Health Sciences and Technology

Newsletter

Spring/Summer 1994

Directors' notes

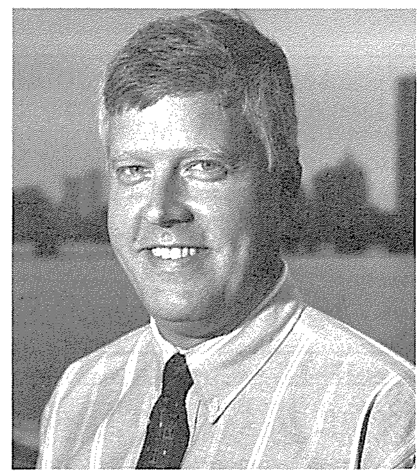
One of the greatest signs of our educational strength is the success of our graduates, and we have enjoyed keeping in personal contact with you. And as our alumni/ae body grows in size, we feel the time is right to establish some organizational means for sharing. We are delighted to begin publication of this newsletter to let you know what is happening here at HST and to welcome you to share news about your activities.

Most importantly, we have established an HST Alumni/ae Association through the good efforts of **Dr. Walter Abelmann,** Director of Alumni Affairs. With input from **Susan Steinberg** ('76) and **Michael Kita** ('75), Walter organized a planning meeting on the occasion of the 1994 HST Forum. We were joined by **Craig Alter** ('87), **Rox Anderson** ('84), **Steven Balk** ('83), **Joseph Bonventre** ('76), **Catherine Chen** ('90) **Pedro Huertas** ('93), **Jake Liang** ('84), **Eric Pierce** ('90), **Jean Schaffer** ('86), **Jay Schnitzer** ('83), and **John Yu** ('90). The enthusiasm of this group has encouraged us to take a number of steps:

- An HST Newsletter.
- Class reunions. **Rox Anderson** and **Marilyn Yodlowski** have inaugurated this idea with a 10th reunion on June 12, 1994.
- Alumni events. We will be organizing opportunities for you to get together as a group and with current students and faculty throughout the year.
- Mentoring. We will be contacting you regarding your interest in informal advising of our current students.
- An Alumni Directory. We hope this information will be helpful to you as well as currently enrolled students for purposes of networking.

Lee Gehrke Promoted

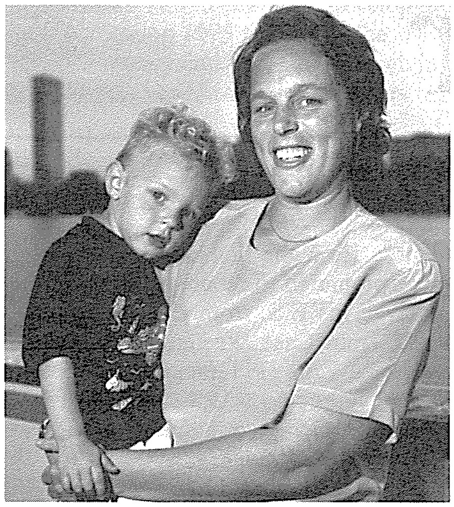
It is with great pleasure that we report that **Lee Gehrke, Ph.D.** has been promoted to the Lawrence J. Henderson Associate Professor of Health Sciences and Technology with tenure. He is the first member of the primary HST faculty to be promoted to tenure at Harvard Medical School. Lee received his B.S. from Eastern Illinois University and his Ph.D. from Case Western Reserve University, School of Medicine. An HST faculty member since 1983, Lee is a widely respected scientist in cell biology and genetics, a dedicated and effective teacher, a careful and responsible mentor of graduate students and post-docs, and a selfless contributor to numerous administrative tasks in the Division. We are excited and pleased that Lee, as one of our senior faculty, will be in a position to play a key role in guiding the future direction of the Division in its educational and research mission!



