



DEPARTMENT OF CHEMICAL & BIOLOGICAL ENGINEERING ALUMNI NEWSLETTER

Been Away for A While? - *By Mark Halperin, E'72*



You might be able to identify with this. I graduated with a B.S. in Chemical Engineering in 1972, never to be heard from again in Medford.

Until last year, that is, when I received my copy

of the Department of Chemical & Biological Engineering (ChBE) Alumni Newsletter. I haven't worked as an engineer for many years, but Tufts has always held a warm spot in my heart.

It was an eye-opener to read about what was going on in the ChBE Department now. They moved out of Pearson Hall long ago, into a beautifully renovated former factory building, with dedicated labo-

ratories (see article on **page five** of this newsletter). No more cardboard and duct tape, like I used in my senior project (an experimental pitot tube-manometer instrument design project, measuring air flow from the forced air nozzles on the lab bench).

Now, they're doing original research in polymers, fuel cells, environmental processes, and human tissue engineering. They've obtained government and private grant money, too. Whether or not you're still a practicing engineer (you'll always be one inside!), you may want to take a closer look. I did, and it was a very moving experience. I'm fortunate enough to own a chemical company now, and Tufts gave me a wonderful start. It's inspiring to see what the Department has evolved into.

At a symposium last year in Professor Bot-saris' honor (he taught me chemical engineering when I was a teenager!), I was fortu-

nate enough to be able to see him again, and to get to know Professor Christos Georgakis, the Department Chairman, and a number of other professors and members of the department. I have become active in teaching and advising, and I love being in this stimulating environment again.

You may not want to get *that* involved, but I urge you to support *your* Department's efforts to enter the top tier of Chemical Engineering schools, a goal that is now within reach. Please fill out the Alumni Survey at the end of this Newsletter. Consider joining the Friends of the Department Club with a contribution, and receive a free gift from Tufts Engineering.

It was an unexpectedly deeply-felt experience for me to see how far Tufts ChemE, now ChBE, has come in the last few decades. I urge you to take your own look, and to lend a hand with your support.

Especially if you've been away for a while....

Department Receives \$100,000 Gift from Estate of Martin V. Sussman

In the fall of 2005 the Department received the news of a \$100,000 gift from the Estate of Professor Martin V. Sussman. This gift has been named the Jeanne and Martin Sussman Endowed Fellowship and Lectureship Fund, and will provide a fellowship for Chemical and Biological Engineering students. The Fund will also support a chemical engineering lectureship series, to be hosted by the Department every other year and will be administered by a ChBE faculty committee.

Professor Sussman's daughter, Ann Sussman, is the Trustee for her father's estate, which made the generous gift. An alumna of the Fletcher School, Ms. Sussman met with School of Engineering Dean Linda Abriola and ChBE Department Chair Christos Georgakis to provide some background on her father's gift. According to Ann, "the reason Martin decided to make a bequest in his will is that it could provide a foundation for success in the department. He also felt really lucky and thankful to



Above: Dean Abriola, Professor Georgakis and Ann Sussman. Dr. Georgakis is holding a prototype of Professor Sussman's patented *Maxwell Demon Bottle*, a teaching tool developed to demonstrate the statistical nature of irreversible processes. *Right:* Ann Sussman and the Maxwell Demon Bottle.

have had such a great experience at Tufts and wanted to give this back to others."

According to Professor Sussman's wishes, the fund is intended to also have an international focus, when appropriate. "Martin believed in the importance of sharing knowledge about engineering internationally. He wanted the science to be available to everyone around the world," she explained.

The Department is extremely grateful for the opportunity to honor Professor Sussman's life in this way, and pledges to fulfill the wishes of the Sussman family to the fullest extent.



