



# THE FILTER PRESS

Newsletter of the Georgia Section of the American Chemical Society

Volume 19, Number 7

**Special HERTY75 Edition**

September 2009

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## *75<sup>th</sup> Annual Herty Award Celebration*

Honoring Professor Craig L. Hill, 2009 Herty Medalist

Goodrich C. White Professor of Chemistry, Emory University

Lecture: Catalysis and Materials Challenges in Green Energy, (“Solar Fuels”)

The Georgia Section of the ACS proudly awards the 75<sup>th</sup> Charles Holmes Herty Medal to Professor Craig L. Hill, the Goodrich C. White Professor of Chemistry at Emory University. He is being recognized for his research and service contributions to the Southeast since his academic appointment at Emory in 1983. Prof. Hill has made seminal contributions to the development of catalysts including some that convert water to oxygen (required to obtain clean hydrogen fuel). His service to the Southeast includes the impact of these processes on our environment, and the substantial service he has provided to our profession through his involvement in several professional societies, funding agencies, and private foundations.

Professor Hill obtained his Ph.D. with George Whitesides at MIT and was an NSF postdoctoral fellow with Richard Holm at Stanford. He has mentored many young scholars in 25 years at Emory including nearly 100 graduate students and postdoctoral associates. In addition, Prof. Hill has chaired multiple panels, including those of the National Academy of Sciences/NRC, edited the *New Journal of Chemistry* for North America, guest-edited 9 topical issues of other journals, served on many journal advisory boards and as Chemistry Nobel Prize nominator for 16 years, chaired 5 international conferences, and assisted with many other service and teaching efforts.

(bio & abstract continued, page 3)

**Meeting/Meal details on page 5**

Please join the Women Chemists Committee **October 10<sup>th</sup>** from 10-12:30 pm for a special community project with the local Girl Scouts of Greater Atlanta. We will partner with the Girl Scouts to hold a “**Chemistry behind Cooking**” session held at the Mableton Girl Scout Camp. There will be 4 stations for the middle and high school Girl Scouts to rotate through: a cooking session, an interview with someone that works in the food industry, a discussion on special dietary needs and a discussion on the environment and food. **Volunteers are needed for all stations** as well as general volunteers for the event. Whether you’re an amateur or expert in cooking or currently work in the environmental and/or food industries, we need you to make this event a fun-filled success! If you are interested in participating in this event, please contact Lynn Sullivan at 770-250-1223 or [dsulliva@aerotech.com](mailto:dsulliva@aerotech.com).



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## The Filter Press went **GREEN!**

The Executive Committee voted that beginning with the April 2009 Filter Press, and coincident with *Chemists Celebrate Earth Day*, the Filter Press will only be distributed electronically.

If you do not have access to email, kindly provide the mailing address that you wish to be used to the editor, Lissa Dulany, 201A 5th St NE, Atlanta, GA 30308 (or by email to lissa@dgmfgmt.com) and a Local Section Volunteer will continue to mail a paper copy to you.

If you DO wish to have an electronic copy of the Filter Press, but are not currently receiving email from the Georgia Section, or wish to change the electronic address at which you are contacted, please send your preferred email address by email to hernandez@gatech.edu.



## Georgia ACS Local Section Officer Elections for the 2010 Calendar Year

Elections will be done electronically this year, with paper ballots to all who request these. Candidate biographies and the voting procedures will be published in the October edition of the Filter Press, which will be published in late September.

The slate of candidates are as follows:

Chair Elect – Deanna Morrow Hall - Corporate Information Resources, Inc.  
Lou Milakofsky - Emeritus Professor Chemistry, Penn State University

Treasurer – Susan Hornbuckle – Clayton State University

Councilor – Joe Stoner – Dekalb Habitat for Humanity  
Terry Say – Say Consulting LLC.

## THE FILTER PRESS

Newsletter of the Georgia Section of the American Chemical Society.

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(Professor Hill, continued from page 1)  
 Professor Hill's research group has made contributions in catalytic oxidation, C-H functionalization, smart (self repairing and buffering) catalysts, oxygen transfer reactions, antiviral properties of cluster molecules, and multifunctional nanomaterials. However, recent work in three areas has garnered the most activity: (1) development of the most reactive known catalysts for air-based oxidations (for removal of environmental pollutants, odors, and toxics); (2) preparation, after decades of discussion and effort with no success, a class of compounds proposed to be key intermediates in several technologies—terminal noble-metal oxo compounds; and (3) realized the only stable and soluble catalysts for oxidizing water, perhaps the limiting issue for successful solar splitting of water (producing the green sustainable fuel, hydrogen, using sunlight).

