

## The Nexus



### Connecting & Expanding the Global Green Chemistry and Engineering Community

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#### Please Don't Miss the Opportunity to Join us for the Upcoming 13<sup>th</sup> Annual GC&E Conference

Attendance at the upcoming conference, June 23 – 25, 2009, in College Park, MD, is expected to reach 400 or more. ***If you can only attend one conference this year, this one will give you the best return on your investment.*** Please check the website for the seven different tracks developed around the Grand Challenges. You also won't want to miss Keynote Speakers, Dr. Len Sauers, VP,



**We need to hear from YOU!**



Dear Green Chemistry Enthusiast:

As we reflect back on 2008, we can feel good about the accomplishments we have made in the area of green chemistry and engineering. At the same time, we know pragmatically that the global economic meltdown has impacted all of us both personally and professionally. I have been asked how this will impact the green chemistry movement. My response can be summed up in two words: speed bump.

Implementation of our green chemistry and engineering principles — that is, reduction to practice — requires a compelling business case, which means a reasonable return on investment. Given these tough economic times, we will see a slow down in our programs that will be the equivalent of a series of speed bumps. However, I fully believe when we look back on 2009 we will see that the bottom has passed and the world is emerging from a difficult time with a renewed commitment to sustainability and fiscal responsibility.

The ACS Green Chemistry Institute® continues to expand its visibility and reach, adding to our traditional role in the educational arena. Rest assured, our commitment to GC&E education is as strong as ever. But now we are engaged in advocacy work along with reaching out to our business colleagues via training, case studies, and the development of the first American National Standards Institute (ANSI) multi-attribute standard for green chemicals and process technology.

We have partnered with NSF International, a globally recognized leader in both the development and certification of consensus standards. This is by no means a small challenge, but the aim of our first meeting in March in Washington, DC, is to launch the process with a goal of having a draft out for public comment in the fourth quarter of this year. For those who have been involved in such standards development, you will immediately recognize this is an ambitious objective. We have hired Georgina Sikorski of Project Consultants and Associates (PC&A) to manage this process for us. We'll keep you posted on our progress throughout the year. If you have an interest in participation in this green chemistry standard development project please drop us a note at [gci@acs.org](mailto:gci@acs.org).

Over the course of my career I have come to realize that one word sums up the simple, but most difficult, challenge we all face: *communication*. Effective communication is essential if we are to help our elected leaders understand the issues and implications of global warming, clean energy production, safe drinking water, and the challenge of clean

Global Sustainability, The Procter & Gamble Company on June 24<sup>th</sup> and Jean-Michel Cousteau-Founder and President, Ocean Futures Society, Exec. VP, The Cousteau Society on June 25 or the talks by winners of this year's Presidential Green Chemistry Challenge Awards.

Please visit [www.GCandE.org](http://www.GCandE.org) for more information.

*Make this premier event your choice for 2009!*



## ***Congratulations!***



Congratulations to ACS GCI Governing Board member and Nobel laureate Dr. Robert Grubbs on being selected to receive this year's ACS Award for Creative Invention. The olefin metathesis catalysts he has invented have helped ease the production of pharmaceuticals, materials, and fine chemicals, according to an article in [Chemical & Engineering News](#).



Congratulations to Dr. Steven Chu, the Nobel-Prize-winning physicist and head of the Lawrence Berkeley National Laboratory, who was recently confirmed as the new Secretary of Energy. You may also remember Dr. Chu as a keynote speaker for the 12<sup>th</sup> Annual Green Chemistry and Engineering Conference in June of 2008.

transportation alternatives.

You know better than anyone else the need for a sustainable path forward. It is critical that we hear from you. We need your communication! What are the issues you face locally, what new technology has been developed around the world that you believe addresses the sustainable challenges we face, what are you doing personally and in your companies or universities, high schools, and community to promote green chemistry and engineering?

Drop us a line and let us know so we can share your thoughts with our growing green chemistry community. Write us a short story and send along some pictures, we'll try to include them in future *Nexus* editions. Let's make 2009 a banner year for green chemistry and engineering outreach.

Green regards,

Dr. Robert Peoples  
Director, ACS Green Chemistry Institute®  
[b\\_peoples@acs.org](mailto:b_peoples@acs.org)



## ***Appeal to ACS Distinguished Members from ACS GCI Governing Board Chair, Daryle H. Busch***

Daryle Busch, ACS President 2000, begins his tenure as chair of the Governing Board for the ACS Green Chemistry Institute® with an appeal for its support. For the past three years, the ACS Development Office has reached out to members attaining their 50<sup>th</sup> and 60<sup>th</sup> anniversaries of membership with information on ACS priority programs. Many of these loyal members have responded with generous contributions to programs that help educate the next generation of chemical scientists.

