A section of a human ovary with an ovarian cyst containing cancerous cells (photo by Nathan Bowen, a Georgia Tech Research Scientist.)
You will have been at GA Tech for 4 years in August. What prompted you to come to GA Tech?

In 2004 I was selected to be a member of an external review committee invited to Georgia Tech to evaluate the School of Biology and make recommendations to the Dean and Provost as to how the School might become a top tier program within 10 years. At the time, I was Head of the Department of Genetics at UGA and knew little about the School of Biology at Tech. At UGA I had just started drafting a ten year plan for the genetics department and I had pretty much convinced myself that future major breakthroughs in the field of biology would come through the integration of the biological sciences with areas not traditionally associated with biology, like the computational sciences and engineering. Serving on the review committee provided me with a great opportunity to learn more about GA Tech, and I left tremendously impressed with the potential here for growth in the area of biological sciences. I think all of the committee members left with the similar feeling that future major breakthroughs in the field of biology would come through the integration of the biological sciences with areas not traditionally associated with biology, like the computational sciences and engineering. Serving on the review committee provided me with a great opportunity to learn more about GA Tech, and I left tremendously impressed with the potential here for growth in the area of biological sciences. I think all of the committee members left with the similar feeling that given the right direction and resources, the School of Biology really did have the potential to become a leading program over the next decade. About a year later, I was encouraged to apply for the position of Chair by one of the School’s faculty members.

The School of Biology is one of the leading advocates for the Systems Biology initiative on campus. What is your definition of “systems biology,” and why do you think this is an area in which GA Tech should be investing in future years?

Systems Biology is a “top down” approach to biology where we look at living systems from a holistic perspective recognizing that individual components, like the proteins contained within a cell, do not operate in isolation from one another, but rather interact in complex ways to effect biological functions. In the field of molecular biology, a systems approach has only become possible in recent years with the advent of new high-throughput technologies that allow us to view the functions of multiple cell components in a single experiment. These high-throughput technologies generate tremendously large volumes of complex data that require sophisticated computer analyses in order to derive meaningful conclusions. Future molecular biological research will be highly integrative in nature combining expertise in the computer sciences and engineering with the more traditional approaches that have been used by molecular biologists over the past two decades. I think Georgia Tech is an ideal environment in which to build a world-class program in systems biology because of the established strengths we already have in the computer sciences and engineering.

How is “systems biology” impacting the direction of future growth in the School of Biology?

While a systems approach to biological research is new to molecular biologists, it is not new to ecologists who have long been studying communities of organisms within the context of their relationship to the environment. In the School of Biology, we are using “Systems Biology” as a unifying concept to foster a sense of cohesiveness among the diverse spectra of biological research conducted by our faculty. In hiring new faculty, whether ecologists, evolutionists, molecular biologists, structural biologists or bioinformaticists, we are seeking individuals who are taking a systems approach and whose research is integrative in nature.

In addition to being Chair of the School of Biology, you also serve as the Chief Scientific Officer of the Ovarian Cancer Institute. What is the Ovarian Cancer Institute, and how did you become involved?

The Ovarian Cancer Institute is a non-profit organization started in 1999 by Dr. Benedict Benigno, a well known Atlanta surgeon, who specializes in ovarian cancer and other gynecological oncologies. Dr. Benigno was former Head of
Gynecological Oncology at Emory Medical School but left about 30 years ago to start a private practice. Dr. Benigno and his colleagues currently have the largest gynecological oncology practice in the southeast and perform more ovarian cancer surgeries per year than many of the major cancer centers in the United States. Shortly before I accepted my current position at Georgia Tech, Dr. Benigno asked me if I would be willing to develop a research arm of the Ovarian Cancer Institute. Although I was formally trained as a geneticist and not as a cancer biologist, some of the research I was engaged in involved the kinds of genomic instabilities that are often associated with early staged cancers. For this reason, I was becoming very interested in the genetic basis of cancer and saw this as a good opportunity to get directly involved in cancer research. The OCI research laboratories are now part of Georgia Tech.

Cancer research is a highly competitive field. How do you expect to be competitive with major cancer centers throughout the United States and the rest of the world?

If we faced off against the major cancer centers by trying to do the same things they are doing, we would not be competitive. What we’re trying to do is to take novel, high risk approaches to cancer research that are not being taken at mainstream medical centers. We are employing a systems approach to cancer research and taking advantage of the strengths we have here at Georgia Tech by integrating the computational sciences and engineering into our research program in novel ways.

Can you give an example of a novel approach to the development of a potential new therapy for ovarian cancer that you are currently working on?