From the constant, but largely pleasant, battle with molecules and personalities, Professor Hill received the ACS Stone and Southern Chemist Awards, von Humboldt Senior Award, Sigma Xi Levy Award, USDA National Research Award, and became a Fellow of the von Humboldt Society, the American Association for the Advancement of Science and the Victorian Institute of Chemical Sciences. His is the second most cited research group (of the ~130) studying metal oxide cluster molecules. He derives joy from career mentoring, teaching young scholars how to tickle out Mother Nature's secrets and how to creatively invent. Technical policy, travel, running, climbing mountains, music and other passions shared with friends tend to consume his spare time.

Catalysis and Materials Challenges in Green Energy, ("Solar Fuels")

*Abstract to the Herty Award Lecture*

The current projections for global population

growth and associated energy needs make a fairly compelling case that before long we will need a green (sustainable, pollution-free) fuel to replace fossil fuels. Fuel (versus electricity and some other forms of energy) will be required because it is both storable and energy dense. The most evident green fuel is hydrogen from the solar splitting of water ( $\text{H}_2\text{O} + \text{sunlight} \rightarrow \text{H}_2 + \frac{1}{2} \text{O}_2$ ), but achieving this process under efficient, energy generating, and safe conditions is as challenging to the scientific community as it appears simple. The general features and challenges in solar energy conversion, with a focus solar on water splitting, will be outlined.

Perhaps the single biggest challenge in realizing useable solar fuel technology is the development of a viable (extremely stable, fast and selective) water oxidation catalyst (WOC). We have synthesized and characterized the first stable and molecular WOCs. The design concepts in this work, properties of these molecules and their incorporation into devices will be described.

Formulation and fabrication of solar water splitting devices is multi-faceted and will require the talents of research groups across the spectrum from purely synthetic and/or bio-oriented to purely physical or computational. This manifold of intellectual and technical needs defines a landscape of opportunities for researchers and educators in Georgia and the Southeast.



Charles H. Herty

**From the Chair**

Fellow chemists,

**Gone to Herty75! Hope to see you there!**

<http://chemistry.gsu.edu/ACS/Herty75/>

And mark your calendar for these and other events for the remainder of 2009 (i.e., life after Herty75):

**Green Elections** this fall. Details for the electronic election process and timetable will be included in the next Filter Press. Ballots will be mailed to local section members without email, or to those who request a traditional paper ballot. (Please contact our Newsletter coordinator, Lissa Dulany, 201A 5th St NE, Atlanta, GA 30308 (or by email to [lissa@dgfmgmt.com](mailto:lissa@dgfmgmt.com)) before 9/21/09 to request your paper ballot.)

**Wednesday, October 7<sup>th</sup>:** dinner meeting featuring **Prof. Mostafa El-Sayed**, Julius Brown Chair and Regents Professor; and Director, Laser Dynamics Laboratory at Georgia Tech.

**Saturday, October 10<sup>th</sup>:** WCC event with the Girl Scouts, “**Chemistry behind Cooking**” on page 1.

**October 18-23, 2009 is National Chemistry Week. It’s Elemental!** with events to take chemistry to students and the public. There’s a poster contest also, more information in the next edition of the Filter Press, but here’s the link to the instructions. <http://chemistry.gsu.edu/ACS/misc/NCW09Poster.pdf>

**Friday, November 6<sup>th</sup>:** professional development course **Developing Communication Strategies** at Kennesaw State University, facilitated by Kathleen Schulz. Sponsored by the Georgia ACS Local Section and a ACS National Leadership Development Grant.

**Tuesday, November 17<sup>th</sup>:** dinner meeting featuring **Prof. Melanie Cooper**, Alumni Distinguished Professor, Chemistry Education, Clemson University.

Welcome back to Fall Semester,  
Debbie Sauder ([dsauder@ggc.usg.edu](mailto:dsauder@ggc.usg.edu))

**75 Years of Herty Medalists**

by Rigoberto Hernandez

It’s hard to believe that this year marks the 75<sup>th</sup> time that the Georgia Local Section has recognized a chemist for their work and service in the Southeast. The Herty Medal is the oldest annual multi-state regional award given out by a local ACS section. Our section was prescient in recognizing Medalists not solely on the basis of their research accomplishments, but also his or her service contributions to society. Charles Holmes Herty was a successful chemistry professor (at UGA and UNC), and a successful industrial chemist who discovered how to create pulp from the southern pine tree (thus creating that industry and many jobs), and saved the turpentine industry. Later he was to be elected an ACS President, and was an architect in the establishment of the National Institutes of Health, among many other accomplishments. So it is little surprise that our Section included a balance of high-impact work and service in the prescription for the Herty Award.