This year, Dr. Busch is appealing to 1,200 members celebrating 50 years of membership and 600 who have attained their 60<sup>th</sup> anniversary. He hopes to identify those who are most concerned with improving the quality of the earth for generations to come. ACS GCI is focused on the power of chemistry to make significant contributions toward a sustainable future. Through its education and outreach programs, ACS GCI is having a positive impact on human health and the environment by teaching the principles of green chemistry and engineering. It is leading the way in promoting cost effective and scientifically sound solutions that make our planet safer.

Dr. Busch invites others to join him in support of ACS GCI Education and Outreach programs that will help the ACS improve the world through the transforming power of chemistry. If you are interested in contributing to this vital work, you may donate online at <https://webapplications.acs.org/applications/give/> or call the ACS Development Office at 1-800-227-5558, ext. 6210.



Congratulations to Dr. Jane Lubchenco, a prominent environmental scientist and marine ecologist at Oregon State University on her selection to lead the National Oceanic and Atmospheric Administration. Senate confirmation hearings are in progress.



Congratulations to Dr. Geoffrey Coates of Cornell University. He was named the winner of the inaugural ACS Award for Affordable Green Chemistry, sponsored by the Rohm and Haas Company. In a recent [C&EN article](#), a colleague described Coates as *"one of the world's most creative synthetic polymer chemists."*



**ACS GCI Pharma Roundtable awards grant to Yale professor**  
Chemistry Professor Robert Crabtree of Yale University has received a two-year \$160,000 grant from the ACS GCI Pharmaceutical Roundtable. The grant will support Dr. Crabtree's research to develop green catalysts for drug manufacturing.

*"We are the caretakers of the future and it is still in our power to make the world better for everyone,"* says Dr. Busch. If you share this passion, please make a gift today and help him leave a lasting legacy through the transforming power of chemistry.

### *The Green Scene in Salt Lake City*



Green chemistry is the focus of several symposia at the spring national meeting of the American Chemical Society, March 22-26, in Salt Lake City. The lineup includes presentations on green and renewable composite materials, green chemistry for cosmetic, detergent and medical applications, green and sustainable chemistry education, green nanoscience, and green nanotechnology, to mention but a few.

The overall theme for the Salt Lake City meeting is "Nanoscience: Challenges for the Future." In support of that theme, the Society's Industrial & Engineering Chemistry (**I&EC**) division has organized a symposium, "Nanotechnology and the Environment: Emphasis on Green Nanotechnology," with more than 30 presentations. Among the topics to be discussed are materials for fuel cell applications, electrical energy storage devices, and myths and misconceptions about nanoparticles and nanomaterials. The symposium is cosponsored with the ACS Division of Inorganic Chemistry (**INOR**).

Two other notable events involving the I&EC division are the "Joe Breen Green Chemistry Poster Session" and the "Green Chemistry" symposium – the latter a multi-divisional symposium hosted in collaboration with the divisions of Organic Chemistry, Inorganic Chemistry, Chemical Health & Safety, the Committee on Environmental Improvement, and the Younger Chemists Committee.

Another symposium, "Green Nanoscience," organized by the divisions of Colloid Chemistry, Inorganic Chemistry, and Polymer Chemistry, will have presentations on Sunday and Tuesday during the meeting.

Also featured during the 237<sup>th</sup> ACS National Meeting are two ACS Presidential Events. One of the events, "Global Energy Challenges for the 21<sup>st</sup> Century," is based around sustainable energy choices and will be held Sunday, March 22.

On Monday evening, March 23, during the popular Sci-Mix program, there will be a presentation on how chemistry students at Edgewood College in Madison, Wisconsin, are incorporating green chemistry with real, personal, and community-based issues as part of the school's campus-wide Human Issues Program. Another student project involves incorporating the principles of green chemistry into introductory chemistry courses.

Several papers of interest highlighting catalysts and polymer synthesis will be presented Tuesday, March 24, during the "ACS Award for Affordable Green Chemistry: Symposium in Honor of Geoffrey W. Coates."

