



THE FILTER PRESS

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Special Election Edition

<http://tinyurl.com/ACSGLS-2010Election>

October 2009



ACS

Chemistry for Life™

Prof. Mostafa El-Sayed, Laser Dynamics Laboratory at Georgia Tech
CONFINING PHOTONS TO THE NANO-METER SCALE OF GOLD NANOPARTICLES:
Some Properties & Potential Applications in Material, Biological and Cancer Therapy
Wednesday, October 7, 2009

New fields such as optoelectronics, sensors, nanocatalysis, nanomotors and nano-medicine use the new exciting properties of gold and silver nanoparticles. When resonant photons are confined to the size of these nanoparticles by light absorption, they induce a coherent motion of their free electrons in the conduction band. This results in strong electromagnetic surface fields that extends beyond their surface and enhances their absorption and scattering. Radiative & Non-radiative properties as well as of any electronic system that falls within this field influence. We found that the interaction between the strong Plasmonic fields of two nanoparticles shifts their absorption wavelength according to a Universal Scaling law that can be used in determining the distance between sites in Biological systems (a new biological ruler). These surface fields are shown to affect the rates of physical and chemical processes like the relaxation of hot electrons in semiconductors⁵ and the retinal photo-isomerization primary step and the proton pump function in Bacteriorhodopsin, the other photosynthetic system in nature.

The strong scattering properties of gold nanoparticles can be used in imaging and sensitive detection of cancer cells. The strongly absorbed photon

energy is rapidly converted into heat. This localized heating of the gold nanoparticles can lead to their melting, the coherent oscillation of their lattice that can be used in Rapid light modulation; the rapid sublimation of their atoms leading to their propulsion and flying away with jet velocities or they can heat and melts attached cancer (or any sick) cells leading to their destruction and thus used in in-vivo cancer therapy.

These properties and examples of their applications will be presented and discussed.

Prof. Mostafa A. El-Sayed is the Julius Brown Chair and Regents Professor at Georgia Tech. In addition, he is the Director of the Laser Dynamics Laboratory.



He received his B.Sc. Ain Shams U. Cairo, Egypt and his Ph.D., from Florida State University.

Professor El-Sayed's research group is housed in the Laser Dynamics Laboratory (LDL) at Georgia Tech. The LDL houses (continued on page 3)

Please join the Women Chemists Committee **October 10th** 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.



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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.



Calendar of Other Upcoming Section Events:

Saturday, October 10th: 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. **See page 7** for all the specific activities in the Atlanta area!

Friday, November 6th: professional development course **Developing Communication Strategies** at location TBA, facilitated by Kathleen Schulz. Sponsored by the Georgia ACS Local Section and a ACS National Leadership Development Grant.

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

THE FILTER PRESS

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Postmaster: Send address changes to Joe Stoner, 569 Greenwood Ave., Atlanta, GA 30308.

(El-Sayed, continued from page 1) the most recent lasers and laser spectroscopic equipment for time-resolved studies in the femto-to-millisecond time scale. This equipment is utilized to investigate three areas of study (excerpted from the Georgia Tech website):

“A. Nanoscience: Synthesis and Study of the Properties of Nanomaterial of Different Shapes... Our group is making and studying the properties of these nanometer materials.

B. Nanotechnology: Potential Use of Nanoparticles in: a) Nanomedicine: Diagnostics and Selective Photothermal Therapy of Cancer...

b) Nano Catalysis: Shape Dependent Catalysis: Due to their large surface to volume ratio, nanoparticles are expected to be good catalysts...

c) NanoPhotonics: Modulating the Optical Properties of Gold and Silver (Plasmonic) Nanoparticles by their Coherent Lattice.”

Visit the LDL website for a more expanded description of the research, the group and a full list of publications (<http://ldl.gatech.edu>).

Dr. El-Sayed is an elected member of the U.S. National Academy of Sciences; an elected fellow of the American Academy of Arts and Science, the AAAS , and the American Physical Society. He is an associate member of the Third World Academy of Sciences. Dr. El-Sayad received the 2001 ACS Langmuir National Award in Chemical Physics, the 1990 King Faisal International Prize in Sciences and several prestigious ACS Local Section Awards.