Martha Gray Promoted, Receives 1994 Edgerton Award

Congratulations are due to **Martha L. Gray, Ph.D.,** who has been promoted to tenure at MIT. Martha is culminating an exciting academic year with this proud moment, having earlier been chosen as the 1994 recipient of the Edgerton Award. As noted in the April 27 issue of MIT Tech Talk: Martha is "known for her significant contributions to understanding how physical, chemical, and mechanical factors influence the growth and metabolism of living musculoskeletal tissue. She has become internationally recognized for her unusual strength in both the engineering and the biological disciplines." Established in 1983 by the faculty in honor of Professor Harold E. (Doc) Edgerton, the annual award recognizes a junior faculty member for distinction in teaching, research and service to the MIT community. The selection committee noted that "Martha Gray is a fabulous, dedicated, talented and insightful teacher in both her HST and her EECS subjects. She is viewed by many as the HST faculty member who has been most successful in integrating quantitative concepts into the teaching of cell pathophysiology." The J.W. Kieckhefer

Associate Professor of Electrical and Medical Engineering, Martha completed the B.S. in computer science at Michigan State, and is an HST graduate, obtaining her S.M. in EECS (1981) and her Ph.D. in Medical Engineering (1986). Martha has demonstrated enormous commitment to HST, taking on many important committee assignments including MEMP and MD curriculum review.



Michael Rosenblatt Joins AAAS

Michael Rosenblatt, M.D., was honored by the American Association for the Advancement of Science at the 1994 AAAS annual meeting in San Francisco. Michael, the Robert H. Ebert Professor of Molecular Medicine at HMS, was one of 249 new fellows named at the February 20 meeting.

Cecil H. Coggins Receives the 1994 Irving M. London Teaching Award

Cecil H. Coggins, M.D., Associate Professor of Medicine, and Clinical Director of the Renal Unit at the Massachusetts General Hospital, has been recognized by the student selection committee as the faculty member who this year has best exemplified the goals and philosophy of HST. He has been honored for his exceptional contribution to the training of HST students by receiving the 1994 Irving M. London Teaching Award. Dr. Coggins is the Course Head of HST110 - Renal Pathophysiology.

In Memoriam

Walle J.H. Nauta, M.D., Ph.D., Professor of Brain and Cognitive Sciences and Institute Professor, Emeritus at MIT, was honored early this spring by the National Academy of Sciences with the neurosciences award. Tragically, shortly thereafter, he succumbed to a blood infection on March 24, 1994. Professor Nauta was the first head of the core HST course in neurosciences, which he taught for 15 years, until 1986. An outstanding scientist and teacher, he was the first recipient of the Irving M. London Teaching Award in 1986.

George Benedek Honored at Special Symposium

A scientific symposium and banquet on May 20 honored **George B. Benedek, Ph.D**, Professor of Physics, for his achievements in science, technology, and education. A member of the Harvard-MIT Committee on Engineering and Living Systems, Prof. Benedek became interested in the application of the quantitative and analytical insight of physics to biological and medical problems. Jointly with Prof. **Felix Villars**, he developed courses in physics with illustrative examples from medicine and biology. Within HST, Prof. Benedek lectured in "Functional Anatomy" and "Respiratory Physiology" and was advisor to several M.D./Ph.D. students, including **Richard J. Cohen** ('76), **Norman A. Mazer** ('78), **Gustav von Schulthess** ('80) and **Joanne M. Donovan** ('84). Prof. Benedek is recognized for the diversity of his work: semiconductor physics, the physics of high pressures and shock waves, NMR, critical phenomena in ferromagnets and fluids, quasielastic light-scattering spectroscopy, the theory of the transparency of the eye, micelles and microemulsions, the physics of enzymes, bile salts-membrane interactions, and the mechanism by which antibody and antigen molecules form clumps in the body.

Chi-Sang Poon Receives Fellowship

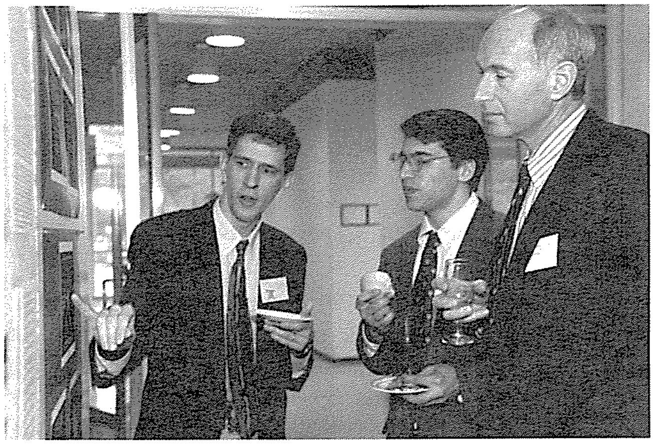
Dr. Chi-Sang Poon, an HST principal research scientist, has received a fellowship from the International Human Frontier Science Program to conduct collaborative basic research at the Centre National de la Recherche Scientifique in France.