While at the meeting, be sure to catch presentations by ACS Green Chemistry Institute® Director Bob Peoples and ACS GCI Senior Program Manager Jennifer Young. Bob's presentation



## Quick Links

[ACS Green Chemistry Institute®](#)

[Registration for the 2009 Green Chemistry & Engineering Conference](#)

[ACS GCI Pharmaceutical Roundtable](#)

[U.S. EPA Green Chemistry](#)

[Warner Babcock Institute for Green Chemistry](#)

[Center for Green Chemistry & Green Engineering at Yale](#)

[Green Chemistry at the University of Oregon](#)

[Environmental Health News](#)

[Presentations from the 12th Annual Green Chemistry & Engineering Conference](#)

[ACS Main Page](#)

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Be sure to select "ACS Green Chemistry Education & Outreach"

[Join Our Mailing List!](#)

(INOR 385) is on the future of green and inorganic chemistry and will be presented Tuesday, March 24, at 9:30 a.m. Jennifer has two presentations in the division of Chemical Education: the first (CHED 1173) on Tuesday, March 24, at 8:30 a.m., on the topic of using online tools developed by ACS GCI to teach green chemistry; the second (CHED 1254) is on Wednesday, March 25, at 1:30 p.m., and will focus on the impact of the green chemistry summer school on industrial career paths. The final program for the national meeting is now available online at [www.acs.org/saltlakecity2009](http://www.acs.org/saltlakecity2009).

## Green Backlash – the Price of Success?



Recognition and success come with a price. Not too many years ago, those of us in the business of sustainability and environmental stewardship could only dream of the day when "green" would be a universally recognized reference to something that helps preserve and protect Earth's environment and its limited resources.

Well, dreams do come true! Today it seems that just about everyone is either "going green" or planning to do so.

Type the word "green" into your Web browser. With the exception of just a few people with the last name of Green, nearly every link that pops up has something to do with sustainability and environmental issues. Even Wikipedia, the Web-based encyclopedia, describes green as more than just a color: "... groups have taken on the color as a symbol of environmental protection ..."

Since its inception in 1997, the ACS Green Chemistry Institute® has been a leading advocate of the move to a more sustainable future. In the ensuing 12 years, corporations, government entities, educational institutions, special-interest groups, and millions of individuals have been jumping on the green bandwagon in ever-increasing numbers.

But, with all of this attention, we are seeing a bit of backlash. For example, look at Lake Superior State University's 2009 "List of Words to Be Banished from the Queen's English for Mis-use, Over-use and General Uselessness." This year, "green," "going green," "carbon footprint," and "carbon offsetting" all made the list. In fact, green and going green received the most nominations, according to the school's web site (<http://www.lssu.edu/banished/current.php>).

The banished words list started more than 30 years ago as a "tongue-in-cheek" publicity stunt to help draw attention to the school. It turned out to be even more successful than anyone had hoped. Newspaper editors found the annual list struck a chord with readers; enough so that every year, the list gets wide coverage by the media.

This year's banished words list is not the only example of green backlash. Far from it. There are many reports, news articles, and even books that cite examples of growing public angst and pushback about environmental issues. Type "green backlash" in your browser and you will find page after page of links about the topic.

Another term we often hear is "green washing," a reference to the use of misleading green marketing tactics designed to

## FACTOIDS



To grow 1 pound of wood a tree consumes 1.47 pounds of carbon dioxide and emits 1.07 pounds of oxygen.

80% of the forests that once covered the earth are now gone.

Over the next 20 years the average supply of fresh water per person is expected to drop by one third while demand is growing at an unsustainable rate.

### *Get In Line For A Plug-In Hybrid*

Have you thought of buying a plug-in hybrid? U. S. taxpayers can now get up to \$7,500 in tax credits if you buy one. Before the stimulus package, this credit was offered for 200,000 cars total – now, it's being offered for 250,000 cars per manufacturer. There's also a smaller tax credit for buying electric motorcycles and three-wheeled cars.

Source: [www.EcoGeek.org](http://www.EcoGeek.org)

President – Elect Obama and family stayed at the Hay Adams, Washington, DC hotel prior to moving into the White House. The Hay Adams is a luxury brand hotel that not only provides guests with the option of having a carbon-neutral travel experience, but also makes the financial contribution on their behalf to Sustainable Travel International (STI) to offset the hotel's energy consumption.

convince consumers that a company's products have a low or positive impact on the environment, frequently despite evidence to the contrary. You'll also get plenty of hits if you do a Web search on that phrase.

So, should we be concerned about this bit of unflattering focus? On one hand, you could say it is simply the price of success and we shouldn't get too excited about it. On the other hand, we would be smart to pay attention to public sentiment and look at possible ways to counter the backlash. After all, it is a credibility issue for scientists who believe green chemistry and engineering is the key to a sustainable future.

Although it doesn't appear that progress toward greater sustainability is under any great coordinated threat at the present time, we definitely need to keep the prospect of green backlash on our radar screens.