To celebrate the 75<sup>th</sup> Herty Award, our Section has planned a number of events:

On September 17, 2009, we will hold a Symposium in the Wardlaw Center at Georgia Tech from 1:30PM to 5:00PM. The theme is “Chemistry for Life in the Southeast” focused on two topics: “Human Health” and “Sustainability.” These will feature remarks by past medalists: Prof. Gary B. Schuster, Prof. Isiah M. Warner, Prof. David W. Boykin, Prof. James C. Powers, Dr. F. Ivy Carroll, Prof. Luis Echegoyen, Prof. Gregory H. Robinson, Prof. Mary L. Good and Prof. Gordon L. Nelson. Questions from the audience will be entertained during two panel discussions concluding each of the topical sessions. A poster session highlighting the work of Atlanta-area doctoral and postdoctoral students will be held during the reception.

The 75<sup>th</sup> Annual Herty Awards Dinner will be held at the Georgia Tech Alumni House during the evening of September 17<sup>th</sup>. It will include the recognition of some of our Section’s accomplishments from the past year as well as featuring the Medalist’s lecture and award presentation. More details on this event may be found in this issue (see **page 5**). (Register at <http://www.tinyurl.com/herty75>.)

The Future Medalists Symposia, designed for high school students and their teachers, will be held during the morning of Friday, September 18, 2009. These two-hour sessions will include seminars by past Medalists, chemistry demonstrations, and other information about chemis-

try. Two sessions will be held at Emory University, one at Georgia Gwinnett College, one at Georgia State University, and one at Kennesaw State University. We expect to engage about 300 high school students from the Fulton, DeKalb, Gwinnett, Clayton and Cobb counties, and Decatur, Atlanta and Marietta city school districts. For more information, contact Debbie Sauder:

[dsauder@ggc.usg.edu](mailto:dsauder@ggc.usg.edu).

The Herty Medal Undergraduate Research Symposium (HMURS) will be held on during the afternoon of Friday, September 18, 2009 at Morehouse College (more details below).

This event encourages and promotes undergraduate research in the Atlanta area.

(Register at <http://www.tinyurl.com/herty75>.)

We hope that you will join us at these events, and are excited to celebrate not just Chemistry for Life in the Southeast, but also chemistry in the Atlanta area!

More information about all the Herty 75 events is available at <http://chemistry.gsu.edu/ACS/Herty75/>.

#### 4<sup>th</sup> Herty Medalist Undergraduate Research Symposium (HMURS)

In conjunction with the annual Georgia Local Section's Herty Medal presentation, the Herty Medalist Undergraduate Research Symposium will once again be held at Morehouse College on Friday, September 18, 2009. Dr. Rig Hernandez (Georgia Tech) and Dr. Brian Lawrence (Morehouse College) are the co-chairs for this event.

The featured component of HMURS is a poster session for undergraduate students. The deadline for registration and submission of abstracts is September 10. All undergraduate researchers in the chemical sciences are invited to register and present posters.

(Undergraduates who do not yet have results to present are also encouraged to register and attend HMURS.) The presenters of the winning posters will each receive \$500 travel grants that can be used to attend a future ACS meeting (even after graduation), and several presenters will win 1-year memberships to the ACS.

HMURS will include invited talks by the 2009 Herty Medalist, Prof. Craig Hill (Emory University), Prof. Wendy Kelly (Georgia Tech), Prof. Leyte Winfield (Spelman College), and Prof. Dabney Dixon (Georgia State University).

Attendance is open to all chemists. Please register at <http://tinyurl.com/herty75>. There is no fee to register, and all registered participants will receive the commemorative Herty75 lapel pin.