Inaugural Gregory Botsaris Lecture Features Dr. Michael Doherty



The creation of the Gregory Botsaris Lectureship was announced at the Department's Symposium and Alumni Dinner on May 7, 2005 in recognition of his outstanding leadership and dedication to the Department. Since then, colleagues, friends, alumni and current faculty members have given generously to the lectureship fund, which will provide for one distinguished speaker to visit the Tufts campus every other year. The Department would especially like to recognize and thank **Professor Yih-An Liu, G70**, of Virginia Polytechnic Institute for his recent generous donation towards the Lectureship fund.

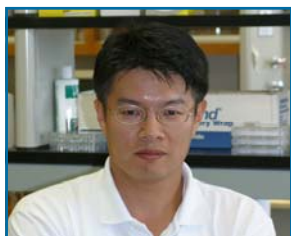
The inaugural Botsaris lecture took place on Wednesday, April 12. Dr. Michael F. Doherty, Professor of Chemical Engineering at the University of California, Santa Barbara, presented "Crystal Engineering for Product and Process Design" to a packed house composed of ChBE alumni, faculty, colleagues and friends, followed by a festive wine and cheese reception. The event was unquestionably a smashing success.

The Department was delighted to host Dr. Doherty on May 7. He has published extensively on design and synthesis of nonideal separation systems, particularly the coupling of separation with simultaneous chemical reaction, and crystallization of organic materials from solution. He is the holder of four

patents, has published over 150 technical papers, one textbook, and has delivered over 180 invited lectures. Dr. Doherty has also received numerous honors and awards for his teaching and research, including the Alpha Chi Sigma Award for Chemical Engineering Research of the AIChE (2004), and the Clarence G. Gerhold Award of the Separations Division of the AIChE (2004).

The Botsaris Lecture Series is intended to be a biennial event, in order to alternate with the Sussman Lectureship Series, which will be launched in the next academic year. The series is funded solely by gifts to the Department in the name of the Gregory Botsaris Lectureship Fund.

ChBE Faculty Welcomes Newest Member, Dr. Hyunmin Yi



In the spring of 2006 the ChBE Department successfully concluded a lengthy faculty search with the selection of Dr. Hyunmin Yi, who will join the Department in the position of Assistant

Professor beginning this fall. Dr. Yi received both his Bachelor of Science in Engineering and his Master of Science in Engineering from Seoul National University in Korea, and his Ph.D. in Chemical Engineering from the University of Maryland in 2003. Prior to Tufts, Dr. Yi most recently served as Assistant Research Scientist for the Department of Materials Science & Engineering at the University of Maryland.

Dr. Yi brings a strong background in nanobiotechnology to the Chemical and Biological Engineering Department. His specific

research interests involve developing nanoarray biosensing and in vitro metabolic engineering platforms. Dr. Yi has assembled various target biomolecules such as DNA, proteins and more recently viral nanotemplates onto microfabricated inorganic surfaces. He is currently involved with research on the assembly of multiple enzymes and viruses. Dr. Yi's research on viral nanotemplate assembly has been featured in the Royal Society of Chemistry's journal "Molecular Biosystems," and on nanotechweb.

Letter from the Chairman

Dear Friends,

The Department has had such an eventful year, we are finding it difficult to find the space to contain it all within the pages of our newsletter! We continue to move closer to our goal of building stronger relationships with you, our loyal alumni. To this end, we are planning an Alumni Dinner for next May—details will be released as soon as they become available, so please make sure we have your updated contact information by filling out the Alumni Survey on **page 4**. We would love to welcome as many of you back to the Tufts campus as possible for this event.

This year, the Department was extremely grateful to receive a very generous gift from the estate of Professor Martin Sussman. This gift will provide an endowed fellowship and lectureship fund, which is described in the feature on **page 1** of this newsletter. I would especially like to thank Ms. Ann Sussman for her in-

volvement with the Department on behalf of her father.