We would like to hear what you think about green backlash. How serious is the issue? Is it something that we in the sustainability world need to address? If so, what should be done? Let us know what you think about the topic. Drop us an email at [gci@acs.org](mailto:gci@acs.org). Be sure to let us know if we can share your thoughts with other readers of *The Nexus* Newsletter.

Best regards,

Dr. Robert Peoples  
Director, ACS Green Chemistry Institute®  
[b\\_peoples@acs.org](mailto:b_peoples@acs.org)



### *Procter & Gamble Company named to list of top sustainable corporations*

The Procter & Gamble Company has been selected as one of the "Global 100 Most Sustainable Corporations in the World" for 2009. The selection is based on how effectively corporations manage environmental, social and governance risks and opportunities, relative to their industry peers. This is the first time P&G has been named to the list. See full story at [http://www.pg.com/news/global\\_100\\_sustain\\_corp.shtml](http://www.pg.com/news/global_100_sustain_corp.shtml).



### *Call for Papers*

CHED – Division of Chemical Education

**238th ACS National Meeting, Washington, DC - August 16-20, 2009 - Submit your abstracts by March 16, 2009, for the upcoming symposium, [Sustainability in the Chemistry Curriculum: What, Why, Now, and How](#)**

## FACTOIDS



**In the United States 2.5M plastic bottles are disposed of every hour and only about 25% are recycled each year.**

**The equivalent of 3.75 pounds of carbon dioxide are emitted to the atmosphere for each half-gallon carton of orange juice produced.**

**Less than 1% of the water on earth is available for people's everyday use.**

**Leaky faucets that drip at the rate of one drip per second can waste more than 3,000 gallons of water each year.**

**An energy-smart clothes washer can save more water in one year than one person drinks in an entire lifetime.**

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You may have noticed the buzz around campus. People are talking green. Energy saving is in vogue. Campus vehicles, food services, and residence halls are all getting in on the sustainability act. In contrast, the undergraduate curriculum (in general) and the chemistry curriculum (in particular) has been far slower in reflecting any changes. What are the different meanings ascribed to the term "sustainability"? Why are campus administrators, professional societies, and government agencies now interested in it? Why the urgency? How and in what ways might a chemistry instructor recast a course in terms of energy, air quality, water, and other issues that connect to sustainability? What models for teaching and learning currently exist? This symposium welcomes papers that address these and related questions.



***Welcome!***

**1. DSM Pharmaceutical Products and Codexis are new associate members of ACS GCI Pharma Roundtable**

The ACS GCI Pharmaceutical Roundtable has two new associate members – DSM Pharmaceutical Products and Codexis. For more information about the ACS GCI Pharma Roundtable membership, programs and policies, please check [www.acs.org/gcipharmaroundtable](http://www.acs.org/gcipharmaroundtable) or email [gcipr@acs.org](mailto:gcipr@acs.org).

**2. Dr. Robert H. (Bob) Grubbs, Cal Tech, Division of Chemistry and Chemical Engineering – Member of the ACS GCI Governing Board**

**3. Dr. Martin Abraham, College of Science, Technology, Engineering and Mathematics – Advisor to the ACS GCI Governing Board**

## FACTOIDS



The U. S. has five percent of the world's population and uses 23 percent of the world's energy.

Lawns cover over 25 million acres of America – an area the size of Pennsylvania.

Every time you open the refrigerator door, up to 30 percent of the cold air can escape.

A compact fluorescent light bulb uses 75 percent less energy than a regular bulb – and it can last up to four years.

A single open fireplace damper sends eight percent of your heating bill up the chimney.

A crack as small as 1/16<sup>th</sup> of an inch around a window frame can let in as much cold air as leaving the window open three inches!



## Guiding Green Walks the Talk

Have you ever heard that expression “Walking the Talk”? Or how about “Put your money where your mouth is”? The ACS Green Chemistry Institute<sup>®</sup> is fortunate to be the recipient of a timely contribution from “Guiding Green” specifically earmarked to offset carbon emissions in 2009. ACS GCI is well on the way to becoming carbon neutral as a result of this thoughtful gift. The idea behind carbon offsetting is that the carbon emissions generated through an activity can be calculated then someone is paid for an initiative that reduces carbon dioxide emissions by an equivalent amount.

The 13<sup>th</sup> Annual Green Chemistry and Engineering Conference is being held in an LEED certified facility as a result of the thoughtful deliberations of the organizing committee to lower the carbon footprint of this important conference.

For more information on calculating your carbon footprint, see the “factoid” section of this newsletter. For more information on the ongoing efforts of Guiding Green, please check [www.GuidingGreen.com](http://www.GuidingGreen.com). For more information on the upcoming 13<sup>th</sup> Annual Green Chemistry and Engineering Conference, [www.gcande.org](http://www.gcande.org)

To contribute to the ongoing work of ACS GCI, please explore the “Donate Now” button in the left column of this online newsletter.