Sure, but first I need to give you a little background information. Cells normally communicate with one another by sending chemical messages in the form of “signaling proteins” that bind to specific “receptor proteins” on the surface of those cells meant to receive the message. We have recently identified a unique “receptor protein” present on the surface of ovarian cancer cells and have synthesized a peptide that we know binds tightly to this receptor. In collaboration with Professor John Zhang, a material scientist in the School of Chemistry & Biochemistry, we have attached this “signaling peptide” to nanoscale magnetic beads previously developed in Dr. Zhang’s laboratory.

One of the unfortunate features of ovarian cancer is that cells regularly slough off the tumor into the patient’s abdominal cavity. From there, the cancer cells can easily spread to the liver and other internal organs making successful treatment extremely difficult. This is one of the primary reasons why only about 25% of ovarian cancer patients survive more than 5 years after diagnosis. Dr. Zhang’s student, Ken Scarberry, and Dr. Erin Dickerson, a Research Scientist in my lab, have recently shown that the modified magnetic beads will bind to free-floating ovarian cancer cells in the abdomens of experimental animals and can be subsequently retrieved or collected using a magnetic device. Thus, we have developed a method to remove free-floating cancers cells from the abdominal cavity before they can spread to internal organs. If all goes well, this method may provide a novel approach to the treatment of ovarian cancer.
well, this technology will go into Phase I trials in humans within the next few years.

Using a similar approach, we have been working with Dr. Andrew Lyon in the School of Chemistry & Biochemistry to attach our peptide to nanoscale hydrogels that can be filled with various chemotherapeutic agents and specifically directed to ovarian cancer cells. In this way, we hope to develop more effective chemotherapeutic treatments without the residual negative side effects typically associated with chemotherapy.

In a third project, we are working with Dr. Jeff Skolnick, a computational structural biologist and Director of the Center for the Study of Systems Biology, to determine to what extent cancer may be a metabolic disease. Dr. Skolnick’s group uses data we have generated on gene expression differences between cancer and normal ovarian cells to make predictions as to metabolic imbalances that may be present in the cancer cells. We have been testing some of Dr. Skolnick’s predictions by supplementing cancer cells with metabolites predicted to be abnormally low and we have seen some dramatic reductions in cancer cell growth—in some cases much better than seen with treatment of the same cells with toxic chemotherapeutic agents in current clinical use. I think this is going to be an extremely promising line of investigation in the future.

Ovarian cancer is sometimes called the “silent killer” because it is often not diagnosed until very late in its progression. Are you also working on the development of better ways to detect ovarian cancer at early stages of the disease?

Yes, we are currently working closely with Dr. Facundo Fernandez, a mass spectrometry expert in the School of Chemistry & Biochemistry, to detect early diagnostic biomarkers of ovarian cancer that we believe are present in the blood of women long before they display physical symptoms of the disease. The initial results have been extremely promising and are currently being prepared for publication. Using the results of these and related studies, we have recently initiated collaborations with Dr. James Meindl, a micro-electronics engineer and Director of the NanoTechnology Center, to develop an “in home” device that will allow women to check on a monthly basis for the early stage onset of ovarian cancer from a single drop of blood.

What do you see as the future of the Ovarian Cancer Institute laboratory at Georgia Tech?

I think that many aspects of the integrated systems approach we have been taking to ovarian cancer can be productively applied to other cancers and indeed to a wide variety of diseases. For example, we think the mass spectrometric analysis of blood that has been successful for us in identifying early biomarkers of ovarian cancer can equally well be used for the early diagnosis of other diseases. In collaboration with physicians at St. Joseph’s Hospital here in Atlanta, we will soon begin examining the blood of lung cancer and heart disease patients to see if we can identify early biomarkers of these diseases. In the long run, I think Georgia Tech has the potential to develop an integrative systems medical institute, perhaps in partnership with Emory University, that will integrate the strengths we have here at Tech with the medical expertise at Emory and elsewhere in Atlanta to come up with novel diagnostic and therapeutic devices. In this sense, I see the Ovarian Cancer Institute as a paradigm in which to establish the “proof of concept” that a truly integrated systems approach to disease diagnostics and treatment is the wave of the future. I think Georgia Tech is well positioned to be riding on the leading edge of that wave.

Sincerely,
Paul Houston
Dean, College of Sciences
Alumnus Profile

Alumnus William "Larry" Lawrence has come a long way since his days as a student in the College of Sciences’ Applied Biology program. Back then, Lawrence recalls the School of Biology was smaller than it is now. "Just the growth in the School of Biology is very pleasing and it’s exhibited by not only the new buildings—like the Molecular Science and Engineering Building—but the growth in students, faculty and research," Lawrence says. "I’m very proud of that." He graduated from Georgia Tech with a B.S. degree in Applied Biology in 1974. Lawrence is now on the Advisory Board for the College of Sciences and an advisor to Georgia Tech’s Ovarian Cancer Institute.

