

# CINTACS



Newsletter of the Cincinnati Section of the American Chemical Society

May, 2012  
Vol. 49 No. 8

## Meeting Calendar

May 25 Party Night at GABP

Check the ACS Cincinnati web page for the latest updates on upcoming meetings

## MAY MEETING

Friday, May 25

**Party Night at Great American Ballpark  
Cincinnati Reds vs. Colorado Rockies  
6:30 pm (game begins at 7:00 pm)**

*In Honor of the 2011 ACS Fellows  
of the Cincinnati Section*

Honored Guests:

Bruce Ault, University of Cincinnati  
Joe Caruso, University of Cincinnati  
Diane Schmidt, Procter & Gamble

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**Register Online:** Please register online. Alternatively, you may email the webmaster at [webmaster@acscincinnati.org](mailto:webmaster@acscincinnati.org) to register. Payment will be due at the time of registration and can be done via credit card through the Paypal link, or by mailing a check to Ed Hunter, Treasurer.

**Tickets will be available until May 15, or until we run out of tickets. As of May 1, there are 29 tickets remaining.**  
<http://registration.acscincinnati.org/>

**\*\*\*SPACE IS LIMITED! PLEASE REGISTER EARLY!\*\*\***

**Cost:** \$35 per person (section has subsidized half of the ticket cost for each registrant)

Tickets will be left in the name of the registrant at Will Call. Photo ID will be needed to pick up the tickets.

**Includes:** Game ticket, "all-you-can-eat" ballpark food and two beers (ice cream for children).

**Program:**

**6:30 – 7:00 pm:** Toast to the Honored Guests/Brief Remarks

**6:00 – 7:00 pm:** Game and food

**THE CINTACS NEWSLETTER****Vol. 49, No. 8 May, 2012**Editor.....Adam Bange  
Advertising.....Dan Esterline

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**From The Chair**

Greetings Section Members,

Wow, it is very hard to believe, but we have reached the end of our Section year, and the end of my term as Chair of the Section. This realization comes with multiple emotions. First, there is relief that in spite of my efforts as Chair, the Section still exists. I find that if one sets their goals very low, it is easy to feel a sense of accomplishment. Second, I feel a sense of pride in what the board and the rest of the Section leadership has accomplished over the past year, and consider myself fortunate to have been able to be a very small part of their grander efforts.

While the Section continued to host successful meetings, allowing for us to enjoy the company of our membership while listening to relevant speakers from a variety of chemistry fields, there were several things happening behind the scenes of which I wanted to make the Section aware. First, as you may have noticed, for the first time in our history, we have done our elections electronically. While the elections are still underway, my sources have confirmed that we have a total of 185 votes cast thus far. This number far exceeds the number of ballots cast in the recent history of the Section, and is a testament to the high level of participation of the Section membership. If you have not voted, please look for an email you should have received recently, and make sure you cast your vote. It sounds cliché to say, but the voice of every Section member is very important in shaping the future direction of the Section. Voting closes on May 5<sup>th</sup>. Finally, I would be remiss if I did not give credit to Matt Gardlik, our outgoing webmaster, for developing and administrating the system we used for voting. He created this system, basically from scratch, and from the lack of complaints I have heard, the system has worked flawlessly. Thanks again to Matt for all of his service to the Section as webmaster for the past several years. While he will be adequately replaced, he will certainly be missed and we wish him all the best in his future endeavors.

In keeping with the theme of technology transition, earlier in the year, the board approved a switch to online-only distribution of CINTACS. While this has been discussed for some time, the switch will be official beginning with next September's CINTACS. I believe that of the things the board did this year, this has the chance to have the most profound effect on our Section. Not only does it eliminate the vast amounts of paper and ink used to print the newsletter, it will also ensure that the contributions in CINTACS will not only be more robust, but also available on a timelier basis. Additionally, and importantly, a significant portion of our budget has been dedicated to publishing and mailing the newsletter. The savings that result from this move will allow us to fund more, and better, programming for the membership. It should be pointed out that members wishing to receive a printed newsletter will still be able to do so. Simply email ([webmaster@acscincinnati.org](mailto:webmaster@acscincinnati.org)) and indicate this preference.