October Meeting: Wednesday, October 7th

Confining Photons to the Nano-meter scale of Gold Nanoparticles
 Prof. Mostafa El-Sayed
 Laser Dynamics Laboratory at Georgia Tech

Location: [Mary Mac’s Tea Room](#)
 224 Ponce de Leon Ave
 Atlanta, GA 30308
 (404) 876-1800

Directions available [here](#). www.marymacs.com

- 6:30 Meet and mingle (beverages available for purchase)
- 7:00 Dinner buffet
- 8:00 Meeting and speaker

Buffet Menu

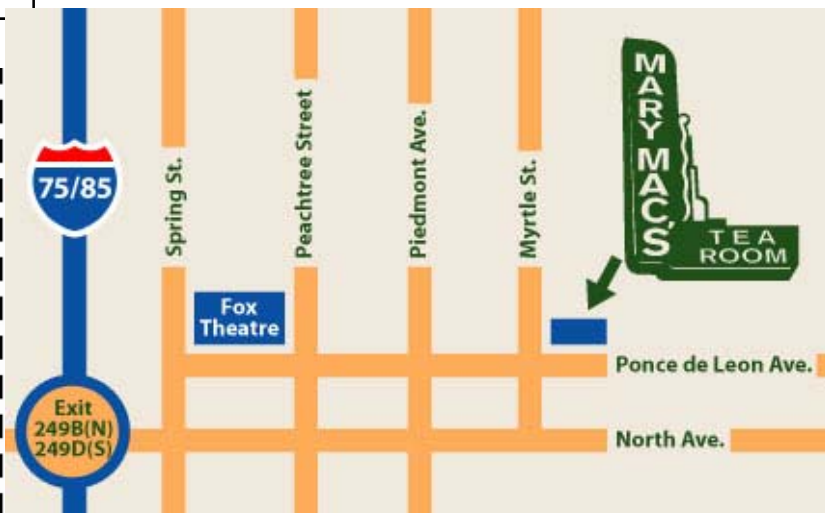
Entrées: Southern Fried Chicken and Slow-Cooked BBQ Pork

Sides: Macaroni and Cheese, Squash Souffle, Steamed Broccoli (all vegetarian)

Dessert: Bread Pudding with Wine Sauce Assorted Breads, Tea, and Coffee

RSVP by email to David Gottfried [david.gottfried@nrc.gatech.edu] by 5:00 pm on Wednesday, September 30.

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dmhall@mindspring.com • www.chemconsultants.org/resumes/hall_dm.html



From the Chair

Fellow chemists,

Wow! I wish you all had the opportunity to participate in one (or more!) of the Herty75 outreach activities! In our membership survey almost two years ago, "outreach" was the activity in which the most members expressed an interest. The combined Herty 75 events were outreach of an unprecedented level!

The Herty75 celebration (at least to my mind!) was kicked off with a very successful **Chemistry Fun Day** at the **Fernbank Science Center**. The event was fully subscribed in only 1 week. Dr. Bryan Hearn and his able assistant (and daughter) Elizabeth entertained 22 students age 5-10 on Saturday 8/21. One little girl-whose big brothers had terrified her by telling her "chemists explode things", came in tears, but left with a big smile, deciding chemistry was ok, and Milli Mole was lots of fun!

The second Herty75 preliminary event took our section historian (and ACS tour speaker!) Don Hicks to address the teachers of **ADK service sorority on Saturday 9/12**.

What better audience than teachers to hear about the contributions of Herty- and spread the word about the role of chemistry in history and economic development?



Charles H. Herty

The Herty events themselves were spectacularly successful. Rig Hernandez and his committee deserve all our thanks for convincing 13 former Herty medalists to return and participate in several of the events last week. The 75th **Herty Medal** Symposium on Thursday afternoon drew 54 posters from graduate student researchers at institutions across the metro area, and was enhanced by a panel discussion involving 7 Herty medalists addressing the issues of "Chemistry and Energy" and "Chemistry and Health". The **75th Herty Banquet** Thursday evening honoring Craig Hill, Goodrich C. White Professor of Inorganic Chemistry,

Emory University, as he accepted the 75th Herty Medal was attended by a record 75 individuals, including the 13 former medalists- truly an all-star event!