For Lawrence, deciding which career to pursue after college was not a difficult decision to make. Lawrence was married and worked air freight jobs at the Hartsfield Atlanta Airport and packed orders in an industrial uniform distribution warehouse while attending Georgia Tech. His wife also worked and attended Georgia State University. The couple’s first son was born during Lawrence’s junior year of college. Changing diapers and helping to provide financially for his family would change the path of his life for the better.

Having the extra responsibility of taking care of a child helped Lawrence determine where he would work after graduation. Lawrence managed to find a way to blend his background in applied biology with sales. A pharmacist friend of his had suggested that Lawrence use his applied biology degree to work in sales for a pharmaceutical company because of his ability to communicate very well with people. His first job was with Riker Laboratories, a 3M Company subsidiary, as a pharmaceutical sales representative. He worked there for five years before moving on to GlaxoSmithKline. Back in 1979, the company was Glaxo Inc., and was just beginning its U.S. operations. He moved up the ranks in the company, holding positions ranging from sales representative to director of national accounts.

Lawrence’s interest in biotechnology began as a student at Tech, when a professor suggested that he read the book, The Double Helix, by James Watson. “That got me interested in the possibilities of DNA and the scientific and commercial side of DNA—the possible application of understanding the DNA molecule in medicine,” says Lawrence. In the mid-80s, he started to read up on the biotech industry. In 1988, Lawrence went to go work for Amgen, a biotech company. Back then, it was a start up company; it is now a leading company throughout the world in developing oncology products. Lawrence was regional sales director of the East Coast, followed by director of national accounts. He worked there for 12 years.

As Lawrence reflects on his career experiences, he values the education he received at Georgia Tech. “One thing that I learned at Tech was the scientific method. At Amgen, even in the commercial side in sales and marketing, we talked about the scientific method a lot,” Lawrence says. “At Amgen, we based a lot of our business on just very much the scientific method and even in sales, we would run a hypothesis on maybe our customers need this or maybe this is the best approach for [our sales].”

In 2000, Lawrence and his family moved from Thousand Oaks, California back to Atlanta, Georgia. He decided to move for family-related reasons and began his current position as an affiliate consultant for BioStrategies Group. He works with mostly small to mid-sized biotech companies and some pharmaceutical companies that are developing medicines for cancer. “We advise companies that are developing their first product,” Lawrence says. “We give them advice on how they should go about commercializing their product.” Some issues Lawrence discusses with clients are how to market, license, and price their products; he also discusses with clients the best approach to taking products to the market. He also works with businesses already on the market needing help in redesigning their commercial approach.

In recent years, Lawrence has delighted in merging his career interests in biotechnology with his enthusiasm for Georgia Tech. He currently serves on the Advisory Board for the College of Sciences. He is also a benefactor and advisor to the Ovarian Cancer Institute (OCI) at Georgia Tech. He and his wife, Beth, have donated to the program. Lawrence also routinely discusses the latest OCI research with Dr. John McDonald, OCI chief research scientist, professor, and chair of the School of Biology. OCI is headed by Dr. John McDonald and Dr. Benedict Benigno, a gynecologic oncologist.

What particularly attracted Lawrence to OCI was its commitment to developing an early detection method for ovarian cancer. According to the Ovarian Cancer Institute, approximately 80,000 women in the U.S. are diagnosed with ovarian cancer each year. Only about half of them survive. However, the 5-year survival rate for women diagnosed early with ovarian cancer is 90%.

Lawrence is concerned about the high mortality rates, which is why he finds the research at OCI to be crucial. His enthusiasm for the Center is obvious. “If you catch ovarian cancer early enough, there is a high cure rate,” Lawrence says. “The theory is if there is an early detection system for ovarian cancer, the outcome would be pretty dramatic.” He’s spent a career in the commercial side of biotechnology and enjoys giving back to the field. “I was impressed with the enthusiasm and passion of the researchers that are in this research at Georgia Tech, and I was impressed with John McDonald and what he believes they have a good chance in accomplishing,” says Lawrence.

Lawrence enjoys giving back to the school that helped shape his career. “Georgia Tech prepares you for your career—whatever it’s going to be because you learn everything as far as organization skills, perseverance,” he said. “I really believe that Georgia Tech really prepares you to have an organized approach to your career. I’m just really proud to be a graduate of Georgia Tech.”

...Tech really prepares you to have an organized approach to your career.”
Our alumni and friends carry out a vital role in shaping the future of the College of Sciences. Your desire to make a gift to College of Sciences is created from a charitable motivation, and your financial generosity allows the College to provide much needed support for students, faculty, or the construction of new facilities.

Gift planning helps you, the donor, determine how you prefer to make a significant gift. It also serves as a vehicle to aid in your achievement of personal financial goals. How to make the gift, when to make it, and with what assets are three essential considerations. The tax law is aimed at encouraging individuals to make gifts in certain ways, and the process of gift planning involves finding the optimum way for you to carry out your charitable intent.