With the arrival of our May party night, we have also been testing a system through which we may begin collecting registration fees in advance of Section meetings. While there have been several bugs and the Board has yet to decide whether to proceed with these plans, there are many benefits to collecting money in advance of meetings. First and foremost amongst these is to realize the cost savings from such a system. As it stands now, when you register for a meeting, a dinner is reserved for you, and the Section commits to paying for it, regardless of whether or not you ultimately attend. Given that our meetings are already substantially subsidized by the Section and its generous sponsors, we probably should be as careful as possible about minimizing our losses with regard to meeting attendance. If you have strong feelings on this issue, please feel free to let us know. And while you are sitting at the computer, take a moment to register for the May 25<sup>th</sup> party night at Great American Ball Park. Thus far, we have a total of 91 committed to attend, with only 29 spots remaining. So register as soon as possible, as it stands to be a very fun night at the ballpark.

The last event I want to highlight from the past year took place in April. We held our first event (of hopefully many in the future) at the Lloyd Library and Museum. As mentioned in their mission statement, the Lloyd "...collect[s] and maintain[s] a library of botanical, medical, pharmaceutical, and scientific books and periodicals, and works of allied sciences that serve the scientific research community, as well as constituents of the general public, through library services and programming that bring science, art, and history to life." For those that were unable to attend our event, or have not been to see what the Lloyd has to offer, I encourage you to do so at some point in the future. In my mind, this is one of the hidden gems of our science in the city of Cincinnati. I am hopeful that through our ongoing partnership, in whatever form it eventually takes, this gem will be uncovered for all of Cincinnati, chemist and non-chemist alike.

While preparing for my term as Chair of the Section, I was somewhat nervous as to how the year would go. As mentioned, somewhat in jest earlier, I wondered if the Section would be around at end of the term. And yet, my term as Chair has showed me a completely different side of the Section. As a member, and then later as a member of the board, I was always impressed at how meetings ran smoothly, the CINTACS was always delivered on time with worthwhile content, National Chemistry Week reached a huge number of children in the area, award recipients were chosen, and their awards distributed, member accomplishments were highlighted...I could go on and on, and yet I had no idea how these things happened. Often I gave credit to the Chair of the Section for making these things happen, since they were the ones that led the meetings, and served for lack of a better term, as the "face" of the Section. As a result of this perception, I was nervous about how the year would go.

With the benefit of hindsight, my worries were completely unfounded. Our Section runs, forgive the cliché, like a well-oiled machine. On multiple occasions, I would send an email to someone in a panicked state about something I had forgotten, and usually the response assured me that "it was already taken care of." The "oil" in this machine is of course, the board members, committee Chairs and other members who give of their time to run the Section. I would like to thank each and every one of them for the support they gave me, and the Section, during my year as Chair. I am truly appreciative of their efforts in helping me look like, at the minimum, a semi-competent Chair, and I am forever in their debt as a result. I look forward to seeing all of you at the upcoming Party night, where we can celebrate the conclusion of another successful year.

Sincerely,  
Rick Mullins  
Chair  
ACS Cincinnati Section



Cincinnati ACS @Cincinnati\_ACS

## 2012 Oesper Awardee

Gary M. Hieftje  
Department of Chemistry  
Indiana University

The Department of Chemistry at the University of Cincinnati, and the Cincinnati Section of the ACS will present the 2012 Oesper Award to Professor Gary M. Hieftje from Indiana University at the Oesper Banquet and Symposium at UC, October 12, 2012.



Photo courtesy of Indiana University

GARY M. HIEFTJE is Distinguished Professor and Mann Chair of Chemistry at Indiana University in Bloomington, Indiana. His research interests include the investigation of basic mechanisms in atomic emission, absorption, fluorescence and mass spectrometric analysis, and the development of instrumentation and techniques for atomic and molecular methods of analysis. He is interested also in the on-line computer control of chemical instrumentation and experiments, the use of time-resolved luminescence processes for analysis, the application of information theory to analytical chemistry, analytical mass spectrometry, near-infrared reflectance analysis, metallomics, and the use of stochastic processes to extract basic and kinetic chemical information. He has won numerous awards in the fields of analytical chemistry, chemical instrumentation, and spectroscopy, has held major offices in several scientific societies, has delivered many named lectures, and has served on the editorial boards of many major journals. He is the author of over 550 publications, 10 books, and 18 patents. More than 65 students have received doctorates under his direction; many others have received M.S. degrees, and scores of undergraduates and visiting scientists have performed research in his laboratories.

