



DEPARTMENT OF CHEMICAL & BIOLOGICAL ENGINEERING ALUMNI NEWSLETTER

Welcome from the Department Chair

Dear Friends,

The academic year 2006-07 has brought a number of changes to the Department. Professor Georgakis decided to step down as Department Chair in order to focus on directing the Systems Research Institute. I assumed the position in January 2007, and we have had a very busy semester since then!

In April we hosted our third annual Department Advisory Board meeting. We are grateful to our board members who focused on issues as diverse as improving our undergraduate laboratory, the undergraduate and graduate student experience, graduate research direction and department strategy. This event was followed only a few weeks later by the incredibly successful Alumni Dinner in

honor of Professor Ken Van Wormer, held on May 5th (*see page 4*).

The academic year ended with our traditional Senior Luncheon (*see page 7*). This year, the Department awarded 21 B.S., 16 M.E. and M.S., and 3 Ph.D. degrees. Congratulations to the Class of 2007!

We are experiencing an unprecedented increase in the number of freshmen who have declared chemical engineering as their major. Forty incoming sophomores are expected in the next academic year; to provide a contrast, the average class size for the past five graduating classes is only 24! This unexpected growth presents a logistical problem in terms of Department resources, which is a top priority and will be addressed prior to the start of classes in September. One of the

new initiatives will be to teach some classes with wireless laptops, and all sophomores will be expected to have their own laptop computer.



The Department's continued growth involves launching a search for two new faculty members in the 2007-08 academic year. We will be appointing one Professor of the Practice and one Assistant Professor to fill the position vacated by Professor Van Wormer, who retired this year. We also anticipate a search for an appointee to the Robert and Marcy Haber Endowed Professorship in Energy Sustainability in academic year 2008-09 (*see below*).

Planning is currently underway for the inaugural Jeanne and Martin Sussman Endowed Lectureship this fall. Details will be posted to our website, so please check back often!

I hope that you will continue to keep in touch with us by sharing your updated contact information, your milestones, and memories of your ChBE experience. We always look forward to hearing from our illustrious alumni!

Dr. Nakho Sung, Department Chair

Robert and Marcy Haber Endow Professorship in Energy Sustainability

In the spring of 2007, Dean Abriola announced that School of Engineering Overseer and ChBE Alumnus, Bob Haber (E79, G80) and his wife, Marcy Haber, have committed to endow the "Robert and Marcy Haber Endowed Professorship in Energy Sustainability." This Professorship will be the third endowed in the School of Engineering. Preference in awarding the Professorship has been given to faculty appointed in the Department of Chemical and Biological Engineering.

As the world's attention is increasingly focused on the adverse environmental impacts of fossil fuel consumption, as well as the global economic and political destabilizing effects of petroleum dependence, it has become imperative that engineers step forward to develop alternative energy sources and clean technologies. The endowment of this

Professorship supports Tufts' vision of developing a Center of Environmental Sustainability at the School of Engineering which will provide the leadership needed to research alternative energy concepts. The Habers' hope is that by establishing this professorship in energy sustainability they will have a part in decreasing the world's dependence on oil in an environmentally sensitive manner. The School of Engineering is extremely grateful for this gift, which will help to attract and retain the best faculty in the sustainable energy area.

The Professorship coincides with the ChBE Department's new research direction towards energy and environmental research, incorporating clean technology, alternative and renewable energy, fuel cells, and sustainable manufacturing.

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Christos Georgakis Elected IFAC Fellow



Professor Christos Georgakis was recently elected a fellow of the International Federation of Automatic Control (IFAC). The IFAC Fellow Award is given to persons who have made outstanding and extraordinary contributions in the field of interest of IFAC, in the role of Engineer/Scientist, Technical Leader, or Educator.

Prof. Georgakis was chosen for this honor "for seminal methodological contributions to chemical process control and for fostering highly productive Industry/University research collaborations."

David Kaplan Named to Dean's Professorship in Bioengineering

In September 2006, David Kaplan became the first to hold the recently endowed Dean's Professorship in Bioengineering. The establishment of this endowed Professorship was made possible through the generosity of an anonymous donor. It is intended to support faculty leadership in bioengineering, one of the School of Engineering's strategic cross-disciplinary focus areas.