**Thursday, September 17, 2009**

### Catalysis and Materials Challenges in Green Energy ("Solar Fuels") Professor Craig L. Hill, Emory University

#### Program:

6:30 Arrival and reception

7:00 Dinner

8:15 Welcome and Awards, Chair of the GLS

8:25 Introduction of the Herty Medalist: Chair of the Herty Medal Committee

8:30 Herty Medalist Lecture: Prof. Craig Hill, Emory University

#### Menu: Four Courses:

1. Hors d'oeuvres (during reception), and each attendee will receive 2 tickets for complimentary beer or wine
2. Spinach Salad
3. Entrée Course (select one of these options):
  - Wild Alaskan **Salmon** with Honey and Brown Sugar Glaze
  - Hangar Filet **Steak** with Marsala Wine Sauce
  - Stuffed **Chicken** Tuscany (Spinach and Fontana Cheese)
  - Couscous and **Vegetables** (Vegan)
4. French Pastries with Coffee and Tea

#### Location:

Georgia Tech Alumni House, 190 North Avenue, Atlanta, GA 30313, <http://gtalumni.org/House/>

**Parking after 5 pm will be free in either the surface lot (east side) or Burge parking deck (west side):** <http://gtalumni.org/House/location.html>

**Cost:** Dinner is \$45 regular, and \$35 for students and high school teachers.

Payment should be made to the "Georgia Section ACS" and will be collected at the door. If you make a reservation and then don't attend, you will be charged for the meal as we have to guarantee the number of meals.

**RSVP/Register** at <http://www.tinyurl.com/herty75> & make your entrée choice. Realize that we cannot guarantee entry to unregistered attendees. All registered participants will receive a Herty75 lapel pin!

### Georgia Wins a 2009 ChemLuminary Award!

For the second year in a row, the Georgia Section was selected as a finalist for **four** National ACS ChemLuminary Awards in four specific categories are:

- **NCW (National Chemistry Week) Best High School Event**
- **Outstanding Local Section Career Program (Large to Very Large Category)**
- **Best New Public Relations Program of a Local Section**
- **Outstanding Performance by a Local Section (Large Size Category)**

On Tuesday, August 18th, recipients of the Georgia section presented a poster that described some of the events that led to the award nominations. Thanks to Don Hicks for creating the poster, which can be viewed at this link: <http://chemistry.gsu.edu/ACS/misc/ChemLuminary-ACSGLS09.pdf>. (It's a large file, so please be patient.)



Don and Connie Hicks (and Lissa Dulany in the background) loosen up after the exciting and tense ChemLuminary award ceremony...



Photographs courtesy of Peter Cutts Photography

At the ceremony, Georgia was presented the ChemLuminary award for the **Outstanding Local Section Career Program (Large to Very Large Category)**. In the photo, Terry Say (center) received the award on behalf of the Georgia Local Section from Tom Lane (left, ACS President) and Patrick Barber (right, ACS Committee on Economic and Professional Affairs [CEPA]).

**Congratulations and thanks to all the section members and volunteers responsible for these outstanding events!**

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## Become a Chemistry Ambassador – Make a Difference!

If a neighbor comes up to you at a barbeque and asks what you do for a living, do you have an answer that's comfortable for you and relevant for the neighbor?

Have you ever wanted to do a chemistry demonstration in your child's classroom or provide chemistry careers information to a high school guidance counselor, but didn't know where to find the right resources?

Do you wish to become a member of the Legislative Action Network, providing your input to policy makers on issues of importance to science research and education?

Now there is a new ACS program that links all of these activities: **Chemistry Ambassadors**. Chemistry Ambassadors invites members to help improve public awareness and appreciation for chemistry in the communities where they live. Some ACS members are already doing this on a regular basis through NCW and other outreach activities. However, we know that many of our members are not able to be active in their local sections, even though they *are* concerned about public appreciation for chemistry. They may feel they don't have time to become personally involved in making a difference. Chemistry Ambassadors is custom made to fit *your* schedule and *your* interests, no matter how little time, or how much, you can afford to spend.

More information on resources, details and opportunities to get involved are explained on the website, at [www.acs.org/chemistryambassadors](http://www.acs.org/chemistryambassadors).

Dr. David Gottfried, Georgia Tech, wrote this article after attending the presentation that described the Chemistry Ambassador program at the recent National ACS Meeting in Washington, DC.