The Oesper Symposium will be held on October 12, 2012 and will feature the following speakers:

Frank Bright, University of Buffalo, SUNY  
Jim Jorgensen, University of North Carolina at Chapel Hill  
Alan Marshall, Florida State University  
John Olesik, The Ohio State University  
Mike Ramsey, University of North Carolina at Chapel Hill  
Jake Shelley, Purdue University  
Mark Wightman, University of North Carolina at Chapel Hill

Visit the Oesper website for more information and the Symposium schedule: [http://www.artsci.uc.edu/chemistry/alumni\\_community/oesper/](http://www.artsci.uc.edu/chemistry/alumni_community/oesper/) or contact Kim Carey for more information: 513-556-0293; [Kim.Carey@uc.edu](mailto:Kim.Carey@uc.edu)

## Oesper Banquet Speaker

Steven J. Ray  
Associate Scientist  
Department of Chemistry  
Indiana University  
<http://www.indiana.edu/~gmhlab/group/ray.htm>

Born and raised in Kalamazoo, MI, USA, Steven attended university at Hope College in Holland, MI from 1989-1993 before receiving his B.S. degree in Chemistry. From Michigan, he moved to Indiana, where he joined the research group of Gary Hieftje. Under Professor Hieftje's supervision Steven has studied time and polarization dependent fluorescence spectroscopy, novel sources for atomic emission and atomic mass spectrometry, various sample introduction systems, and most recently, time-of-flight mass spectrometers for plasma-source mass spectrometry. Steven also served as the interim Senior Mass Spectroscopist for the Indiana University Department of Chemistry from 2001-2003. Having received his degree in 2003, Steven stayed on as the research scientist within the group and is currently involved in the design and construction of a dual-source ICP/ESI time-of-flight mass spectrometer.



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## ACS Short Courses Available in Cincinnati!

The ACS Department of Professional Education will be hosting seven (7) Short Courses in Cincinnati on June 25 – 29. Held at the Double Tree Cincinnati Airport (Hebron, KY), ACS will be offering some of their most popular courses including Laboratory Safety, Chemical Engineering for Chemists, and Polymer Coatings. Short Courses are a great opportunity to get high quality training while networking with instructors and peers.

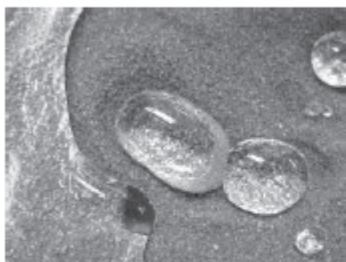
As a Cincinnati Local Section member, we are offering \$200 off the current registration price! To register for the discount, fax in your registration to 202-872-6336. Visit the ProEd website for more details and a full listing of courses offered.

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NanoDays 2012 at the Cincinnati Museum Center

A National Science Foundation (NSF) and Nanoscale Informal Science Education Network (NISENet) initiative, NanoDays is a nationwide educational event about the future impact of nanoscale engineering and science. Members of the Cincinnati ACS participated in activities hosted by the Cincinnati Museum Center on Saturday, April 7<sup>th</sup>. Over 3,890 visitors came through the rotunda that day!

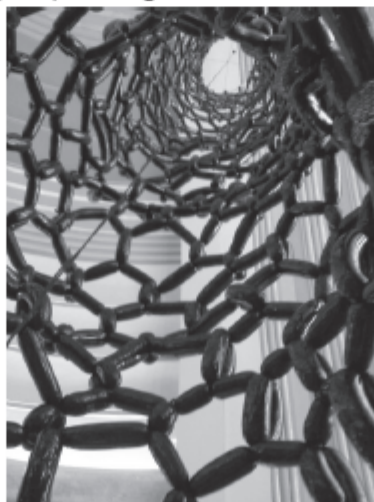
The Cincinnati Section ACS table and their dedicated volunteers allowed museum visitors to experience the chemistry side of nanotechnology. Visitors played with “nano” sand and regular sand, experiencing the



hydrophobic surface of the “nano” sand coating on both a plastic sheet and in bulk. The attractive forces in water were also experienced in comparing the behavior of water poured from a regular size and tiny cup—gravity acted on both cups but visitors were surprised that the surface tension of water prevented the tiny cup from emptying. Gravity was also defied in two tubes of different sized plastic beads. The larger beads always fall but the small beads could defy gravity when static charges kept them suspended in the plastic tube. Real gold and silver nanoparticles were displayed and their application

in nanomedicine simulated with two kinds of “jello” and a heat lamp. In this simulation, the gelatin “jello” (representing gold nano shells attached via an antibody to a cancer cell) was melted with heat, while carrageenan “jello” (representing healthy cells) remained unmelted. Visitors also played a memory game for nanotattoo prizes. Several visitors upon turning over the carbon nanotube card pointed enthusiastically to the balloon nanotube sculpture being assembled across the rotunda.