Third Annual Department Advisory Board Meeting

The Department hosted the third annual Department Advisory Board meeting on April 10–11, 2007 at the Science & Technology Center. This year, discussions focused on the ChBE graduate research program and the undergraduate laboratory experience. We are extremely grateful to the Board members who could attend this year's meeting.

ChBE Department Advisory Board Members

(2007 annual meeting attendees marked with an asterisk):

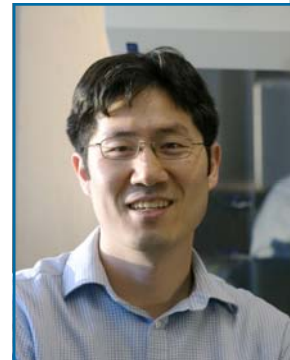
*Michael Thien, Chair of the Advisory Board

Vice President of Process R&D, Merck Corporation

Kristi S. Anseth

Professor of Chemical Engineering, University of Colorado

Kyongbum Lee Receives Jay Bailey Young Investigator Best



In the fall of 2006, Professor Kyongbum Lee was selected to receive the Jay Bailey Young Investigator Best Paper Award in Metabolic Engineering. The award was established in honor of Jay Bailey, a visionary of future directions in biotechnological research and a brilliant contributor to the founding and advancement of the field of Metabolic Engineering. Award winners have advanced the frontiers of metabolic engineering through originality and creativity of experimental or computational concept application.

Professor Lee was recognized for his article "Identification of distributed metabolic objectives in the hypermetabolic liver by flux and energy balance analysis," which appeared in the January 2006 issue of Metabolic Engineering and has been praised for its significant advances to the field.

Maria Flytzani-Stephanopoulos is Tufts "Distinguished Scholar," spends Sabbatical Year at ETH

The Tufts Faculty Research Awards Committee (FRAC) awarded this year's "Distinguished Scholar Award" to Professor Maria Flytzani-Stephanopoulos. This award recognizes Tufts faculty members each year for distinguished research and scholarship in their discipline over the past five years.

Professor Flytzani-Stephanopoulos spent the 2006-07 academic year at the Swiss Federal Institute of Technology (ETH) in Zürich, Switzerland. There, she interacted with Professor Alfons Baiker and his group of students and senior researchers in the area of heterogeneous catalysis of gold, specifically for the selective oxidation of alcohols and for the water-gas shift and fuel oxidation reactions for energy applications.



Current ChBE Committee Chairs

- Graduate Program Chair: Dan Ryder
- Undergraduate Curriculum Committee Chair: Jerry Meldon
- Lecture Series Committee Chair: Christos Georgakis

(Continued on page 8)

Alumni Updates

We love hearing from our alumni! If you have news—promotions, weddings, births, retirement etc.—or stories that you would like to share with the Department, or would like to provide us with updated contact information, please fill out the survey on **page 6** and return to us for inclusion in future newsletters (your personal contact information will never be published).

In Memoriam

We are deeply saddened to share the news of the passing of the following ChBE Alumni in the past two years:

Robert O'Brien, E33, on February 23, 2005

Joseph Richmond, E36, on February 23, 2005

Nicholas Prodany, E58, on July 15, 2005

Charlotte Clarke Taylor, E44, on August 2005

Warren Whiton, E50, on August 8, 2005

Harold Killam, E45, on May 15, 2006

Richard Ball, E48, on June 8, 2006

Runo Johnson, E39, on July 26, 2006

Thomas Fidelle, E61, on August 21, 2006

Ernest Green, E34, on December 20, 2006

Robert Armstrong, E35, on December 21, 2006

Kenneth Hay, E37, on January 2, 2007

Samuel Ribok, E37, on January 12, 2007

Leonard Donoghue, E37, on January 29, 2007

Bill Toothe, E50, on March 22, 2007

Stephen Foti, E43, on April 24, 2007

Dale Walker, E51, on May 3, 2007

Our thoughts are with their families and friends. They will be missed!