Thanks to medalists Craig Hill, Luis Eschegoyen, Isaih Warner, and Mary Good who rose way too early Friday morning to continue the Herty celebration by addressing some 350 metro area high school students and their teachers who gathered at 4 venues (Emory University, Georgia Gwinnett College, Georgia State University and Kennesaw State University) for the **Herty75 Future Medalists' Symposia**. The positive example of Charles Herty, the compelling stories of the medalists, and tours of the college sites left lasting impressions on the students. Chemistry goodie bags assembled by Barbara Broadway, Tucker HS, and her students were distributed to all student participants.

Friday afternoon, the 4th annual **Herty Medalist Undergraduate Research Symposium** was held at Morehouse. Some 23 undergraduate researchers from across the region presented posters of their undergraduate research, heard an address by Dr. Hill, and got tips on applying to grad school from Dabney Dixon, GSU. Two grand prize winners received \$500 travel grants from the section to allow them to attend ACS meetings to present their results. Five other students were selected to receive one year memberships in the ACS. We look for them at a local meeting, soon!

So- do you really want to get involved in outreach??? We continue to plan for a number of **National Chemistry Week** events in October to take chemistry to students and the public. If you have questions about how to get involved, or an idea for a great outreach event, please contact me. As this column demonstrates, we have a great and supportive local section membership working to support you- and working to spread the word about the importance of Chemistry for Life in the Southeast!

And remember to vote in the local section elections:

<http://tinyurl.com/ACSGLS-2010Election>

Debbie Sauder (dsauder@ggc.usg.edu)

P.S. Like the paper chair I found to honor Herty's legacy? Its from www.easybizchina.com/.../Paper_Model_Toy-1.html

[More details from the Herty 75 events will be included in the next edition of the Filter Press.]

Georgia Local Section Elections

The nominating committee of the Georgia local section presents the following slate of candidates for consideration for local section officers for 2010:

Chair Elect —

Deanna Morrow Hall — Corporate Information Resources, Inc. — dmhall@mindspring.com

Lou Milakofsky — Emeritus Professor Chemistry, Penn State University — lxm15@psu.edu

Treasurer —

Susan Hornbuckle — Clayton State University — susanhornbuckle@mail.clayton.edu

Councilor —

Joe Stoner — Dekalb Habitat for Humanity — joestoner@bellsouth.net

Terry Say — Say Consulting LLC. — terrysay@aol.com

To participate in the electronic election via the Survey Monkey website, use this link (or copy/paste this address into your web browser): <http://tinyurl.com/ACSGLS-2010Election>

Paper Ballots have been mailed to all who requested these, and to those members without email. Biographies of the candidates are below (continued on page 6).

Candidates for Chair Elect:

MILAKOFSKY, Lou Professor Emeritus, Penn State University

Born: 1941

Academic Record: Temple University, B.S. in Chemistry, 1962; University of Washington-Seattle, Ph.D. in Organic Chemistry, 1967; Post-doctoral appointment and Instructor, Indiana University-Bloomington, 1967-68 .

Honors: None.

Professional Positions (last ten years): Penn State University: Professor of Chemistry, 7/95-present; Science Division Head, 8/01-6/04; Emeritus Professor of Chemistry, 7/04-present. Thomas Jefferson University (Philadelphia, PA): Adjunct Associate Professor of Pharmacology, 9/95-7/00. Kennesaw State University: Adjunct Professor of Chemistry, 9/04-12/04. Emory University: Adjunct Professor of Chemistry, 5/1/05-5/31/05, 1/06-6/06. Georgia Perimeter College-Clarkston, Adjunct Professor of Chemistry, 1/08-4/08. Georgia State University, Visiting Lecturer of Chemistry, 1/08-present.

Service in ACS Offices: Member, American Chemical Society and Division of Chemical Education, for 46 years.

Member: Reading Chemists' Club, President (1976); National Science Teachers Association; American Society for the Advancement of Science.

Related Activities: 35 professional papers; NSF Peer Review Panelist (1978, 1980); Reviewer for Journal of Chemical Education (1979-present) and Chest (1991); NSF-Peer Review Panelist for CCLI grants (Feb., 2004); Consultant-Expert Witness (Chemistry) in drug-related case (July, 1980); Consultant-HPLC Expert for Prof. W. H. Vogel, Pharmacology Department, Thomas Jefferson University, Philadelphia, PA (1984-2000); Instructor, BCIU Summer Science Program (1986, 1988); Recipient of two major national grants: "The effects of human ARDS on CA and Amino Acids", Anesthesia Research Foundation, Wilmington, DE (1993-96), Co-PI W. H. Vogel, \$53, 374 and "Broadening Interdisciplinary Undergraduate Science Through Acquisition of a Moderate Field NMR: Adapting and Implementing Previously Developed Activities", NSF CCLI-ADAPTATION AND IMPLEMENTATION, PI, 8/03-7/06, \$134,400

MORROW HALL, Deanna Corporate Information Resources, Inc.