Most of you know that an outright gift provides needed support, as well as an immediate tax deduction. Outright gifts allow the College the capacity to utilize the gift immediately. These gifts most often provide you with an immediate tax deduction. Some examples of outright gifts include cash, securities, real estate, and tangible personal property. Additionally, well-timed outright gifts of highly appreciated assets can avoid capital gains taxes while achieving philanthropic goals immediately.

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Gifts of discretionary cash, highly appreciated securities, and other assets to the College of Sciences, offer several ways for you to obtain a life income, a current deduction and benefit the College of Sciences in the future. Both fixed and variable income arrangements are possible as the donor chooses. The best arrangement depends on assets and family financial plans and works best for people with a large appreciated asset which, if sold, would generate large capital-gains taxes. These gift vehicles are referred to as charitable gift annuities and charitable remainder trusts.

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As we confront our future challenges, we know that the generosity of our alumni and friends will help ensure excellence in the College of Sciences—either today or at a time in the future. Gift planning allows you to make a significant difference for our students and faculty while providing tangible financial benefits for yourself.

There are various ways that your gift to the College of Sciences can blend with your own financial needs. For more detailed information about gift planning, consult your financial advisor or you may contact

**Phil Bonfiglio,**
**Director of Development**

at 404-894-3529 or email at philip.bonfiglio@cos.gatech.edu.

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Successful Giving
Most drugs are not perfect. For example, cancer patients undergo chemotherapy to kill the diseased cells, but the drugs do not completely distinguish “bad” versus “good” cells. Systems biologists, like College of Sciences Professor and Smithgall Chair in Molecular Cell Biology Alfred H. Merrill Jr., are developing new ways to understand the differences between cells to facilitate discovery of more specific treatments and even how to prevent disease.

A systems biologist studies complex interactions in biological systems, and Georgia Tech is rapidly becoming a leader in this relatively new field by assembling multidisciplinary teams of researchers who use this approach. Their tools are the ‘omics’—genomics, proteomics, and metabolomics—methods that attempt to quantify every gene, protein, and metabolite in a biological system. Then the systems biologist develops models to understand how all these components of cells are interconnected.

Merrill’s laboratory is developing the “omic” for a group of molecules called sphingolipids. “Sphingolipids are basically a kind of ‘fat,’ like cholesterol, but with such diverse structures that, by our estimate, there are many thousands of different molecular species,” Merrill says. “There are so many because sphingolipids not only define the properties of cell membranes—the ‘walls’ around cells and intracellular structures—but also serve as cell ‘signals’ that control vital functions, from cell growth to cell death.”

This effort is being conducted as part of a national, NIH-funded consortium to analyze all of the lipids of cells—the “LIPID MAP” (see www.lipidmaps.org for more information)—and by the recent establishment of a new Center for Bio-imaging Mass Spectrometry at Georgia Tech (see http://web.chemistry.gatech.edu/~bims/) with Cameron Sullards, Facundo Fernandez, Thom Orlando, May Wang, and others from both the Colleges of Sciences and Engineering.

Using “sphingolipidomics,” Merrill and colleagues are also uncovering new disease relationships and strategies to prevent and fight disease. In collaboration with Ron Riley at the USDA labs in Athens, Georgia, they discovered the first diseases attributable to the disruption of sphingolipid biosynthesis by contaminants in moldy corn. And, as predicted for such a complex system, they have found that this disruption has widespread consequences—from organ damage to production of birth defects or cancer. With collaborators at Emory University, they have found that some sphingolipids can have the opposite effect—to reduce the development of colon and prostate cancer. Ongoing studies are evaluating these as a new category of anti-cancer agents.

These health-related “spin offs” from his basic research have brought Merrill’s career full circle. He first decided to study bioscience after a summer research program for high school students at Virginia Tech, where his project concerned how another mycotoxin, called aflatoxin, causes liver cancer. At the time, too little was known about fundamental cell biology for that work to advance far, so he pursued basic research during his training at Cornell and Duke University. After 20 years as a faculty member at Emory University, in 2001 he joined the School of Biology and the Petit Institute for Bioengineering and Bioscience at Georgia Tech. “Although it has always been the goal of our basic research to be useful some day, it has been rewarding to find that it has already produced a better understanding of both mycotoxins and cancer.”

Merrill is appreciative of support from the NIH, the Smithgall Institute for his endowed chair at Georgia Tech, and the many others who have made this research possible. This includes his wife Linda, who is director of music for St. James Methodist Church in Atlanta, his son David, who works for IBM, and daughter Kate, who works with the nonprofit Heifer International.