Edward H. Gillespie, E34, writes: "My life from the 1934 graduation of Tufts College to my retirement as principal of Bedford High School in 1969 has been 100% pleasant and successful." His fondest memory is of "Dr. Durkee doing a demonstration with his hands in Bunsen burner flame and taking no notice of it!"

Dr. Robert E. Murch, E58, retired from Polaroid in 2000 following thirty years of service. He is now enjoying a "new life" as a musician.

Boris M. Krantz, E60, is partially retired and works as a marketing communications consultant. In 2006 he was named the "Counselor" Award recipient by the American Welding Society. His fondest memory of Tufts is the intimacy of faculty contact, especially since he was a transfer student.

Dr. Richard Siegel, E64/G66, is President of R&B Consulting Services. In this role, he assists environmental consulting and engineering firms in the marketing and sales of their professional services. He fondly remembers "Unit Ops Lab—especially my shower from the class I was working with as a lab instructor."

Leah Abraham, G05, welcomed her second child, Meredith Anne Jablonowski, on April 29th, 2006. Meredith joins Leah, father AJ Jablonowski, and big brother Joel (4 years).

Alumni Spotlight: David w. Carnell, E41

David retired from Du Pont in 1982. In his own words, "I came to Tufts as an immature boy and graduated on my 20th birthday. My professors in all the departments...were most influential in guiding and counseling me. I was fortunate to receive a Tau Beta Pi fellowship to pursue a M.S. degree at M.I.T., but Tufts was, and is, my home."

His fondest memory? David writes: "The most unforgettable moment was the day in freshman chemistry class that Dr. Durkee was demonstrating the properties of carbon dioxide. He taught the section composed of ChE and chemistry majors, seating us with the Jackson girls in the front row and the boys alphabetically in the rows behind. His demonstration was to show that the dense gas could be siphoned from one tall cylinder to another. Sucking on a rubber tube to start the flow his false teeth fell into the cylinder where he could barely reach them. The guys all ducked down to conceal their reaction, but the girls in the front row had no place to hide. Dr. Durkee kept the girls after class and lectured them about their unladylike behavior, while we got off scot-free."

May 2007 Alumni Dinner Honors Professor Ken Van Wormer

On May 5, 2007 the ChBE Department hosted an alumni dinner in honor of the retirement of Professor Kenneth Van Wormer. More than 120 friends, colleagues and alumni came together in the Alumnae Lounge to celebrate Professor Van Wormer's 53 years of dedicated service to chemical engineering at Tufts.

The evening kicked off with an hour-long reception. Old friendships were renewed as guests mingled and shared stories of their days at Tufts. Especially popular were the collages featuring photos of Professor Van Wormer and his family dating from the time he joined Tufts as an instructor in 1954.

As the oldest alumnus in attendance, Bernard Siskind (class of 1939) was invited to present the toast. After the catered dinner it was time for the presentations. Our current Department Chair, Professor Nakho Sung, introduced Linda Abriola, Dean of the School of Engineering. Following Dean Abriola's welcoming remarks, Professor Dan Ryder presented the Alumni awards. This year, the ChBE faculty and staff decided to celebrate the spirit of this festive event by honoring the careers of three of Professor Van Wormer's Doctoral students:

- Dr. Pablo A. Longoria, G94, President and Founder of Universidad Gènesis in Mexico
- Dr. Ara Philipossian, G85/G92, Professor in the Department of Chemical & Environmental Engineering at the University of Arizona
- Dr. Mark Rizzone, E76/G78/G91, Sales Manager at Koch Membrane Systems in Wilmington, Mass.

Professor Meldon provided an entertaining and heartfelt speech which opened the floor to students, family members and colleagues who wanted a moment with the microphone to share their thoughts. Finally, Professor Van Wormer took to the podium, and the evening ended with cheers, an enormous cake, and a touching rendition of "Happy Anniversary" to the Van Wormers, who celebrated their 50th wedding anniversary in June.

The ChBE faculty and staff are extremely grateful to every person who made this alumni dinner a success. We feel confident that we can claim the title "Party of the Year" for this event!