Cynthia D. LuBien Appointed Director of Development

We are delighted to introduce **Dr. Cynthia D. LuBien,** who joined HST as Director of Development on January 1. In her previous capacity, Cynthia was Manager of Corporate Relations, where she directed the efforts of liaison officers working with member companies of MIT's Industrial Liaison Program from the pharmaceutical, chemical, oil, biotechnology, and consumer products industries. She holds the Ph.D. in Chemistry from MIT and an M.B.A from Southern Methodist University.

Cynthia replaces **Dr. Walter L. Koltun,** who aided HST in resource development during twenty-three years of dedicated service.

Research report



The 1994 HST Forum was held on March 31. **Roger Mark** and **Michael Rosenblatt** opened the meeting, welcoming the students, faculty, and graduates. **Tobi Nagel** and **Jan Friedrich** were excellent moderators of the afternoon sessions:

Majid Fotuhi

"Differential Localization of Metabotropic Glutamate Receptors in the Hippocampus and the Endorhinal Cortex of the Rat: Implications for CA1 Neurotoxicity"

Catherine Ford

"A Finite Element Study of the Effect of Femoral Neck Angle on the Strength of the Proximal Femur During Falls"

T.J. Alex Shafritz

"Proteoglycans Substituted for Glycosaminoglycans in an Analog of Extracellular Matrix Delay Skin Wound Contraction"

Alexander G. Martin

"Fluorescence Imaging of Skin Tumors"

David J. Milan

"Suppression of T-Cell Activation by Cyclosporin A: Molecular Mechanism"

Kerry J. Ressler

"Zonal Patterns of Odorant Receptor Gene Expression in the Olfactory Epithelium"

Marilyn Y. Chen

"Acoustic Parameters of Nasalized Vowels"

Scott I. Berkenblit

"Quantitative Assessment of Cartilage Degradation via Surface Electromechanical Spectroscopy"

ChenWei Lee

"The Extracellular Regions of the Parathyroid Hormone Receptor: Role in Ligand-binding as Analyzed by Homologous Substitution Mutagenesis"

Asa Abeliovich

"PKCγ Mutant Mice Exhibit Modified LTP Learning and Mild Deficits in Spatial and Contextual Learning"

Eighteen additional research communications were presented as posters by **A.E. Adams, G.F. Barker, J. Friedrich, Y. Gazit, J.E. Greenberg, C.M. Haqq, J.M. Kosowsky, T. Nagel, T.M.Quinn, M.A. Shah, D.A. Sidney, D.K. Sodickson, T.D. Wang, S.E. Voss, T. Wieczorek, S.E. Wilson,** and **K. Zhang.**

We note gratefully the support of Abbott Laboratories, Amgen Inc., Becton Dickinson and Company, Glaxo Inc., Marion Merrill Dow, Merck Research Laboratories, and Sandoz Pharmaceuticals for the 1994 HST Forum.

Edelman Named 1994 Burroughs Wellcome Fund Experimental Therapeutics Scholar

Dr. Elazer Edelman, Hermann von Helmholtz Assistant Professor of Health Sciences and Technology, has been awarded a 1994 Burroughs Wellcome Fund Award in Experimental Therapeutics. He received this competitive five year $350,000 grant because of his work in the fields of vascular biology, controlled drug delivery, biophysics and tissue engineering. Dr. Edelman's research concentrates on understanding the means by which proliferative arterial disease is usually kept in check, and the mechanisms that lead to the decompensation that results in unstable coronary syndromes. Cardiovascular diseases account for over 1 million deaths and more than 100 million hospital days each year in the U.S. Almost 1.5 million interventional procedures are performed for attempted relief of the complications of these illnesses. It is rapidly becoming apparent, however, that virtually any mechanical intervention designed to limit or alleviate atherosclerotic vascular disease is beset by accelerated vascular disease of its own. Working with **Dr. Morris Karnovsky,** Shattuck Professor of Pathological Anatomy at Harvard Medical School, Dr. Edelman has defined some of the immunologic, metabolic and mitogenic proliferative stimuli for accelerated arteriosclerosis. Dr. Edelman's early work was recognized by the American Heart Association which selected him as one of the 1992 Katz Prize awardees in Basic Science and for the 1993 Melvin Marcus Young Investigator Award in Integrated Physiology. The Burroughs Wellcome Fund Award is in recognition of his continued efforts to more fully appreciate the scope of local control of the vascular response to injury, coupling molecular, biochemical and immunohistolic, and pharmacologic approaches to investigate the impact of polymer based controlled delivery of vascular regulatory compounds on cells in culture and focal segments of the blood vessel wall. It is hoped that this multi-disciplinary approach might enhance our understanding of the pathobiology of vascular disease, optimize the utility of clinical controlled drug release, provide a rational framework for the future design, development and use of alternative pharmacotherapies, and contribute to the eradication of accelerated arteriopathic diseases.