Born: 1941

Academic Record: University of Saskatchewan, Saskatoon, SK, 1962, B.A., Major - Chemistry; Minor - Russian; Case Western Reserve University, Cleveland, OH, 1969, M.S. Library/Information Science.

Honors: Saskatchewan Government Scholarship.

Professional Positions (last ten years): Corporate Information Resources, Inc., President, Sep. 1994 – Nov. 2000; BioLab, Inc., Knowledge Center Manager, Dec. 2000 – July 2006; Senior Scientist, Aug. 2006 - May 2007; Corporate Information Resources, Inc., President, Nov. 2007 - present.

Service in ACS Offices: Member ACS since 1964.

Member: American Chemical Society; American Society for Information Science & Technology; Special Libraries Association.

Related Activities: None.

(continued on page 6)

(continued from page 5)

Candidate for Treasurer:

HORNBUCKLE, Susan Clayton State University

Born: 1963

Academic Record: BS in Chemistry, Magna Cum Laude, Columbus State University, 1985; MS in Organic Chemistry, Auburn University, with Peter D. Livant, 1987; PhD in Organic Chemistry, Emory University, with Albert Padwa, 1992.

Honors: None

Professional Positions (last ten years): Associate Professor of Chemistry - Clayton State University - (1999 - present). At CSU at total of 17 years.

Service in ACS Offices: Member ACS since 1987. Alternate Councilor for the Georgia Local Section - 1994-2002.

Member: Herty Award Selection Committee - Member 1998 - 2002; Herty Award Selection Committee - Chair 1999; Organic Division of the American Chemical Society - Member; Chemical Education Division of the American Chemical Society - Member

Related Activities: Organized and presided over a symposium at the 20th Biennial Conference on Chemical Education - BCCE2008 - July 2008; Organized and presided over a symposium at the 237th American Chemical Society National Meeting in Salt Lake City, Utah - March 2009; Currently organizing symposia for the 21st Biennial Conference on Chemical Education - BCCE2010 and the 239th American Chemical Society National Meeting - Spring 2010.

Recent presentation of papers at ACS meetings: 234th American Chemical Society National, Boston, MA, August 2007; 235th American Chemical Society National, New Orleans, LA, April 2008; 20th Biennial Conference on Chemical Education - Bloomington, IN, July 2009; 237th American Chemical Society National, Salt Lake City, UT, March 2009.

Candidates for Councilor:

SAY, Terry Say Consulting LLC.

Born: 1947

Academic Record: MSc. Polymer Science, 1983, Stellenbosch University, Stellenbosch, South Africa; BSc. (First Class Honors), 1968, Sussex University, Brighton, England.

Honors: None.

Professional Positions (last ten years): 2005-present - Principal, Say Consulting LLC.;

2003-2005 - Vice President Technology, Octel America Inc.; 2001-2003 - Manager, Industrial Partners Program, Particle Engineering Research Center, University of Florida;

1998-2003 - Director of Technology, Vinings Industries, Inc.

Service in ACS Offices: Member ACS since 1986. *Georgia Section:* Chair-Elect, 1999; Chair, 2000; Chair-Elect, 2007; Chair, 2008; Past Chair, 2009.

Member: Fellow of the Royal Society of Chemistry, Chartered Chemist, Member since 1968.

Related Activities: None.

STONER, Joseph P. Habitat for Humanity-Dekalb, Decatur, GA.

Born: 1944

Academic Record: Georgia Institute of Technology, BCHE, 1966; University of Georgia, MBA, 1971.

Honors: Phi Kappa Phi; Beta Gamma Sigma; Recipient, Director's Award for Advancing ACS Public Policy in R&D Funding, 1998; Georgia Tech Alumni Association Ramblin' Wreck Volunteer Award, 1998.