View our online photo gallery:
<http://ase.tufts.edu/chemicalnewsWormerFeted.htm>

The Van Wormers, L-R: Philip (E80); Mary (Van Wormer) McGrath (E82); Charlanne Van Wormer (Bouvé-Boston School/Tufts, 58); Prof. Van Wormer; Bill (E85); and Bob (Arts & Sciences, 88)

In a May 2007 School of Engineering faculty meeting, a resolution granting Professor Van Wormer Emeritus status was read and approved.

Congratulations Professor Van Wormer!



ChBE Department Administrators, past and present. L-R: Pam Cerullo, Jeannette Gorham, Prof. Van Wormer, Doris Rushton, Ann Tropeano



L-R: Mark Rizzone (E76/G78/G91), Pablo Longoria (G94), Prof. Van Wormer and Ara Philipossian (G85/G93)



Featured Faculty Publications

Maria Flytzani-Stephanopoulos

W. Deng and M. Flytzani-Stephanopoulos, "On the deactivation of nanostructured gold-ceria and platinum-ceria catalysts for the water-gas shift reaction in practical fuel cell applications," *Angewandte Chemie International Edition* 45, 2285-2289 (2006).

M. Flytzani-Stephanopoulos, M. Sakbodin, Z. Wang, "Regenerative adsorption and removal of H₂S from hot fuel gas streams by rare earth oxides." *Science* 312, 1508-10 (2006).

X. She⁹ and M. Flytzani-Stephanopoulos, "The role of Ag-O-Al species in silver-alumina catalysts for the selective catalytic reduction of NO_x with methane." *J. Catalysis* 237, 79-93 (2006).

M. Manzoli, F. Boccuzzi, A. Chiorino, F. Vindigni, W. Deng, and M. Flytzani-Stephanopoulos, "Spectroscopic features and reactivity of CO adsorbed on different Au/CeO₂ catalysts." *Journal of Catalysis* 245, 308-15 (2007).

Christos Georgakis

Wong, S., C. Georgakis, G. Botsaris, K. Saranteas, and R. Bakale, "Factors Affecting on-line Estimation of Diastereomer composition using Raman Spectroscopy," *Control Engineering Practice*. December 2006.

Zhan Q., T. Li, and C. Georgakis, "Steady state optimal test signal design for multivariable model based control," *Industrial & Engineering Chemistry Research* 45 (25): 8514-8527. December 2006.

David Kaplan

RGD-Functionalized Bioengineered Spider Dragline Silk Biomaterial. E. Bini, C. Wong, J. Huang, V. Karageorgiou, B. Kitchel, D. L. Kaplan, *Biomacromolecules*, 7:3139-3145 (2007).

G. R. Castro, B. Panilaitis, E. Bora, D. L. Kaplan, "Controlled release biopolymers for enhancing the immune response." *Molecular Pharmaceutics*, 4:33-46 (2007).

J. Huang, C. Wong, A. George, D. L. Kaplan, "The Effect of Genetically Engineered Spider Silk-Dentin Matrix Protein 1 Chimeric Protein on Hydroxyapatite Nucleation." *Biomaterials* 28:2358-2367 (2007).

"Control of in vitro tissue-engineered bone-like structures using human mesenchymal stem cells and porous silk scaffolds." *Biomaterials* 28:1152-1162 (2007).

"Biosynthesis of emulsan biopolymers from agro-based feedstocks." *J. Applied Microbiology* 102:531-537 (2007).

Kyongbum Lee

Si, Y., Yoon, J., and Lee, K. "Flux Profile and Modularity Analysis of Time-Dependent Metabolic Changes of De Novo Adipocyte Formation," *Am J Physiol Endocrinol Matab*, 2007.

Abraham, L.C., Dice, J.F., Lee, K., and Kaplan, D.L., "Phagocytosis and remodeling of collagen matrices," *Exp Cell Res*, 2007.

Si, Y., Palani, S., Jayaraman, A., and Lee, K., "Effects of forced uncoupling protein 1 expression in 3T3-11 cells on mitochondrial function and lipid metabolism," *J. Lipid Res.*, pp. M600343-JLR200, 2007.