### The “magic” and wonder of chemistry Bryan Hearn, Georgia Local Section Member Fernbank Science Center

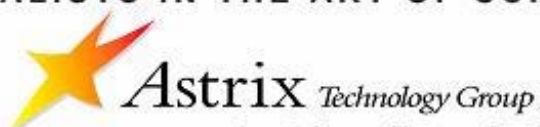
Seventeen children assembled on Saturday August 22 in the Chemistry lab at Fernbank Science Center to enjoy a chemistry fun show hosted by Dr. Bryan Hearn. Aided by his very capable daughter, Elizabeth, Dr. Bry entertained the crowd with lots of color changes, generated “clouds” of CO<sub>2</sub> for them to hold and turned liquids into solids, all while teaching some basic chemistry. He provided lists of resources available for parents to continue to the fun at home. The children enjoyed snacks and took home “goody bags” of fun chemistry items to help them remember the day. Thanks to Douglas J. Hrabe, Director of the Science Center and Mary Breen of the Fernbank staff, for all their support and assistance. Thanks to Barbara Broadway and her students from Tucker High, who packed

See picture on next page

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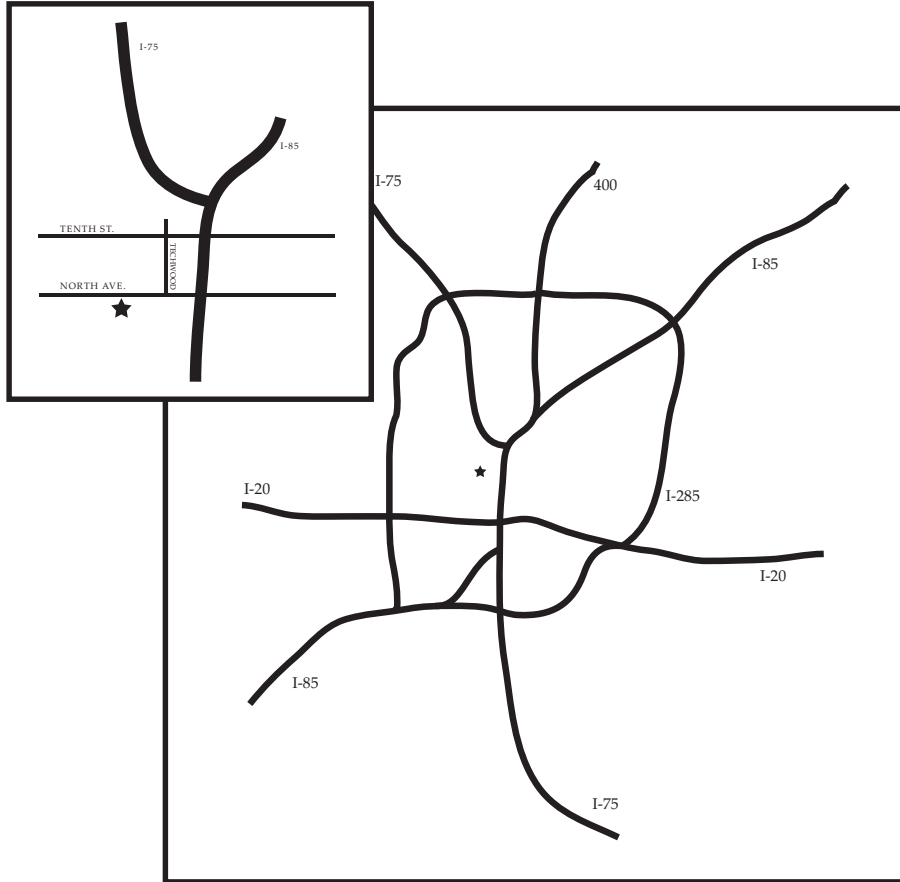
<http://chemistry.gsu.edu/ACS>

## PARKING

Parking is available during normal business hours next to the Alumni House in the Burge Deck (concrete deck off of Fowler St. on the west side of the building). After business hours, parking is available on the east side of the building as well.

## MARTA

The Alumni House is three blocks west of the North Avenue MARTA train station (on the orange line) and is on bus route #13.



### GOING SOUTH ON I-75/I-85

Take Exit #249D (North Avenue). At the top of the exit ramp, turn right onto North Avenue. Cross Techwood Drive (the first light) and continue on North Avenue. The Alumni House will be on your left, across the street from the south end of the stadium and Tech Tower Lawn.

### GOING NORTH ON I-75/I-85

Take Exit #249D (Spring Street/West Peachtree). At the top of the exit ramp, proceed through the first intersection (Spring Street). At the next intersection (West Peachtree), turn left. Continue on West Peachtree for approximately one block and turn left on North Avenue. Cross over the interstate and Techwood Drive (the first light). The Alumni House will be on your left, across the street from the south end of the stadium.