Student News

Naomi C. Chesler was selected as the 1994-95 Ayukawa Prize winner. Established by the late Yaichi Ayukawa (the first Japanese member of the MIT Corporation) and his family, the prize provides tuition and stipend support and a travel grant of $2,500 for a visit to Japan. Naomi, who is pursuing her Ph.D. in Medical Engineering under the supervision of **Prof. Roger Kamm,** will return to the National Cardiovascular Center in Osaka to observe progress on the total artificial heart project and will meet with researchers in Kyoto regarding the use of skeletal muscle for cardiac assist. **John S. Kuo** was chosen to receive the Ayukawa Travel Prize, a travel grant of $2,500. John, who is an M.D.-Ph.D. candidate, is conducting research in developmental biology on neural induction under the supervision of **Prof. Hazel Sive** at the Whitehead Institute for Biomedical Research. John will travel to Japan to explore recent novel results regarding FGF and frog follistatin protein as neural inducers.

HST Graduates - 1994

HST Doctoral Curriculum in Medicine:

Joseph John Baraga, B.S., M.S., Ph.D.
Hibbing, Minnesota
"*In Situ* Chemical Analysis of Biological Tissue: Vibrational Raman Spectroscopy of Human Atherosclerosis"

Harold John Burstein, A.B.
Also Receiving Ph.D. from Harvard
Pittsburgh, Pennsylvania
"Regulation and Function of IL-4 Drug In Vivo Immune Responses"

Douglas Howard Luke Chin, A.B.
Oakland, California
"Mechanisms of Impaired Immune Function Following Thermal Trauma"

Richard Yoonsik Chin, A.B.
Leawood, Kansas
"*In-Vivo* Determination of DNA-Protein Interaction in E Coli: A Global Approach Based on Methylation Patterns"

Long Hoang Dang, B.A., Ph.D.
Dallas, Texas
"An Analysis of Cell-Cell Interaction and Antigen Presentation B Lymphocytes"

Alice Weaver Flaherty, B.A., Ph.D.
Brookside, New Jersey
"Contributions of Motor and Somatosensory Cortex to Movement Control in the Primate Striatum"

Robert K. Gipe, B.A., Ph.D.
Prescott, Arizona
"The Loss of Nicotinic Receptor Responsiveness in PC12 Pheochromocytoma Cells Exposed to Reduced Extracellular Sodium"

Shai Nachum Gozani, B.A., M.S.
Also Receiving Ph.D. from U.C. Berkeley
Palo Alto, California
"Sensory Information Representation by a Class of Interneurons in the Cricket Cercal Sensory System"

Theresa Anne Hadlock, B.A.
Lincoln, Massachusetts
"The Interaction of a Local Anesthetic, Tetracaine, with Model Membranes: Equilibrium and Kinetic Studies Using Intrinsic Drug Fluorescence"

William Chun Hahn, A.B., Ph.D.
Mentor, Ohio
"The Role of the CD2 Glycoprotein in T Cell Activation and Adhesion"

Kenneth Shung Hu, B.S.
Monterey Park, California
"Analysis of an Erythroid Specific Enhancer Involved in the Transcriptional Control of the Human ß-Globin Cluster"

Philip Lin Huang, B.A.
New York, New York
"The Localization of Transduction Channels in Mechanosensory Hair Cells"

Rebecca Rae Hung, A.B.
Also Receiving Ph.D. from Harvard GSAS
Wheaton, Illinois
"Application of Photo Acoustic Calimetry to the Study of Transient Organic Intermediates"

Eugene Hideo Kaji, A.B., Ph.D.
Philadelphia, Pennsylvania
"Folding, Unfolding and Secretion of Retinol Binding Protein"