The Department hosted its second Department Advisory Board meeting on April 13th. The meeting focused primarily on the Department's progress on the undergraduate curriculum revision. Nine of our distinguished Board Members attended the meeting and provided valuable guidance and constructive feedback for improving the undergraduate ChBE experience. In the past year, we have also welcomed four new Board members: Steven Demetriou, E80, Chairman and Chief Executive Officer of Aleris International, Inc.; Dr. Thomas Peterson, E72, Dean of the College of Engineering and Professor of Chemical and Environmental Engineering at the University of Arizona; Mark Halperin, E72,



President of Pfaltz & Bauer, Inc.; and Rob Reintjes, E70, Managing Director of New England Equity Group.

I would also like to personally thank Mark Halperin for his kind offer to write a feature article on behalf of the Department's fundraising drive, and for his voluntary role as teacher and advisor to our undergraduate students. He has gone above and beyond our expectations in his involvement with the Department, and for this we are extremely grateful.

Finally, I am pleased to welcome our newest faculty member, Dr. Hyunmin Yi, to the Department. I know he will be a valuable addition to the Tufts community.

Christos Georgakis
Department Chair
June 2006

Alumni Updates

We love hearing from our illustrious alumni! If you have news that you would like to share with the Department, or updated contact information, please fill out the survey on the following page and return to us for inclusion in future newsletters (your personal contact information will never be published). In addition, if you know of any ChBE alumni who does not currently receive our communications, please forward their contact information to the Department. We are working hard to replace alumni data that was lost with a change in database format several years ago, and would very much appreciate your help in this

Kenneth D. Hay, E37, is currently enjoying retirement in Manawa, Wisconsin. Prior to retiring, Dr. Hay, a graduate of the Institute for Paper Chemistry (M.S. and Ph.D.), had serviced paper mills in North and South America, Europe, Australia and New Zealand. He was a featured speaker at an International Paper Makers conference in Milan, Italy in 1978. He now enjoys the company of his two great granddaughters. Dr. Hay's fondest memory of the ChBE Department is being in charge of the Chem Lab stock room.

Russell Johnson, E59, retired in 2002 and now divides his time between homes in Oxnard, California and Grantham, New Hampshire. His wife is a Registered Dietician and his two sons are practicing M.D.s in internal medicine, Lahey Clinic, and private family practice in Pasadena, California. Mr. Johnson, who holds an MBA from Harvard (class of '62), now holds the distinguished title "Chief Shopper."

Narge Sparages, E86,
and his bride, Margaret

Winfield "Wiff" Peterson, E68, currently serves as Senior VP at Aquarion Operating Services in Auburn, New Hampshire. Mr. Peterson contract operates water and wastewater treatment plants, a business he has enjoyed for more than 30 years now. His fondest ChBE memory is "surviving sophomore year with Professor Sami Atallah 'The Drill Sergeant,' Professor Botsaris and Professor Sussman (great teacher)."

Anargyros ("Narge") Sparages, E86, is Global Marketing Manager at GE Industrial Sensing. On March 12, 2005 he married Margaret



Mary Holland at the Dormition of the Virgin Mary Greek Orthodox Church in Somerville, MA. Margaret runs a business immigration law

practice in Boston. They now live in Winchester. The ChBE Department would like to wish them the very best in their new life together!

Neal Patel, E92, has been a staff pediatrician at a Massachusetts Public Health Hospital for the past three years, working with physically and mentally challenged children. He lives with Carrie, his wife of five years and his daughters Chloe, 3, and Norah, 1. His fondest memory of ChBE is moving into the new Science & Technology Center in 1990.

Upcoming Event: 2007 Alumni Dinner

*The Alumni Dinner is currently scheduled for **Saturday May 5, 2007**. Details will be announced very soon, so please make sure we have your updated contact information. Don't forget to mark your calendars!*

Dr. Stephen Jaffe, E64, Elected to National Academy of Engineering



The Department is thrilled to announce that Dr. Stephen B. Jaffe, one of our distinguished Alumni (E64) as well as a member of the Department Advisory Board, has been elected to the National Academy of Engineering. Dr. Jaffe has demonstrated a relentless pursuit of technical excellence in his chemical engineering career, and we are extremely proud to see his achievements have been nationally recognized.