Abraham, L.C., Dice, J.F., Finn, P.F., Mesires, N.T., Lee, K., and Kaplan, D.L., "Extracellular matrix remodeling-Methods to quantify cell-matrix interactions," *Biomaterials*, 28, pp. 151-61, 2007.

Blaine Pfeifer

S. Parsa, B.A. Pfeifer, "Engineering bacterial vectors for delivery of genes and proteins to antigen-presenting cells," *Mol Pharm* 4 (1): 4-17 (2007).

Hyunmin Yi

Hyunmin Yi, G.W. Rubloff and J.N. Culver, "TMV Microarrays: Hybridization-based Assembly of DNA-Programmed Viral Nanotemplates," *Langmuir*, 23: 2663-2667 (2007).

S.T. Koev, M.A. Powers, Hyunmin Yi, L. Wu, W.E. Bentley, G.W. Rubloff, G.F. Payne and R.Ghodssi, "Mechano-transduction of DNA Hybridization and Dopamine Oxidation through Electrodeposited Chitosan Network. *Lab on a Chip*, 2007, 7: 103-111.

J.J. Park, X. Luo, Hyunmin Yi, T.M. Valentine, G.F. Payne, W.E. Bentley, R. Ghodssi and G.W. Rubloff, "Chitosan-mediated in situ biomolecule assembly in completely packaged microfluidic devices," *Lab on a Chip*, 2006, 6: 1315-1321.



2006-07 ChBE faculty. Top row L-R: Christos Georgakis, Blaine Pfeifer, Kyong Lee, Jerry Meldon, Dan Ryder, Hyunmin Yi. Bottom row: Ramin Haghighoole, Nakho Sung, Eric Anderson.

Missing from photo: David Kaplan and Maria Flytzani-Stephanopoulos.

Alumni Survey

We want your news! This is your opportunity to reconnect and share important milestones with your classmates and colleagues. Your 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: _____

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 business reply envelope. Checks should be made out to: Trustees of Tufts College

Yes! I would like to contribute to the ChBE Department

\$25.00 \$50.00 \$100.00 \$250.00 \$500.00 \$1,000.00

other amount: _____

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

Undergraduate Laboratory Improvement _____ % Unrestricted _____ %

Sussman Scholarship/Lectureship _____ %

Thank you for your support!

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Celebrating the Class of 2007

On Saturday, May 19th, ChBE faculty and staff hosted the 2007 Senior Luncheon. The Luncheon is an annual event celebrating the achievements of our graduating seniors on the eve of commencement, traditionally held in the atrium of the Science and Technology Center. Awards were given to each member of the class in recognition of their unique contributions to the class, the Department, the University and AIChE.



The class of 2007. Back row, L-R: Raquel Abrams, Nicholas Curato, Matthew Deeg, Douglas Kingman, Gajanthan Balakaneshan, Eugene Bunin, Joshua Kennedy.

Bottom row, L-R: Mark Schenkel, Erin Young, Matthew Dallas, Brett Boghigian, Jeanne Van Slambrouck, Miriam Marx, Carolyn Vik, Aditi Dhar.

Not pictured: Stephen Banik, John Bosacker, Maegen Bradley, Anthony Dennis, Jane Wahome, Melissa Peters.

The Department presented the Chemical and Biological Engineering Prize, awarded annually to the two highest-ranking seniors, to Jeanne Van Slambrouck and Carolyn Vik. Jeanne also received the Lt. Commander Robert James Manning Memorial Prize, which honors engineering undergraduates who are industrious, competent and enthusiastic, and who show the same commitment to excellence that Lt. Commander Manning demonstrated throughout his life.

The seniors voted Kyongbum Lee "Best Professor" and named Jerry Meldon "Best Advisor." For more photos of this event, please visit our online gallery:

<http://ase.tufts.edu/chemical/newsClass2007.htm>

Tufts University's 151st Commencement took place the following day. Nineteen undergraduates received the Bachelor of Science in Chemical Engineering, and two received the Bachelor of Science in Engineering. We were thrilled to see five of our undergraduates inducted into Tau Beta Pi Engineering Honor Society this year.