Seth J. Karp, A.B., M.A.
Syosset, New York
"Molecular Cloning and Chromosomal Localization of the Key Subunit of the Human N-Methyl D-Aspartate Receptor"

Thomas Nelson Kerrihard, B.A.
Tucson, Arizona
"Analysis of Suicidal Ideation and Measures of Psychiatric Distress Among Patients with AIDS"

Young-Jo Kim, B.S., Ph.D.
Western Springs, Illinois
"Physical Regulation of Cartilage Metabolism: Effects of Compression on Specific Matrix Molecules and Their Spatial Distribution"

Betty Tung Lee, B.S.
Beijing, China
"Use of a Single Strand Conformational Polymorphism to Delineate the Potential Link Between Mullerian Inhibiting Substance and Early Onset Ovarian Cancer"

Vincent Wei-Tsin Li, A.B., M.S.
Pittsburgh, Pennsylvania
"Studies of Angiogenesis in Human Cancers: Detection, Activity, and Clinical Implications of an Angiogenic Factor (bFGF) in the Body Fluids of Cancer Patients"

Melinda Aileen Maggard, B.S.
Bellingham, Washington
"Activated MIS Blocks Autophosphorylation of EGF Receptor: A Protein-Tyrosine Phosphatase Dependent Action"

Adel M. Malek, B.S.
Also Receiving Ph.D. from MIT
Weston, Massachusetts
"Functional and Molecular Characterization of the Vascular Endothelial Response to Fluid Shear Stress"

Terence Joseph McGovern, B.S./B.E.
Monroe, Connecticut
"Retinal Blood Flow Determinations in the Diabetic Animal Model Using Video Fluorescein Angiography - The Role of Various Mediators in Flow Changes"

Benjamin David Medoff, B.S.
St. Louis, Missouri
"Expression of Endothelial-Leukocyte Adhesion Molecules During Atherogenesis"

Elizabeth Jane Murphy, B.A.
Ft. Lauderdale, Florida
"Investigation of Homologous Recombination Efficiency in Mammalian Cells"

Anju Nohria, A.B., A.M.
Bombay, India
"Expression and Controlled Release of Interleukin-1 Receptor Antagonist"

Wendell Carlos Ocasio, A.B.
Mayagüez, Puerto Rico
"Analysis of Fluctuations in Heart Rate and Blood Pressure"

James Douglas Oliver, III, B.S., S.M., Ph.D.
San Antonio, Texas
"Analysis of Glomerular Permselectivity in the Rat Using Theoretical Models of Hindered Transport"

Robert L. Satcher, Jr., B.S., Ph.D.
Lawrenceville, Virginia
"A Mechanical Model of Vascular Endothelium"

Steven Marshall Stufflebeam, B.S.
Topanga, California
"Objective Detection and Localization of Multiple Sclerosis Lesions on Magnetic Resonance Brainstem Images: Correlation with Auditory Evoked Potentials"

Sara Emily Szal, B.S., B.S.E.
Anchorage, Alaska
"$[CA^{2+}]_1$ Signalling in Pregnant Human Myometrium"

John Motley Wilson, B.S., M.S., Ph.D.
Beckley, West Virginia
"Investigation of Respiratory Cardiovascular Interactions Using Computer Simulations"

Mary Wu, B.S.E.
Seattle, Washington
"*In Vivo* Versus *In Vitro* Degradation of Controlled Release Polymers for Brain Tumor Therapy"

Henry Le-qian Zhu, B.S.
Brooklyn, New York
"The Effects of Ovarian Sex Steroids and Growth Factors in the Regulation of Myometrial and Leiomyoma Smooth Muscle Cell Proliferation and Extracellular Matrix Production"

HST Doctor of Science in ME/MP:

Keita Ito, B.S., M.S.
Yokohama, Japan
"Movement-Induced Orientation of Collagen Fibers in Cartilagenous Tissues"

Michael P. McCue, B.S., M.S., M.D.
Caldwell, Idaho
"Acoustic Responses from Primary Vestibular Neurons"

HST Ph.D in ME/MP:

Amy Corinne Courtney, B.S.
San José, California
"Mechanical Properties of the Proximal Femur: Changes with Age"

Kathleen Marie Donahue, B.S.E., M.S.
Wauwatosa, Wisconsin
"Studies of Gd-DTPA Relaxivity and Proton Exchange Rates in Tissue with Implications for MR Imaging of Regional Myocardial Perfusion"