Dr. Jaffe earned his B.S. in Chemical Engineering from Tufts University, summa cum laude, and both his M.A. and Ph.D. in Chemical Engineering from Princeton University. He joined Mobil Research and Development Corporation in 1968 as Research Engineer at the Paulsboro Research Laboratory in New Jersey. In 1980 he became Senior Planning Associate for Mobil Research and Engineering in New York and transferred to the upstream Dallas Research Laboratory in 1983. Steve returned to downstream R&D at the Paulsboro Research Laboratory in 1987. While there he co-invented Structure Oriented Lumping, a method for describing the composition, chemical reaction and properties of complex hydrocarbon systems. Structure Oriented Lumping, the basis of Compositional Modeling, is used to optimize petroleum refinery operations on a molecular scale. In 2000, with the merger of Exxon and Mobil, Dr. Jaffe became a Distinguished Scientific Advisor and effectively

championed the development and deployment of Compositional Modeling technology leading to significant business impact. In 2004, he won the Chemical and Reaction Engineering Division award of the AIChE. Dr. Jaffe retired in 2006, the same year he was elected to the National Academy of Engineering.

The National Academy of Engineering (NAE) was founded in 1964 to provide engineering leadership in an advisory role to the nation and is a member of the National Academies. The NAE operates under the same congressional act of incorporation, signed by Abraham Lincoln in 1863, that established the National Academy of Sciences. Today, the NAE has a membership of more than 2,000, composed of senior professionals in business, academia, and government who are among the world's most accomplished engineers.

Alumni Survey

We want your news! This is your opportunity to re-connect and share news with your classmates and colleagues. Private contact information will never be published. Please return completed surveys to the Department using the addressed envelope provided. Thank you for helping us stay connected!

Name: _____

Tufts Degree/Year: _____

Name of Graduate School/Degree/Year: _____

E-mail Address: _____

Mailing Address: _____

Phone Number: _____

Current Employer: _____

Current Title: _____

What is your fondest memory of the ChBE Department at Tufts? _____

News you'd like to share (i.e., professional & academic accomplishments, marriages, births, retirements, etc.):

Would you like to become a member of the Friends of the Department Club? To show our thanks for your support, all contributors will receive a Tufts School of Engineering Alumni car decal. All gifts will also be recognized on the ChBE Alumni website. Simply fill out this form and return to the Department in the enclosed addressed envelope.

Yes! I would like to contribute to the ChBE Department

\$50.00 \$100.00 \$200.00 \$250.00 \$500.00 \$1,000.00

other amount: _____

I would like my donation to be used for the purpose of (please indicate percentage):

Botsaris Lectureship _____ % Sussman Scholarship/Lectureship _____ %

Undergraduate Laboratory Improvement _____ % Unrestricted _____ %

Thank you for your support!

TUFTS
DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING
Science and Technology Center
Tufts University
4 Colby Street Rm. 148
Medford, MA 02155
Phone: 617-627-3900
Fax: 617-627-3991
E-mail:
Joanna.huckins@tufts.edu



Faculty Spotlight: Professor Maria Flytzani-Stephanopoulos



Professor Maria Flytzani-Stephanopoulos continues to contribute significantly to the ChBE Department's research activities. Last July she gave a plenary lecture at a NSF-organized workshop on Nanocatalysis in Lyon, France. The topic of her

presentation was a new technology, developed at Tufts, that utilizes small amounts of oxygen to stabilize Au- and Pt-ceria catalysts, which are very active for the water-gas shift reaction in practical fuel cell operation (including cyclic shutdown-startup).

During the academic year, Professor Flytzani-Stephanopoulos reprised her role as organizer for the *Distinguished Lectures in Nanotechnology for Advanced Energy Materials and Catalysts*, bringing experts in the field to the Tufts campus, where they illustrated cutting-edge technologies (more details are available on the ChBE Department website).