## “ACS GCI International Chapters”

### SPOTLIGHT ON MEXICO

The Mexican Chapter of the ACS Green Chemistry Institute<sup>®</sup> was constituted in 2005, with the main objective of diffusing Green Chemistry among High School and University Professors. We have organized a series of workshops at our institution, as well as in different Congresses. The most ambitious project was the co organization of the PASI in 2007. In 2008 we organized a Latin American Green Chemistry workshop under the auspices of the project: ChemRAWN XIV-ACS Green Chemistry Institute-Developing & Emerging Nations Green Chemistry Grants Program, named “Green Chemistry for teachers from Spanish-speaking

## FACTOIDS



In 2000, recycling of solid waste prevented the release of 32.9 million metric tons of carbon equivalent (MMTCE, the unit of measure for greenhouse gases) into the air.

([National Recycling Coalition](#))

## Economic Stimulus

### Money, Money, Free Money For Solar Power

If you start building a solar power system before December 31, 2010, you are eligible to get a grant from the Treasury worth up to 30% of what it cost you. This applies if you are a homeowner who wants to put some panels up on your roof, or if you are an entrepreneur who wants to build a vast, gigawatt-scale solar farm.

But you must begin building before the deadline.

Source: [www.EcoGeek.org](http://www.EcoGeek.org)

## Measure Your Carbon Footprint

<http://www.carbonfootprint.com/>



countries: training, development, and distribution of materials", to which 30 persons from Panama, Colombia, Argentina, Peru, Cuba and Mexico attended (see [The Nexus August 2008 issue](#)). Dr. Ken Doxsee from the University of Oregon and Dr. Jennifer Young from ACS GCI were the invited instructors. This workshop gave us the opportunity of meeting people from Panama, with whom we are partnering to develop Green Chemistry in their country this year.



Carmen Doria and Jorge Ibáñez from the Mexican Green Chemistry Chapter visited Ken Doxsee at the University of Oregon from Aug. 3-10, 2008 in order to develop High School experiments. In addition, we are organizing a workshop for Mexican High School teachers, with the academic support of the ACS and having Ken Doxsee as a guest lecturer next June, 2009.



## Upcoming Events



- **Free Pollution Prevention Workshop**- Keene State College, Keene, NH. March 20, 2009. Workshop will cover topics including the benefits of Pollution Prevention; Waste Minimization; PCBs in building materials; Managing Green buildings; and Management of Time Sensitive or Reactive Materials. Registration: [Joyce.Massicotte@unh.edu](mailto:Joyce.Massicotte@unh.edu) or call (603) 862-4029
- **EPA's P3 (People, Prosperity and the Planet)** Student Design Competition for Sustainability display – Washington, DC National Mall - April 18-20, 2009 for more information: [http://es.epa.gov/ncer/p3/fact\\_sheet.html](http://es.epa.gov/ncer/p3/fact_sheet.html)
- **Chemists Celebrate Earth Day (CCED)** Wednesday, April 22, 2009. The American Chemical Society developed this annual program in 2003 to give chemists a specific celebration for Earth Day. CCED highlights the positive impact that chemistry has on the environment. This year's theme is "*Air-The Sky's the Limit*". For more information: [www.acs.org/earthday](http://www.acs.org/earthday)
- **6<sup>th</sup> Green Chemistry and the Consumer Symposium** – Kings Manor, York, UK June 16, 2009 for more information – <http://www.york.ac.uk/res/qc/gqgreen/index.htm>
- **13th Annual Green Chemistry & Engineering Conference** - College Park, MD, June 21-26, 2009. Theme "*Innovating for the Future: Progress on the Grand Challenges in the Chemical Enterprise.*" Keynote speakers include Len Sauers, VP, Global Sustainability, The Proctor & Gamble Company, and Jean-Michel Cousteau, Founder and President, Ocean Futures Society and Exec. VP, The

Cousteau Society. [www.gcande.org](http://www.gcande.org)

- **Summer School on Green Chemistry and Sustainable Energy** – Colorado School of Mines, July 22-30, 2009. Open to graduate students and postdoctoral scholars studying in the Americas. **Apply by March 13!** For more information: [www.acs.org/greenchemistry/education](http://www.acs.org/greenchemistry/education)

Greetings!

I hope you have enjoyed this issue of *The Nexus*. I welcome your feedback and suggestions for enhancements. If you have photos of your events, or content ideas for future issues, please share them with me and I'll consider them for an upcoming issue. I look forward to hearing from you.

Warm regards,  
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