proposal from the Committee on Divisional Activities that it establish a probationary Division of Space Chemistry, effective January 1, 2018

Nominations and Elections: The Committee on Nominations and Elections solicits Councilors' input of qualified individuals for President-Elect and/or Directors for future consideration. Suggestions may be sent to nomelect@acs.org.

Budget and Finance: The Society's 2017 Probable 1 Projection calls for a Net from Operations of \$25.3 million. This is \$2.1 million favorable to the Approved Budget and \$1.6 million higher than 2016. Total revenues are projected to be \$553.0 million, which is \$2.4 million unfavorable to the budget, but 5.0% higher than the prior year. Total expenses are projected at \$527.6 million, which is \$4.5 million favorable to the budget, and 4.9% higher than 2016.

The Committee considered several program funding requests for 2018, and on its recommendations, the Board subsequently approved funding for the *ACS Online Course in Laboratory Safety* and the *New Faculty Workshop Series* for inclusion in the 2018 Proposed Budget and the 2019-2020 Forecast.

Announcement: 2016 ChemLuminary Award

Dr. John Protasiewicz received a ChemLuminary Award, see below, for a career program he led for the ACS Division of Inorganic Chemistry. Dr. Protasiewicz is a Professor and Chair of the Chemistry department at Case Western Reserve University, past chair of our local section and current chair of the ACS Division of Inorganic Chemistry. In his spare time, John enjoys photography, and below is his artistic photo of the award. Congratulations!



Consider Getting Involved in ACS Cleveland Local Section Leadership

The Cleveland Local Section of the American Chemical Society is completely volunteer-run. There is a core, dedicated group of members who have been involved in keeping the organization going – serving in positions on the Executive Committee (such as Chair, secretary, treasurer, trustees, directors, counselors), organizing National Chemistry Week events, organizing Chemistry Olympiad participant education and selection, among many other Cleveland Local Section activities. Why do they do it? Because it is rewarding, fun and a great way to make a difference in our community and to meet people.

The Section is looking to expand the base of active volunteers. We especially need volunteers willing to serve on the Executive Committee, and elections are very soon! We currently have no candidate for Chair-elect and for Director, and only have one candidate for several other positions. Please consider becoming more involved in Cleveland Local Section events, and in the Section's leadership teams. If interested, do not hesitate to contact any member of the Executive Committee.

From ACS Discoveries: Nipping flu pandemics in the bud

Analytical Chemistry

The threat of a major flu pandemic is a perennial concern. Now scientists have developed a fast and easy-to-use point-of-care diagnostic test that could one day help doctors and hospitals head off the rapid spread of the flu. They report their new device in ACS' journal *Analytical Chemistry*.

The gold standard of flu diagnostics involves expensive techniques, laboratory facilities, trained personnel and, most importantly, time. However, patients and doctors often don't have time on their side because some strains, such as H5N1, can cause severe illness and even death. And even common strains can be deadly in the elderly and small children. Existing rapid diagnostic tests can help with diagnoses, but these tests require multiple processing steps that still need to be performed with lab equipment in specialized facilities. So Paul Yager and colleagues set out to create a simpler, low-cost device that can be used during an office or hospital visit without expensive instruments.

The researchers incorporated multiple steps of influenza detection — viral lysis, target protein capture, labeling, rinsing and an enzyme-driven color change — into one device. A user has to swab the inside of a patient's nose, then insert the swab into the device and twirl it for 10 seconds to release the virus. The device takes care of the rest. After about 35 minutes, it produces a visual readout that can be seen with the naked eye or captured with a smartphone camera. The researchers trained staff at a children's hospital to use the device, and they tested it on 25 patients during a flu outbreak. The device detected influenza A, one of the primary causes of moderate to severe flu epidemics, with 70 percent accuracy. The materials and reagents for one of these single-use devices cost less than \$6.

The authors acknowledge funding from the National Institutes of Health.