Bernard Martin Fine, B.Sc.
Vancouver, B.C., Canada
"Light Scattering by Aqueous Protein Solutions that Exhibit Liquid-Liquid Phase Separation"

Xiang-Dong Edward Guo, B.S.
Changsha, Hunan Province, P.R. China
"Fatigue of Trabecular Bone: High Cycle Microcrack Propagation Versus Low Cycle Creep"

Leann Lesperance, B.S.E., M.S.E.E.
Tampa, Florida
"Compositional Studies of Cartilage Matrix Using NMR Spectroscopy"

Adel M. Malek, B.S.E.E., M.S.E.E.
(see above)

Tueng Shen, B.A.
Malden, Massachusetts
"Superparamagnetic Contrast Agents for Magnetic Resonance Imaging"

Daniel Kevin Sodickson, B.S., B.A.
Waban, Massachusetts
"Spin-Spin Couplings in Two Limits: Experimental, Theoretical and Computational Studies of Dipole-Coupled Nuclear Spins in Solids"

Patricia K. Donahoe, M.D., Chief of Pediatric Surgical Services at MGH and the Marshall K. Bartlett Professor of Surgery, HMS, gave the keynote address before the awarding of diplomas on June 8. Excerpts from her commencement address:

"Today is a moment in your life that you must freeze frame; *carpe diem.* Seize this moment to synthesize and integrate, for you will find that images of today will resonate in your mind (probably in the hippocampus), reminding you for many years to come of this most wonderful of days...You are an amazing collection of fine young men and women, with keen, disciplined minds, sharpened and toughened by your intense intellectual and technical training, borne by the deepest and noblest of motivations. You are among the few who can combine incisive intellect with deep love and caring. A synthesis of such gifts makes you, to my mind, the obvious leaders of a new generation...Because of your great gifts, however, you are to be burdened with added responsibilities, and these you must shoulder with grace. <u>You</u> must take the tools of our current biologic revolution to stake out new fields of molecular and structural medicine, led less by empiricism and more by mechanistic etiologies dictating treatment and prevention. <u>You</u> must develop and advance computational, engineering, physical, and biochemical tools, to create robotics, to open information highways, to replace parts and functions...Some of you will become gifted scientists, great ones I suspect; others will become esteemed clinicians, others will do <u>both</u>, for the latter is what HST is all about. Find your area of devotion, grow in it, and love it passionately. Share it by teaching, for time is too short and too much needs to be done to accomplish alone all that you can do. Also remember that with the gift of your fruitful minds comes the awesome responsibility to <u>make</u> <u>discoveries</u>, to push the frontiers of your field. You <u>cannot</u> enjoy the <u>luxury</u> of <u>mediocrity</u>; you must push to painful limits, for only then do revelations come, only then do revolutions occur. In the process enjoy what you do to the fullest and share that joy with those you love. Then you will have fulfilled the dreams of your parents, family, friends, and colleagues, brought them great joy, touched others with your skill and fine minds, and jumped to yet another orbit of influence."

HST students admitted Fall 1993

M.D.	Institution	Major
Manish Aghi	Stanford	Biology
Alexander Bageac	University of Washington	Biochemistry/ Chemistry/Math
John Baker	U Cincinnati/UC Berkeley	EE Physics/EE Computer Science
Yun-Beam Choi	Harvard	Chemistry/Physics/E. Asian Languages
Richard Christie	MIT	Cognitive Science
Chrysoula Dosiou	Harvard	Biology
Rose Du	Harvard	Physics
Christiana Goh	MIT	Electrical Engineering
Samah Jafari	Yarmouk University/Harvard	Mathematics/Applied Mathematics
Wynn Kao	MIT/Johns Hopkins	Biology/Biomedical Engineering
John Keltner	Pomona/UC Berkeley	Physics
Karen Lee	MIT	Chemical Engineering/Biology
Jerry Lin	Harvard	Chemistry/Physics
Luis Maas	MIT	Electrical Engineering/Computer Science
Alexander Martin	U Manchester/U Rochester	Physics
Pakaj Merchia	Johns Hopkins	Biomedical/Electrical/Computer Eng.
Vamsi Mootha	Stanford	Math/Science
Scott Naisbitt	University of Utah	Physics/Mathematics
Claribel Paguio	MIT	EE/Medical Engineering
Edward Rodriguez	Johns Hopkins	Biomedical Engineering/Bioengineering
Jeremiah Scharf	Yale	Molecular Biology
Stephan Stephanides	University of Southern CA/MIT	Biomedical/Mechanical Engineering
Usha Tedrow	MIT	Electrical Engineering
Konstantina Trbovic	MIT	Physics/Biology/Speech & Hearing
Larry Tsai	Stanford	Biology
Vasanth Vedantham	Yale	Biophysics/Biochemistry/Physics
Conrad Wang	MIT	Mechanical Engineering/Biology
Paul Wang	MIT	Computer Science
Marcus Ware	Tougaloo College	Chemistry
Channing Yu	Harvard	Biochemical Science
Thomas Zewert	Yale/CA Tech	Chemistry