Speaking of the sculpture, we were asked to bring our National Chemistry Week helper brigade - made up of scouts from Dan Beard Council, Ft. Hamilton District’s Troop 956 and of students from the University of Cincinnati’s College of Engineering – to assist the Museum of Natural History and Science in creating a large model of a carbon nanotube. While we were really hoping to reach the over 100-foot ceiling of the rotunda, after tying off over 600 balloons from 9 AM to 5 PM...we were very pleased with our estimated 80-foot finished product. Many of our visitors added balloons themselves! It was fun sharing with the public about the interesting structures carbon atoms can be arranged in; resulting in materials as black as night or as shining as the sun!



The faculty of the Chemistry Department from the College of Mount St. Joseph introduced museum visitors to the very abstract Avogadro's number and the very real world masses of a mole of various chemicals. On display were pre-weighed moles of water, carbon, copper, zinc, nickel sulfate, etc. to help them gain a perspective of the meaning of 'one mole' along with a sign showing Avogadro's number with all of its zeros. After viewing the molecular models of both water and sucrose, the visitors were then asked to try to weigh out one mole of sucrose. Those closest to the right answer won a prize (those LED light rings were a big hit with the kids!).



The Yeziarski chemical education research group from Miami University, Department of Chemistry & Biochemistry, took part in celebrating NanoDays by setting up an exhibit all about the particulate nature of matter. The exhibit, titled, "Take a Closer Look at Our Natural World", is the project of Brittany Christian, a Miami University graduate student. By interacting with the exhibit, visitors explored not only the minute scale of atoms and molecules, but also how everyday objects can be modeled at the particle level. In fact, visitors had the opportunity to construct their own atomic cartoons to model observations. The exhibit made use of technology with animations that invited the visitor to take a closer "look" at the three different phases of water. The exhibit was a success with both children and adults alike as they got to explore these fundamental concepts of chemistry.



The Miami Chemical Society (the Miami University Department of Chemistry and Biochemistry student organization) topped (in our opinion) the Miami Physical Society (the student organization from the Miami University Department of Physics), which was also presenting at NanoDays at the Museum Center. Students enthusiastically led visitors in a nano-sized investigation, the isolation of strawberry DNA from strawberry juice. The student group initially gained expertise in leading this activity while participating at a museum outreach event that had been part of a previous American Chemical Society National meeting. The students paired the isolation of strawberry DNA with a look at regular and nano-sized zinc oxide in sun screens, where the different sized zinc oxides can be distinguished when rubbed on black construction paper. Students shared the message that sunscreens, including those with nanoparticles, protect skin cell DNA from ultraviolet light damage, which linked their two activities together into one message about how nanotechnology impacts people's lives.

Reporters: Susan Hershberger (Miami University, CINTACS trustee), Gloria Story (P&G, CINTACS membership coordinator), and Jamie Titus (College of Mount St. Joseph)

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## Overview of the Patent Process: Prosecuting the Application

The last step in the patenting process is prosecuting the application. This is the part where you argue with the US Patent Office to convince them that your invention really deserves a patent. I will focus on two of the most important rejections you may receive from a patent examiner. The first is that the invention is anticipated; it is not new (aka a 102 rejection). The second is that the invention is obvious (aka a 103 rejection). The names 102 and 103 refer to the sections of the US Code that describe the rejection. To obtain a patent the claimed invention must be both novel and non-obvious.

Anticipation is a fairly easy concept to explain. An invention is anticipated when it has been published anywhere, in public use, or offered for sale before the date of the invention. For example, a publication that discloses a polycarbonate resin with a metal salt, which lists many metal salts including cadmium laurate, will anticipate a later claim to an invention for a polycarbonate resin with cadmium laurate. Even though the invention was listed with many alternatives, it was still specifically disclosed and so anticipates the later claim.