For more information about Dr. Merrill’s work, visit http://www.biology.gatech.edu/faculty/al-merrill/
Faculty Profile

Julia Kubanek: Deciphering the Language and Cues of the Marine World

By Sarah Banick

Visitors to Florida’s beaches sometimes find their vacations disturbed by “red tide,” the bloom of a microscopic organism that causes skin irritation and respiratory problems such as coughing, sneezing, and tearing. The effects of the tides’ toxins are much harsher on fish and marine mammals, with fatal consequences that upset the delicate balance of the ocean’s eco-system. In recent years, there has been a marked increase in the presence of the tides. Scientists theorize this increase may be the effect of global warming or pollutants released by fertilizers and other chemical sources.

College of Sciences Associate Professor Julia Kubanek is one of the scientists looking for answers. Instead of finding ways to eradicate the red tide, Kubanek wants to understand why these single-cell organisms produce toxins, whereas most other phytoplankton do not. “We hope that by understanding why and under what circumstances the toxicity occurs, that we might be able to mitigate the harmful effects,” says Kubanek.

The Canadian native holds dual appointments in the School of Biology and the School of Chemistry and Biochemistry. It’s an unusual combination. “Georgia Tech has strong support for multidisciplinary and interdisciplinary science and research,” Kubanek acknowledges. “It was rare for me to get a job in biology department as a faculty member without any biology degrees.” She came to Georgia Tech as a chemical ecologist in 2001.

Kubanek fell in love with the ocean as a child, when her Montreal-based family vacationed summers on Cape Cod. At Queens University in Ontario, she began her studies in biology, but grew unhappy with her school’s “memorizing-oriented” approach. Chemistry seemed a better fit.

After graduation, she followed her wanderlust to the South Pacific, bartending on cruise ships and learning to scuba dive around the Great Barrier Reef. Excited by the activity of the marine world, she entered the University of British Columbia, studying the chemistry of marine mollusks. During a post-doc position at the University of California-San Diego’s Scripps Institute of Oceanography, “I developed my real interest, which is how do living organisms, particularly in the ocean, use chemicals to solve fundamental life problems?”

“I think of chemical ‘cues’ as letters in the alphabet, which form a language that an organism uses to communicate with another organism or to pick up on some message that another organism might be emanating into the environment. Organisms can recognize what another organism is doing by the kinds of molecules that float around in the water or stick to the surfaces of their tissues,” she explains.

In the case of the red tide, toxins may be released by organisms to compete for resources, i.e. nitrogen and phosphorus. “We think the red tide is poisoning its neighbors to steal those resources.” In turn, the other phytoplankton retaliate by degrading the toxins. With a grant from the state of Florida, Kubanek and her students are exploring ways to reduce the bloom’s toxicity. “The red tide represents an extreme case of one species dominating the system, even if only for a few months at a time. Those other species appear to be losing out. We contend if we supplement those other species during a red tide, we might be able to chip away at the harmful consequences.” The long-term goal of their research is to increase water quality and provide better ecosystem health in the Gulf of Mexico, while also benefiting the communities that depend on shellfish and fisheries for their economic livelihoods.

Kubanek and Georgia Tech professors Mark Hay, Terry Snell, and Kirk Bowman are also part of a National Institutes of Health-funded collaborative project, based in the relatively unscathed waters of Fiji, studying the potential of marine organisms. Molecules from seaweeds and sponges may hold the cures for human diseases like cancer, malaria, HIV, or tuberculosis.

“Our program has three goals,” says Kubanek. “Drug discovery, working with Fijians to promote conservation of the area’s biodiversity, and economic development” that helps the locals make a better living without over fishing or harvesting coral from their reefs.

Her work, and that of her colleagues, is “more conceptionally focused. We all bring different things to the table, and it is a great place for me to learn and interact with [biologists], but also bring something unique to the discussion.” She also enjoys frequent interaction with the School of Chemistry and Biochemistry.

Kubanek’s other passions—travelling, scuba diving, and exploring the great outdoors—fit in well with her career. “Travel is a big bonus in this job, as we have field work to perform as well as conferences to attend,” she says, smiling.

For more information on Kubanek’s research, visit http://www.biology.gatech.edu/faculty/julia-kubanek/lab/Kubanek_Lab/Research.html
School Updates

APPLIED PHYSIOLOGY

The School of Applied Physiology at Georgia Tech announces the inauguration of the first PhD training program in prosthetics and orthotics, with the support of the National Institutes of Health. The program participants will become active in the evolution in a research culture; they will also advance the profession and contribute to the broader field of Rehabilitation Medicine.

BIOLOGY

Associate Professor King Jordan has been selected as a 2008 Sloan Research Fellow. The Sloan Fellowship is a highly prestigious award intended to enhance the careers of the very best young faculty members in the US and Canada. Thirty-five former Sloan Fellows have gone on to win Nobel Prizes later in their careers and hundreds of others have distinguished themselves both nationally and internationally. This is the third year in a row that School of Biology faculty have been honored with this distinguished national award.

BIOLOGY

Academic Professional Dr. Jennifer Leavey has won the Outstanding Undergraduate Academic Advising award from the Institute for her outstanding work advising students.