Following on the heels of the \$1.2 million grant she received from the Department of Energy in collaboration with Columbia University (announced in the Fall 2005 newsletter), she has also been awarded a grant from the Army Research Lab entitled "Hot gas desulfurization with La-rich oxide sorbents." Professor Stephanopoulos and her students recently discovered a new way to regeneratively desulfurize fuel gas streams at temperatures as high as 800°C. Among the potential applications of this technology, fuel cells and coal gasifier gas cleanup are the most significant. The sorbent materials are based on rare earth oxides and the method involves working with very small volumes (at space velocities > 100,000/h) to use just the surface of the sorbent. A PCT patent application was filed in November 2005, and the work appeared in *Science* in early June.

During the Spring term, Professor Stephanopoulos co-taught a class on *Clean Energy Technologies and Policy* with Professor Bill Moomaw of the Fletcher school. Many ChBE seniors and more than 25 graduate students from several of the Tufts schools took this popular class. The current student interest in energy topics spans all schools and levels. A testament to this was the 34 Engineering Freshmen who took the *Fuel Cell Technology* class taught by Professor Stephanopoulos this past spring. She hopes to see more class offerings and new Tufts initiatives in this important area.

Improving the Undergraduate ChBE Experience



In May 2006 the ChBE Department received approval from the School of Engineering to move forward on significant revision of the undergraduate curriculum. The new curriculum will take effect with the next academic year's incoming freshman class.

The revised curriculum continues to incorporate biological concepts into the traditional chemical engineering paradigm, reflecting the addition of biology as the fourth pillar of engineering science, along with chemistry, math and physics. Specific curricular changes include the addition of biomaterials to material science; combining equilibrium separations and rate controlled separations into a new course, Chemical and Biological Separations; and changing the process design course into a

Product and Process Design course.

Future curriculum revision will address organizing and updating elective courses, increasing industrial involvement in laboratory and design capstone courses, and increasing active learning and open-ended problems in most ChBE courses. We are extremely grateful to our Advisory Board for their guidance with respect to our undergraduate curriculum revision.

The Department is particularly interested in improving the senior projects laboratory experience. We are currently in the planning stages of a laboratory upgrade, including new instrumentation and a new scope for the lab course aimed at enhancing the general undergraduate lab experience.

The new ChBE curriculum offers a fixed lab with pre-defined experiments in the first semester of the senior year, followed by an independent projects lab in the spring semester. The senior projects lab challenges undergraduate students to apply their chemical engineering skills in semester-long research projects. The projects demand creativity, critical thinking, innovation, time management, technical writing and effective, independent *(continued on page 6)*

ChBE Department Celebrates the Class of 2006

On Sunday, May 21st, 2006, Tufts celebrated its 150th commencement. ChBE students were a significant presence at the weekend's ceremonies. Of nine Ph.D. degrees awarded by the School of Engineering, six were to ChBE students. We were also very proud to be represented by eight of twelve M.E. degree recipients, and eight M.S. degrees recipients.

Among the Tufts University undergraduate prizes, scholarships, and academic awards, six recipients were ChBE students. The Gemma Cifarelli Memorial Scholarship was awarded to Carolyn Vik, E07. Tania Alarcon Falconi, E06, received the Lt. Commander Robert James Manning Memorial Prize. The Frederick Melvin Ellis Prize was given to Erica Goodwin, E06, and the Ellen C. Myers Memorial Prize was awarded to Christine

Ash, E06. Jeanne Van Slambrouk, E07, was chosen to receive the Max Tischler Prize Scholarship, and the American Institute of Chemists Foundation recognized Elizabeth Newberg, E06, for her ability, leadership and professional promise. The Department was also thrilled to see six ChBE undergraduates inducted into Tau Beta Pi Engineering Honor Society. The School of Engineering chose to honor Weiling Deng with the Outstanding Graduate Researcher Award. Weiling is a Ph.D. candidate of our department working in the area of catalytic fuel processing under the direction of Prof. Flytzani-Stephanopoulos.

