CALIFORNIA INSTITUTE *of* TECHNOLOGY

One Hundred and Eighth Annual Commencement

June 14, 2002

Cover: Caltech's commencement ceremony,
by Joseph Stoddard.

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Editor: Emily Adelsohn
Contributors: Michael Farquhar, Natalie Gilmore, Linda J. King

CALIFORNIA INSTITUTE *of* TECHNOLOGY

One Hundred and Eighth
Annual Commencement

Friday Morning at Ten O'Clock
June Fourteenth, Two Thousand Two

IN HIS DIARY ENTRY of September 1, 1891, Pasadena philanthropist Amos Throop wrote, "Planted potatoes, cleaned a water pipe, husked the corn . . . In afternoon, saw Mr. Wooster and rented his block for five years . . . and hope I have made no mistake." Were he here today, Throop could rest assured in his decision. For the building of which he wrote, the Wooster Block, was rented for the purpose of establishing Throop University—the forerunner of Caltech.

In November of that year, Throop University opened its doors to 31 students and a six-member faculty. Could anyone have imagined then that the school would become a world center for science and engineering research and education? Perhaps . . . for in the first year, the board of trustees began to reconsider the mission of the school. In 1892, they decided to emphasize industrial training, and in 1893, reflecting this new focus, renamed the school Throop Polytechnic Institute.

Throop might have remained just a good local school had it not been for the arrival in Pasadena of George Ellery Hale. A faculty member at the University of Chicago and a noted astronomer, Hale settled here in 1903. From that time until his death in 1938, he made significant contributions to Pasadena and Southern California: he established the Mount Wilson Observatory, raised funds for Palomar Observatory and its 200-inch telescope, participated in the creation of the Huntington Library and Art Gallery, helped design the Civic

Center in downtown Pasadena, and—perhaps his single greatest achievement—set the course for the development of Throop into the California Institute of Technology, a school he envisioned as a scientific institution of the highest rank.

In 1913, Hale convinced Arthur Amos Noyes, professor of chemistry and former president of the Massachusetts Institute of Technology, to join him in Pasadena. With the arrival in 1917 of Robert Andrews Millikan, professor of physics at the University of Chicago, Hale had assembled the founders of the new institution. The world center of scientific and engineering research and education he had imagined soon took shape under a new name, the California Institute of Technology, administered by Millikan and enriched with the scientific talents of Noyes and his faculty colleagues.

Caltech today has a 124-acre campus and operates seven off-campus astronomical, seismological, and marine biological facilities, and administers NASA's Jet Propulsion Laboratory as well. At present, the Institute has an enrollment of some 2,000 students, more than half of whom are in graduate studies; about 280 professorial faculty members, including four Nobel laureates and three Crafoord laureates; and more than 200 research faculty members. Today, Caltech will award 248 students the B.S. degree; 125 students the M.S. degree; and 140 doctoral candidates the Ph.D. degree, for a total of 513 graduates—quite a leap from the one man and one woman who constituted the first collegiate graduating class of Throop Polytechnic Institute.

Please note:
Video footage of commencement may be viewed on the Caltech Web site at http://www.caltech.edu/commencement/02/. Broadcast is scheduled to begin after 3:00 p.m.

ONE FEBRUARY DAY LAST YEAR, Alan Alda paid a visit to the Caltech campus. He talked to a few people, peeked into physics lecture halls and Ramo Auditorium, spent a few moments in the office of a famous professor (now deceased), had lunch at the Athenaeum, and a few weeks later became a Nobel laureate in physics. . . .Well, sort of. Though he never actually laid claim to the extraordinary insights and the depth and breadth of knowledge possessed by the late Richard Feynman, whom he went on to portray in Peter Parnell's *QED* at the Mark Taper Forum in Los Angeles last year (and, this year, in a successful run at Lincoln Center's Vivian Beaumont Theater), he was able to draw on his own unique genius to convincingly embody the legendary scientist, bringing coherence to the kind of brilliance that resides not solely in knowledge, but in character as well.

Alda has made something of a specialty of projects pertaining to science. His interest in science began in his youth, when he used to "do what I thought were scientific experiments. I mixed things found around the kitchen. Mainly what happened was I spilled everything all over the bedroom." He invented a couple of gadgets, including a "five-way can opener," a venture that failed, oddly, to start him on his path to glory. Fame came instead through acting. As Hawkeye Pierce, one of the doctors in the long-running and hugely popular Korean War comedy series *M*A*S*H*, he won the Emmy Award five times. For his role in the movie *Crimes and Misdemeanors*, he won the D. W.

Griffith Award and the New York Film Critics Award and was nominated for a British Academy Award as Best Supporting Actor. He has been honored by the Television Academy as a top performer, writer, and director. In all, he has received 30 Emmy nominations. In addition, he has won three Director's Guild of America Awards, six Golden Globe Awards from the Hollywood Foreign Press Association, and seven People's Choice Awards.