CHEMISTRY & BIOCHEMISTRY

Professor Jean-Luc Brédas has earned the distinction of Fellow of the Material Research Society for 2008. The inaugural class of Fellows will be recognized at the 2008 MRS Spring Meeting in San Francisco, and also announced on the MRS website and in the MRS Bulletin. The distinction is highly selective. He has also won the Institute’s award for Outstanding Faculty Research Author.

CHEMISTRY & BIOCHEMISTRY

Professor David Collard will be the 2008 recipient of Georgia Tech’s Class of 1934 Outstanding Innovative Use of Education Technology Award. This award recognizes a member of the faculty who has developed and instituted innovative techniques to improve the learning environment and the learning process. Funds for this award are provided by the class of 1934.
CHEMISTRY & BIOCHEMISTRY

Assistant Professors Wendy Kelly and Christine Payne are among 20 recipients of the ACS (American Chemical Society) PROGRESS/Dreyfus Lectureship. Dr. Wendy Kelly and Dr. Christine Payne have both been awarded an ACS PROGRESS/Dreyfus Lectureship. This joint program between ACS and the Camille and Henry Dreyfus Foundation provides travel support for "rising star" academic women scientists and engineers to present their work at leading research institutions.

CHEMISTRY & BIOCHEMISTRY

Professor Mostafa El-Sayed was pleased to learn that one of his research papers has again entered the list of the top ten most cited papers in chemistry. The paper is entitled “Cancer Cell Imaging and Photothermal Therapy”, published in the Journal of American Chemical Society (JACS) 2006, vol. 128, p. 2115. As of January 8, 2008, the paper reached position #1 in the list.

CHEMISTRY & BIOCHEMISTRY

Professor Art Ragauskas has been awarded a grant from the J. William Fulbright Foreign Scholarship Board and will be recognized as a Fulbright Fellow. Dr. Ragauskas' research focuses on green chemistry of biopolymers including: cellulose, hemicellulose, and lignin.

CHEMISTRY & BIOCHEMISTRY

Assistant Professor Facundo Fernandez is recognized by 3M with a non-tenured faculty award. Its objective is to encourage recipients to remain in academia, teach, conduct research of general interest to 3M, and to develop an awareness of science in an industrial setting. This award is to pursue work in pathogen detection and identification using strain-specific protein biomarkers measured by MALDI and “ambient mass” spectrometry.

CHEMISTRY & BIOCHEMISTRY

Academic Professional Dr. Mary Peek has been given the ANAK Award. Since 1942, and annually since 1947, the ANAK Society has given this award to a faculty member at Georgia Tech who has demonstrated outstanding service to the Institute and to the student body through teaching, research, advisement, and general involvement in campus life.
School Updates

EARTH & ATMOSPHERIC SCIENCES (EAS)

Professor Rod Weber is nationally and internationally recognized as a leader in tropospheric atmospheric aerosols has been awarded the second Cullen-Peck Faculty Fellow Award in the College of Sciences. He has developed innovative measurement techniques for new particle formation and aerosol chemical composition. His “particle into liquid” sampling technique has become the international standard for this work.

MATHEMATICS

Professor Doron Lubinsky has been named as one of two faculty members selected from the ranks of Engineering and Mathematics units who have played a “vital role in improving the learning environment for female students, and in encouraging positive participation and success.” This award is presented by the Women in Engineering society.

MATHEMATICS

Academic Professional Dr. Lew Lefton has just been named as the winner of the 2008 Georgia Tech Administrative Service Award. Lew’s invaluable service as IT Director for both the School of Mathematics and the College of Sciences was cited in the nomination. Both the School and College are fortunate to have benefited from Lew’s hard work and enlightened IT leadership since his arrival on campus.

PHYSICS

Regents’ Professor Walter de Heer has won the Sigma Xi Sustained Research Award from the Institute in recognition of his outstanding sustained research in physics.

PSYCHOLOGY

Associate Professor Bruce Walker has been awarded the Helping Hands Service Award from the Center for the Visually Impaired. This is in recognition of his research and efforts on behalf of persons with visual impairments. A significant honor, the award is given annually by the Board of Directors of the Center for Visually Impaired.
MATHEMATICS

Adam Marcus, a 4th year graduate student in Algorithms, Combinatorics and Optimization in the School of Mathematics, will receive the inaugural 2008 SIAM Denes Konig Prize for a junior researcher for outstanding research in an area of discrete mathematics. This is not a student award. Adam has also been offered a Gibbs Assistant Professorship at Yale and a Doob Assistant Professorship at Urbana-Champaign.