When faced with an anticipation rejection there are generally two ways to respond. The first is to double check to make sure the publication the examiner cited really says what they think it does. If not, then the reference does not anticipate your invention. The second is to amend the claims in your application so they do not claim what was already public knowledge.

Obviousness is much more difficult to explain. It is a higher barrier to patentability than novelty. It guards against patenting something which may in fact be new, yet is not a significant enough improvement over the prior art to warrant patent protection. As you can imagine, the standard is not clearly defined. There are several methods used for this evaluation, but they boil down to comparing what was known in the prior art against the invention and determining if a person of ordinary skill in the art could bridge the gap between the prior art and the invention. If so, then it is likely that the invention is obvious and not patentable.

One powerful way to respond to an obviousness rejection is to make an argument that the prior art teaches away from the invention. If the prior art suggests that you not do something and you do it to obtain your invention, then it is unlikely that your invention is obvious. For example, an examiner may argue that it would be obvious to add salt to a polymer to make a salty fishing lure. Fish are attracted to salt and it would be relatively easy to add salt to the polymer before it cures. However, the invention would not be obvious if it was expected that adding salt to the polymer would change the surface properties of the lure, weaken the plastic, and potentially cause an explosion during the mixing of the salt into the plastic. With this sort of teaching away in the prior art a salty fishing lure is not an obvious invention.

Another powerful way to respond to an obviousness rejection is if the invention has an unexpected improvement. This sort of improvement is a technical one, not that it is cheaper or a mere additive benefit. This is the reason why it is important to know what the prior art is when drafting the application, as mentioned in CINTACS Vol. 49, No. 5, Feb. 2012, p 7. If you are aware of prior art that is similar to your invention, you can perform a test to compare your invention to the prior art. If there is a significant improvement over the prior art, then you have a good argument that your invention is not obvious.

*Scott Conley, PhD, JD, is a patent attorney at Frost Brown Todd in Cincinnati. He is an inventor on 10 U.S. patents and numerous applications. Scott can be reached at [srconley@fbtlaw.com](mailto:srconley@fbtlaw.com) or (513) 651-6818.*

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## Important Online Voting Information

This year the section will conduct election of officers online at <https://www.acsvoting.com/>. Members who are eligible to vote will receive an email with instructions and a Personal Identification Number(PIN) which will allow you to vote online.

Please add the email address [info@acsvoting.com](mailto:info@acsvoting.com) to your address book to help ensure you receive the voting information. You may also send an email to [info@acsvoting.com](mailto:info@acsvoting.com) if you have any questions or difficulty voting online.

### Job Opening: Principle Scientist at International Paper

International Paper has a position open for a Principle Scientist in their Technology group providing technical and engineering expertise to the papermaking manufacturing process and tactical support to capital projects. Requirements include a minimum of Bachelor's degree in Engineering or Paper Science (an advanced degree is preferred) and a minimum of 10 years experience with at least 5 years in paper chemistry support. Interested candidates can contact Mike Williams at [michael.williams3@ipaper.com](mailto:michael.williams3@ipaper.com).



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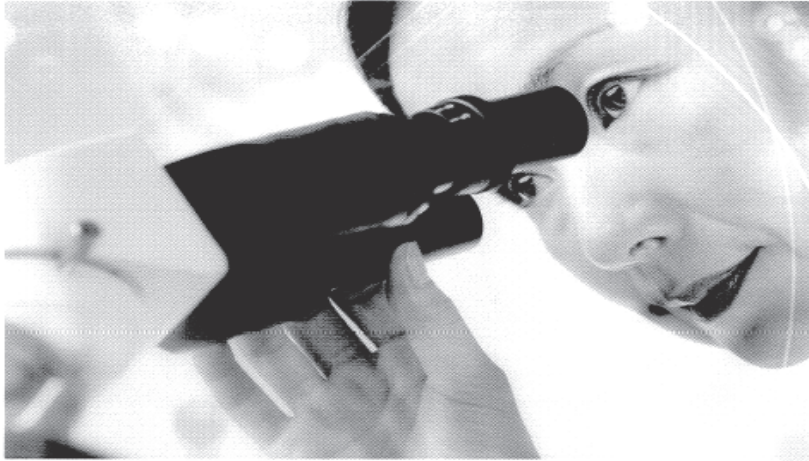
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