On May 20th, the Department hosted the festive Senior Luncheon to celebrate the achievements of the class of 2006. The *(continued on page 6)*

VISIT OUR WEBSITE: [HTTP://ASE.TUFTS.EDU/CHEMICAL/](http://ase.tufts.edu/chemical/)

Undergraduate Experience (continued from page 5)

project teams. In past years, student teams have tackled problems in osmotic distillation, steam distillation, chemical reaction kinetics, enzyme-mediated reactions, BioDiesel synthesis, bioreactor design, solvent extraction, binary distillation, soap-making process development and photosynthetic algae.

We will certainly keep you updated on our laboratory improvement progress, so be sure to look for highlights in future newsletters.

Class of 2006 (continued from page 5)

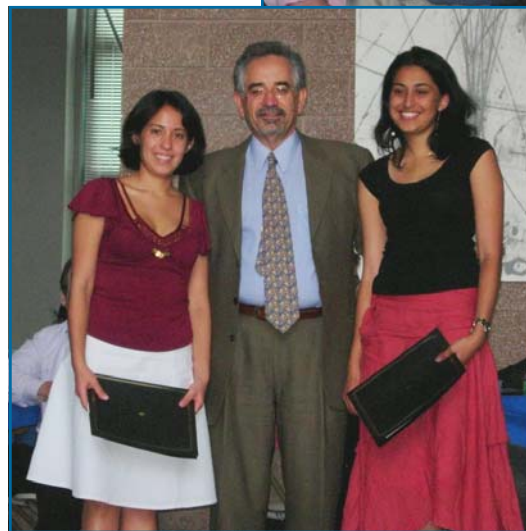
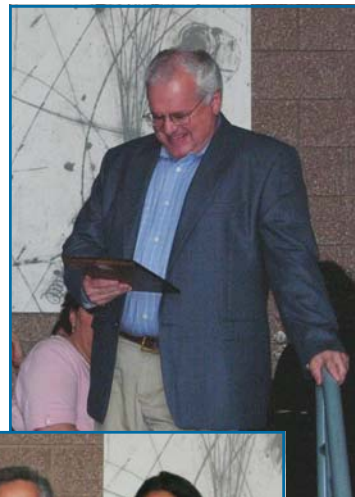
Senior Luncheon is an annual tradition held in the Science and Technology Center on the eve of graduation. Anura Patil (*summa cum laude*) and Tania Alarcon Falconi received the Department of Chemical and Biological Engineering Prizes, given

annually to the two highest ranking seniors in the class, and a variety of Departmental and AIChE awards were given to each member of the class. This year, the seniors chose to give the 'Best Professor' award to Professor Dan Ryder. Last year's recipient was Professor David Kaplan.

The Department would like to wish the very best to the class of 2006 as they pursue professional or academic careers in the field of chemical engineering. They possess the capability to make a distinctive mark on the world, and we are extremely proud of this exceptional group.

Additional photos of the Senior Luncheon can be seen on the Department website, ase.tufts.edu/chemical/newsClass2006.htm

Photos from the May 20th Senior Luncheon, Top to Bottom: 1) Professor Dan Ryder receives the student-voted 'Best Professor' award; 2) Professor Georgakis awards the Department of Chemical & Biological Engineering Prizes to top-ranking seniors Tania Alarcon Falconi and Anura Patil.



Make your fortune come true

JOIN THE TUFTS ONLINE COMMUNITY TODAY

- Look up friends and update your info
- Catch up in classnotes
- Get news and events in our e-newsletter
- Access more great features . . . FREE

☺ You will soon discover a friend from the past. ☺

TUFTS
online community

www.alumniconnections.com/tufts