EARTH & ATMOSPHERIC SCIENCES (EAS)

Assistant Professor Kim Cobb, instructed her students in the Energy, the Environment, and Society class to tackle an “institutional level” carbon reduction effort. The winning group convinced a representative from Georgia Tech Facilities to extinguish the lights at Bobby Dodd Stadium for Earth Week. The winning team traveled to Washington D.C. to meet with staffers from Georgia’s political representatives. Travelers (l-r) are Christine Amuzie, Dr. Kim Cobb, Vivian Fan, Jonathan Effgen and Patrick Wilson.

MATHEMATICS

Adam Tart was selected from more than 300 applicants to receive the George J. Mitchell Scholarship. The Mitchell Scholarships are awarded annually to twelve Americans, under the age of 30, to pursue a year of post-graduate study at any university in Ireland. As a discrete mathematics major, Adam will pursue a master’s in mobile networking and computing at the University College Cork, located in Cork, Ireland.

PHYSICS

Undergraduate Jenna Campbell has won the Astronaut Scholarship (ASF) worth $10,000. This prestigious award is one of 19 made available each year through the ASF. Jenna exhibited exceptional performance, initiative, and creativity in science; she is a physics major.

PSYCHOLOGY

Daniel Jeremy Shorr, Fulbright Scholar. Daniel, a psychology major is preparing a senior thesis about pictorial warning symbols. He plans to continue this study in a cross-culture context during his Fulbright experience. He participated in summer intensive language study programs in Japan the past two summers.
Charles Cleveland, a senior research scientist, died Jan. 27, 2008 after battling pancreatic cancer for seventeen months.

Dr. Cleveland joined the School of Physics in 1979 as a member of Physics Professor Uzi Landman’s research group and played a key role in the establishment of the Georgia Tech Center for Computational Materials Science.

A graduate of Tech, Cleveland earned his doctoral degree under the guidance of Professor Hal Gersch. For a year, prior to joining Landman, he taught physics at the University of North Carolina in Greensboro.

“Dr. Charles Cleveland was a gifted scientist, endowed with exceptional analytical and numerical skills,” Landman said. “His professional contributions are marked by a unique capability to devise methods for analysis and visualization of complicated patterns, [as well as] the unique talent to develop and implement efficient and reliable computational techniques.”

“Charles’ insights into complex scientific problems, his devotion to rigor, and his hard work were overshadowed only by his friendship, warmth, and commitment to his colleagues,” said Provost Gary Schuster.

In Memoriam

H. Dale Pigott, 60, a professor of chemistry at Victoria College, in Texas, died on Jan. 7.

Pigott received a B.S. degree in chemistry from Georgia Institute of Technology in 1970. He then earned an M.S. in 1972 and a Ph.D. in chemistry in 1976, both from the University of Illinois, Urbana-Champaign.

Pigott started his career at the DuPont Experimental Station in Wilmington, Del., working in the area of polymer intermediates. He later transferred to the Sabine River Works in Orange, Texas and then to the company’s development lab in Victoria.

In 1987, he made a career shift, joining the faculty of Victoria College, where he remained until his death.

Pigott was an active member of ACS, which he joined in 1973. In 1993, he was the driving force behind organizing the ACS Texas Coastal Bend Section, which was disbanded in 2007.

He is survived by his wife, Shirley; and three sons, James, David, and Matthew.

Dr. Dale Pigott, was awarded posthumously The Victoria College 2008 Distinguished Teacher Award. This award is a special recognition to honor outstanding faculty members for their commitment to teaching. The award was accepted by Dr. Pigott’s three sons.

LeRoy A. Woodward, died of heart failure on July 13, 2008 at Emory’s Wesley Woods Hospital.

In 1940 he was awarded a Naval ROTC scholarship to attend college and chose Georgia Tech because he wanted a science and engineering degree. After attending Georgia Tech on an accelerated program, he graduated in 1943 with the first B.S. degree in Physics ever awarded by Georgia Tech.

In the late 1950s, he returned to Georgia Tech’s School of Physics as a professor and was a faculty member until his retirement in 1982. While at Georgia Tech Professor Woodward was responsible for creating and teaching a number of unconventional physics courses on subjects as diverse as weather, music, and astronomy. Ginny Roglin, who was a former student in Woodward’s "Physics of Weather" class, fondly remembers the course. "It was a popular course, cross-listed with many other majors, and we were always being entertained by Professor Woodward who would bring his banjos and play for the class to illustrate certain conceptual points."
Charles E. Bond, Physics 1951, died Jan. 5, 2008 at age 77 in the Champaign County Nursing Home in Urbana. Charles was born Feb. 1, 1930, at Royston, Georgia, a son of Jones T. and Irene Nelson Bond. He earned a B.S. in physics from the Georgia Institute of Technology in 1951, his M.S. in Aerospace Engineering from the University of Michigan in 1956, and his Ph.D. in Aeronautical and Astronautical Engineering in 1964, also from the University of Michigan. He was Project Engineer at the Jet Propulsion Lab at the California Institute of Technology in Pasadena, Calif. from 1956 to 1957.