Professional Positions (last ten years): Habitat for Humanity-Dekalb, Executive Director, 2008-2009, Resource Development Manager, 2005-2008; Alcott Chromatography, Sales Manager, 2002-2005; PerkinElmer Instruments, Sales Specialist, 2001; Shimadzu Scientific Instruments, Sales Engineer, 1991-2000.

Service in ACS Offices: Member ACS since 1972. *Georgia Section:* Councilor, 2007-present, Secretary, 2004-2006, Chair, 2003; Chair-Elect, 2002, Nominating Committee, 2007-2008, Committee on Legislative & Government Affairs, Member, 2000-2001. *New Jersey Section:* Chair, 1995; Chair-elect, 1994; Councilor, 1994-96, 1998-99; Public Affairs Committee 1995-2000; Continuing Education Committee 1993; Nominating Committee 1992, 1997-98; Chromatography Topical Group, Chair, 1992-93; Treasurer 1991-92; Secretary 1990-91; Executive Committee 1988-94. *National:* Budget & Finance Committee, 2009-present, Committee on Economic & Professional Activities, 2008-present, 1999, 1995-96; Chair, Sub-committee on Professional Standards & Ethics, 1996; Chair, Sub-Committee on Policy, 1999. Chair, Middle Atlantic Region Caucus, 1995-96.

Member: ACS Division on Professional Relations.

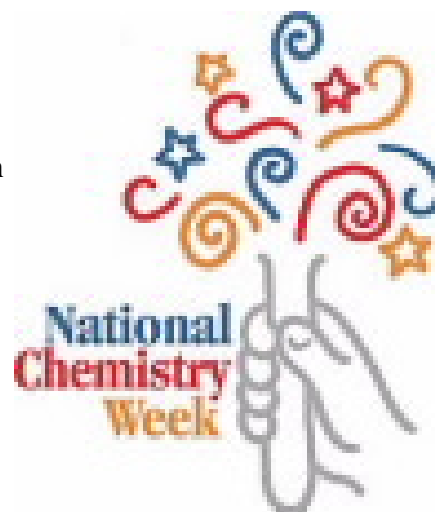
Related Activities: Common Cause Georgia, Vice Chairman, Leadership Dekalb, Class of 2009.

Celebrate National Chemistry Week (NCW) 2009!

Theme: "Chemistry—It's Elemental!"

October 18-24, 2009

The Georgia Section is promoting a wide array of activities to help everyone celebrate the importance of chemistry during this year's National Chemistry Week, October 18-24. 2009 marks the 140th anniversary of Mendeleev's Periodic Table, so this year's theme ("Chemistry---It's Elemental!") focuses on the elements. Information about how you can become involved in NCW is available at www.acs.org/ncw. The Georgia Section will be participating in the national NCW Poster contest (for more information, see www.acs.org/ncw and look under the "Students and Educators" tab on the left). Each school may submit one entry per category in the Georgia Section contest; entries must be received by Tuesday, October 27, and may be sent to Prof. David Sherrill, School of Chemistry and Biochemistry, Georgia Institute of Technology, 901 Atlantic Drive NW, Atlanta, GA 30332-0400.



This year, the Georgia Section is sending out NCW "Care Packages" with educational materials and give-aways to students, and it is coordinating visits by Georgia Tech students to local schools for chemistry demonstration shows (please contact David Sherrill, sherrill@gatech.edu, if you are not already on our teachers' contact list). Additional activities for the week of NCW include the following:

October 20: Science Café at Fernbank Science Center, tentatively scheduled for 6-8pm. Joyce Palmer and David Gottfried will be talking about nanotechnology in research and the real world. See <http://www.fernbank.edu/> or contact Mary Breen for more details (MARY_BREEN@fc.dekalb.k12.ga.us).

October 21: Georgia Tech radio station WREK (91.1 FM) will broadcast a special NCW episode of Inside the Black Box with Prof. Pete Ludovice on the topic, "Chemistry: What is it Good For?" The broadcast (12-1 pm) will feature a panel of chemists and questions from high school students participating live via teleconference.

October 22: Students from three area high schools will be visiting Georgia Tech for demonstrations and to talk with chemists.

October 24: Fernbank Science Center will host hands-on chemistry activities from 11am-4pm. See <http://www.fernbank.edu/> or contact Mary Breen (MARY_BREEN@fc.dekalb.k12.ga.us) for more details.

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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.

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.

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