His role for the past nine seasons as host of the award-winning television show *Scientific American Frontiers* is appropriate for a man who has read almost every issue of *Scientific American* since his mid-20s. On the PBS show, he gets to interview researchers and to follow scientists all over the world as they gather data in the field. Whenever and wherever there is something new to be learned, Alda is obviously delighted to be there learning about it—and, judging from his frequent exuberant responses and impish grins, he is positively gleeful about sharing his enthusiasm with the lucky TV viewers who have come along on the adventure.

Perhaps it is not surprising that a man with two radically different sides to his nature should try to dissolve the distinctions between science and the arts. "When I began meeting scientists," Alda has said, "I realized that scientists were actually no less creative than artists. And I began to think that artists were no less rigorous than scientists. The more scientists I meet, the more I think that they don't work that differently. The rigor is expressed in a different way."

Possessing an enduring enchantment with science, and convinced of the importance of communicating science to the public, Alan Alda is indeed Caltech's kind of actor.

THESE TRIBAL RITES have a very long history. They go back to the ceremony of initiation for new university teachers in mediaeval Europe. It was then customary for students, after an appropriate apprenticeship to learning and the presentation of a thesis as their masterpiece, to be admitted to the Guild of Masters of Arts and granted the license to teach. In the ancient University of Bologna this right was granted by authority of the Pope and in the name of the Holy Trinity. We do not this day claim such high authority.

As in any other guild, whether craft or merchant, the master's status was crucial. In theory at least, it separated the men from the boys, the competent from the incompetent. On the way to his master's degree, a student might collect a bachelor's degree in recognition of the fact that he was half-trained, or partially equipped. The doctor's degree was somewhat different. Originally indistinguishable from the master's the doctor's gradually emerged by a process of escalation into a super magisterial role—first of all in the higher faculties of theology, law, and medicine. It will come as no surprise that the lawyers had a particular and early yen for this special distinction.

These graduations and distinctions are reflected in the quaint and colorful niceties of academic dress.

Of particular interest is the cap or mortarboard. In the form of the biretta it was the peculiar sign of the master. Its use has now spread far beyond

that highly select group to school girls and choir boys and even to the nursery school. *Sic transit . . .*

The gown, of course, is the basic livery of the scholar, with its clear marks of rank and status—the pointed sleeves of the bachelor, the oblong sleeves of the master, the full sleeves and velvet trimmings of the doctor. The doctors, too, may depart from basic black and break out into many colors—Harvard crimson or Yale blue or the scarlet splash of Oxford.

Color is the very essence of the hood: color in the main body to identify the university; color perhaps in the binding to proclaim the subject of the degree—orange for engineering, gold for science, the baser copper for economics, white for arts and letters, green for medicine, purple for law, scarlet for theology, and so on. Size is a further variable, as the hoods tend to lengthen from the three feet of the bachelor to the four of the doctor. So the birds are known by their plumage.

With this color and symbolism, which is mediaeval though mutated, we stage our brief moment of pageantry, paying homage to that ancient community of scholars in whose shadow we stand, and acknowledging our debt to the university as one of the great institutional constructs of the Middle Ages. While looking back, however, we also celebrate the achievements of this present generation of students and look forward to the future of these our younger colleagues, whom we now welcome to our midst.

David C. Elliot

Professor of History, Emeritus

Academic Procession

Chief Marshal

Kim C. Border, Ph.D.

Marshals

Fred C. Anson, Ph.D.
Barbara Green, Ph.D.
D. Roderick Kiewiet, Ph.D.
Christoph Koch, Ph.D.
Diana L. Kormos-Buchwald, Ph.D.
Jean-Paul Revel, Ph.D.

Faculty Officers

Marianne Bronner-Fraser, Ph.D.
Melany L. Hunt, Ph.D.

Marching Order

Candidates for the Degree of Bachelor of Science
Candidates for the Degree of Master of Science
Candidates for the Degree of Doctor of Philosophy
Faculty Officers
The Faculty
The Chairs of the Divisions
The Deans
The Provost
The Trustees
The Commencement Speaker
The President
The Chairman of the Board of Trustees

PROGRAM

Organ Prelude	Leslie J. Deutsch, Ph.D.
PROCESSIONAL	The Caltech Convocations Brass and Percussion Ensemble *William Bing, M.M., Conductor*
PRESIDING	Benjamin M. Rosen *Chairman of the Board of Trustees* *California Institute of Technology*
COMMENCEMENT SPEAKER *"Finding Feynman"*	Alan Alda *Television, Screen, and Stage Actor*
CHORAL SELECTION	The Caltech Glee Clubs *Desiree La Vertu, M.M.,* *Conductor*
"Hallelujah," from *Messiah* George Frideric Handel	
CONFERRING OF DEGREES	David Baltimore, Ph.D. *President* *California Institute of Technology*

PRESENTATION OF CANDIDATES FOR DEGREES

For the Degree of Bachelor of Science	Jean-Paul Revel, Ph.D. *Dean of Students*
For the Degree of Master of Science	Gary A. Lorden, Ph.D. *Acting Vice President for Student Affairs*
For the Degree of Doctor of Philosophy	D. Roderick Kiewiet, Ph.D. *Dean of Graduate Studies*
Biology	Elliot M. Meyerowitz, Ph.D. *Division Chair*
Chemistry and Chemical Engineering	David A. Tirrell, Ph.D. *Division Chair*