Charles was also Lead Scientist for the hyperthermal wind tunnel group at AVCO Research and Advanced Development Division in Wilmington, Massachusetts. He was Professor of Aerospace Engineering at the University of Illinois from 1964 until his retirement in 1999.

Dr. Bond’s work centered on supersonic and hypersonic wind tunnel testing and electric arc research. While at the University of Illinois, he designed the thermionic rail accelerator, a unique experimental facility for conducting research in plasma physics. He taught courses in aerodynamics, magnetohydrodynamics, and electric propulsion.

Classnotes

John Harden, DDS, Bio 76, has been practicing dentistry in downtown Atlanta since 1978. In 2003, he retired from the U.S. Army Reserves after a long career. He was called to active duty after the 911 tragedy and served as the Theater Dental Surgeon for SW Asia for the U.S. Army. He lives in Buckhead with his wife who is in medical anesthesia at Piedmont Hospital. Both of their sons went to UGA. One is a corporate headhunter in Atlanta, and one is in the entertainment business in New York City.

Lisa C. King, Psy BS 84, MS 88, Ph.D. 94, has been promoted to Vice President of Insights & Innovation for Newell Rubbermaid. She will help brand and R&D teams develop superior consumer understanding to drive new product opportunities for Newell Rubbermaid brands. Her son and husband, Bernard J. Nickels, Ph.D. (Psy’90) live in metro Atlanta.

Bio 92 Connie Leigh Brown, has been promoted to the rank of Sr. Forensic Scientist in the DNA Section of the North Louisiana Criminalistics Laboratory in Shreveport. She is a court qualified expert in forensic DNA analysis, molecular biology, and blood stain pattern interpretation. Presently, she is the sole DNA analyst working cases with the Shreveport Police Department’s Cold Case Unit and is the Biology Section Chair for the September 2008 Annual Meeting of the Southern Association of Forensic Scientists.

Angela McMath Clark, BIO 1994, and her husband Darin recently welcomed their first child, Jackson Darin, at their home in Smyrna. Angela is an Associate Vice President with engineering-environmental Management.

Audra Brown Ward, Chem 94, received the Outstanding Biology Teacher Award for Georgia in 2007. The award is given by the National Association of Biology Teachers. She is also currently Co-Chair of the Science Department at Marist School in Atlanta. She married Jose Ward in February of 2006 in Atlanta, Georgia.
Sean Seymour, Chem MS 1996, joined Washington and Lee as an Assistant Professor of Law in 2008. Sean’s research focuses on how patent law should evolve in response to advances in science and how the intersection of law and science is critical to the formation of public policy. Sean was a Visiting Assistant Professor at Northwestern University School of Law, and an associate in the patent practice group at Foley Hoag LLP in Boston. Before attending law school he was a chemistry professor.

Kristie Price Rox, MATH 1996, announces the birth of her second daughter, Claire Sarah, on October 5, 2007. Claire joins her older sister Samantha in Suwanee, Georgia. Kristie is an Accountant for Verizon Business in Alpharetta, GA.

Jessica Duncan Cance, Chem 1999, and her husband, Paul, are thrilled to announce the arrival of their son, Jonathan Duncan Cance. Jack was born June 7, 2008, weighing 8 pounds 14 ounces, and measuring 21.5 inches.

William Sommer, CHEM 07 PhD and MBA, starts a new job as Product Line Manager for catalysis and inorganic chemistry at Sigma-Aldrich in Whitefish Bay, Wisconsin.

Prashant K. Jain, Chem PhD 2008, has been offered the prestigious Miller fellowship (http://millerinstitute.berkeley.edu/index.php) from the University of California, Berkeley for 2008-2011. This is a 3-year position that allows fellows to pursue independent postdoctoral research at Berkeley. He is also planning to start in the Miller fellowship position following postdoctoral work at Harvard University.

Let us hear from you!

Alumni Classnotes Information Needed

☑ Married? ☐ New Job? ☐ New Baby?

☐ Promoted? ☐ Take a Trip? ☐ See a Classmate?

☐ Moved? ☐ Back in School? ☐ Other?

Details:

Name:

Degree and Class:

Address (New?):

Please return this form along with a photo (optional) to: SciTech Editor, College of Sciences, Office of the Dean, 225 North Avenue, Atlanta, GA 30332-0365; or fax information to (404) 894-7466; or e-mail information to: janet.ziebell@cos.gatech.edu. The next deadline for Classnotes submissions is February 1, 2009 for the Spring 2009 issue. We reserve the right to edit Classnotes for length and style.
2008 College of Sciences Board Meeting

Friday October 24, 2008—8:00 a.m. CoSAB Meeting Molecular Science and Engineering Building, 3rd Floor, Room 3201-A, with a Luncheon to follow for members to meet faculty and speakers.

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