MEMP

Stephen Boppart	University of Illinois	Electrical Engineering
Hui Chao	University of Wuhan, China	Nuclear Engineering
Frederick Chen	Harvard	Div. of Applied Sciences-HST M.D.
Whitney Edminster	MIT	MIT Physics-HST M.D.
Manish Gupta	Indian Inst. of Technology, India	Division of Applied Sciences
David Inouye	University of Hawaii	Mechanical Engineering
Hong-Kwang Jeff Kuo	MIT	Electrical Engineering
Arthur Liu	MIT	Electrical Engineering
Cécile Smeesters	Concordia University	Mechanical Engineering
Jennifer Stinn	Simon Fraser University	Electrical Engineering
Su Wooi Teoh	University of Texas at Austin	Electrical Engineering
Steven Treppo	University of Toronto	Mechanical Engineering
Greg Zaharchuk	Stanford	Division of Applied Sciences

Speech and Hearing

Alexander Aranyosi	Boston University	Biomedical Engineering
Karen Chenausky	MIT	Philosophy-M.S. Linguistics
Harold Cheyne	Tufts University	EE/Music
Christopher Long	UCLA	Electrical Engineering
Richard MacDonald	University of Virginia	Physics
Martin McKinney	Tufts University/Dartmouth	EE/Electro-Acoustic Music
Thomas Talavage	Purdue University	Electrical Engineering

Upcoming events

Joseph Bonventre and **James Tananbaum** are developing an industry symposium for Spring 1995 to discuss the commercialization of revolutionary concepts and research in biotechnology, medical devices, and health care services. Details will follow.

Alumni news

Let us hear from you! We will be glad to share what we receive in future letters. Drop us a note from your office/home/beach/mountain retreat this summer!

Please help us to locate the following alumni (listed by year of graduation):

1975 David W. Kurtz
1976 Daniel J. Knighton
1977 John A. Myers
Robert N. Gray
1978 Edward H. Abraham
David Adams
Howard R. Brodie
Alan L. Silverberg
William Roy Smith, Jr.
Mitchell R. Swartz
1979 Marguerite Pearl Barnett
Barry N. Swerdlow
1980 Robert L. Redner
1981 Cavelle M. Kelsick
Cecilia A. Slater
1982 Sundeep Khosla
Andrew J. Plisko
George E. Sarris
Pamela A. Taylor
Michael L. Wage
1983 Howard L. Golub
Steve G. Massaquoi
1984 Oren Grad
Scott M. Bradley
Bengt L.W. Ivarsson
Mitchell Laks
Dana Leifer
Constance L. Monitto
Jed G. Nuchtern
1985 Janey Lee Wiggs
1986 Lawrence E. Bodenstein
Mark E. Dixon
Michael A. Pollack
Toren Finkel
1987 David E. Cummings
Alise S. Reicin
1988 Luke P. Cheung
Jay Chung
John C. Eagon
William Rogers
1989 William Bishai
Peter Diamandis
Arielle Bienenstock Kauvar
Lloyd Klickstein
Barry Sleckman
Philip Starr
Lincoln D. Stein
1990 Faith Barnett
Diane Lianging Chen
Jennifer Green-Nastelin
Anya Hurlburt
Howard Lebovitz
Kathleen S. Lee (Faust)
Byron E. Wilson
1991 Chenfei Chen
George Q. Daley
Malvina B. Eydelman
Thomas Glaser
Albert I. Ko
Edmundo Marroquin
Marjorie Oettinger
Gregory Pearson
Albert Shaw
1992 James Y.S. Dunn
Sterling C. Johnston
Ben Lam Nguyen
Dale S. Reynolds
1993 Joshua B. Helman
Peter Mark Li

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