Among the ChBE graduate students receiving degrees on May 20th, eight received a M.E., eight received a M.S., and three received a Ph.D. Jeong-Ah Yoon, a Ph.D. recipient who has worked under the direction of Professor Lee, was named "Outstanding Graduate Researcher in Engineering" by the School of Engineering.

We are extremely proud of all of our graduating students, and wish them every success in the future!

BSCHE

Raquel Jenna Abrams
Gajanthan Balakaneshan
Stephen John Banik II
Brett Adam Boghigian
John Brandon Bosacker
Maegen Tara Bradley†
Gene A. Bunin
Nicholas James Curato
Matthew R. Dallas†
Matthew G. Deeg
Anthony James Dennis
Aditi Dhar
Joshua Joseph Kennedy
Douglas Stephen Kingman
Mark Schenkel†
Jeanne Banning Van Slambrouck†
Carolyn M. Vik†
Jane Wangari Wahome
Erin Moon Young

BS Engineering

Miriam Elizabeth Marx
Melissa L.T. Peters

Note:

† Tau Beta Pi

ME CHE

Asami Tanimoto

ME BIOT

Michael J. Alexa
Paul J. de Medeiros
Nicole Y. DeCruz
Bretta Lynn Erskine
Amanda S. George
Aaron Russell Noyes
Amy M. Walsh Troncoso

MS CHE

Janelle R. Lavoie
Danny Pierre
Mann Sakbodin
Lisa M. Schupmann

MS BIOT

Jordy James DeFelice
Meredith Leigh Kolpack
Marielle Leigh Pleasant
Andrew Michael Wood

Ph.D. CHE

Zheng Wang
Sze Wing Wong
Jeong-Ah Yoon

Advisory Board (continued from page 2)

***Jordan Birger (Alumnus, E43)**

Former President & Chairman, **Family Products Inc.**
Overseer, School of Engineering, **Tufts University**

Harvey W. Blanch

Professor of Chemical Engineering, **University of California at Berkeley**

Thomas Connelly

Executive Vice President and Chief Innovation Officer
DuPont Company

Steven Demetriou (Alumnus, E80)

Chairman & Chief Executive Officer, **Aleris International Inc.**
Overseer, School of Engineering, **Tufts University**

Michael Doherty

Professor of Chemical Engineering
University of California at Santa Barbara

Dianne Dorland

Dean of Engineering at **Rowan University**
Former President of **AICHE**

Robert Haber (Alumnus, E79, G80)

Director of Canadian Equity Group, **Fidelity Investments**
Overseer, School of Engineering, **Tufts University**

***Mark Halperin (Alumnus, E72)**

President, **Pfaltz & Bauer, Inc.**

T. Alan Hatton

Ralph Landau Professor of Chemical Engineering, **M.I.T.**
Director, **David H. Koch School of Chemical Engineering Practice**

Monte Haymon (Alumnus, E59)

Former Chairman, **Sappi Fine Paper, N.A.**
Overseer, School of Engineering, **Tufts University**



Top row, L-R: Rob Reintjes, Carl Rausch, Mike Thien, Steve Jaffe, Dan Ryder, Kyong Lee, Ramin Haghighooie, Mark Halperin, Christos Georgakis.

Bottom row, L-R: Nak-ho Sung, Hyunmin Yi, Jordan Birger, School of Engineering Associate Dean Shafiqul Islam

***Stephen Jaffe (Alumnus, E64)**

Distinguished Scientific Advisor, **ExxonMobil Technology Company**

***Robert Langer**

Professor of Chemical Engineering, **M.I.T.**

Thomas Peterson (Alumnus, E72)

Professor and Dean, Chemical & Environmental Engineering
The University of Arizona

***Carl Rausch (Alumnus, E70, G72)**

Principal, **Biotechnology Consulting** / Executive Director, **The Maxiom Group** / Overseer, School of Engineering, **Tufts University**

***Rob Reintjes (Alumnus, E70)**

Managing Director, **New England Equity Group**

***Paula Soteropoulos (Alumna, E89)**

Vice President, Program Management & Strategic Development
Genzyme Corporation

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