Engineering and Applied Science	Richard M. Murray, Ph.D. *Division Chair*
Geological and Planetary Sciences	Edward M. Stolper, Ph.D. *Division Chair*
The Humanities and Social Sciences	John O. Ledyard, Ph.D. *Division Chair*
Physics, Mathematics and Astronomy	Thomas A. Tombrello, Ph.D. *Division Chair*

ANNOUNCEMENT OF AWARDS AND CONCLUDING REMARKS — President Baltimore

ALMA MATER — The Caltech Glee Clubs, The Caltech Convocations Brass and Percussion Ensemble, and Organ

"Caltech Alma Mater"
By Manton Barnes, BS '21 EE
(The audience may join in; lyrics are found on page 46.)

RECESSIONAL — The Caltech Convocations Brass and Percussion Ensemble

Organ Postlude — *Dr. Deutsch*

You are invited to attend a reception on the Athenaeum West Lawn following the program.

Bachelor Of Science

Jonathan William Adams *Ladera, California* Physics
Nathaniel Lefteris Anagnostou *Phoenix, Arizona* Engineering and Applied Science
Joseph Paul Andrieu *Las Vegas, Nevada* Engineering and Applied Science
Bob Shahram Moez Ardalan* *Redondo Beach, California* Business Economics and Management and Chemistry
Marcos Arribas-Layton *Guadalajara, Spain* Chemistry
Matthew Sammis Ashman *Baton Rouge, Louisiana* Engineering and Applied Science
Nathaniel Pickens Austin *Newbury Park, California* Engineering and Applied Science (Mechanical Engineering)
Kenneth Patrick Ayers *Hemet, California* Engineering and Applied Science
Benjamin Christopher Backes *Downers Grove, Illinois* Engineering and Applied Science
Tom Wetteland Baehr-Jones* *New York, New York* Physics
Douglas Cameron Baker *Hoffman Estates, Illinois* Mathematics
Vijayanthi Balaraman* *Nairobi, Kenya* Electrical Engineering
Matthew Robert Ballard* *Lansing, Michigan* Mathematics
Ayeh Bandeh-Ahmadi *Davis, California* Physics and Economics
Zhaosheng (Josh) Bao* *San Gabriel, California* Engineering and Applied Science
Christopher Ryan Bartok *La Crescenta, California* Engineering and Applied Science
Brock Raymond Beauchamp* *San Dimas, California* Electrical and Computer Engineering
Teodora Nikolaeva Beloreshka *Vratsa, Bulgaria* Applied and Computational Mathematics
David Edward Benson *Pasadena, California* Mathematics
David Wesley Bernat *Southampton, Pennsylvania* Physics
Rodney Bradford Blakestad* *Highlands Ranch, Colorado* Physics
Garrett Douglas Blankenburg *Carmichael, California* Electrical Engineering
Brian Robert Blood *Lewistown, Montana* Geobiology
Thomas Ivan Borchert *Golden Valley, Minnesota* Engineering and Applied Science
Dustin Boswell* *Canyon Country, California* Electrical and Computer Engineering
Agedi Nicholson Boto* *Baltimore, Maryland* Chemical Engineering
Richard Mendel Bowman *Sylmar, California* Engineering and Applied Science
Todd Z. Bowra* *Woodinville, Washington* Electrical Engineering
Nathan Scott Brown* *Wilmington, North Carolina* Astronomy
Elisa Marie Bueno *Torrance, California* Engineering and Applied Science (Mechanical Engineering)

Students whose names are followed by an asterisk are being graduated with honor in accordance with a vote of the faculty.

Bachelor of Science *continued*

David Gray Bustos *Bettendorf, Iowa* Engineering and Applied Science
Sascha Beth Calkins *Lake Oswego, Oregon* Engineering and Applied Science (Mechanical Engineering)
Fernando Alonso Campos *San Antonio, Texas* Biology
Joel E. Carranza* *Ocean Springs, Mississippi* Engineering and Applied Science
Elisa Ka Yee Chan* *Toronto, Ontario, Canada* Biology
Sunny Tak Cheung Chan *Oakland, California* Biology
Michael Cheng* *Succasunna, New Jersey* Physics
Alisa Mei-Jin Ching* *Honolulu, Hawaii* Chemical Engineering
Wendy M. Ching* *Honolulu, Hawaii* Biology
Richard Chiu* *Rosemead, California* Chemistry
Andrew James Coe* *Edmond, Oklahoma* Mathematics
Nalini Anne Colaco* *Santa Cruz, California* Biology
Walter James Collins II *Santee, California* Engineering and Applied Science (Mechanical Engineering)
Kristen Lee Cook* *Boca Raton, Florida* Geology
Sarah Anne Cooke *Honolulu, Hawaii* Geology
Mauricio Cordero *Clifton, New Jersey* Electrical Engineering
Ingrid Anda Cotoros* *Vaslui, Romania* Physics
Timothy Andrews Crosby* *Amherst, Massachusetts* Physics and Literature
Theresa Marie Daniels *Bedford, Massachusetts* Geobiology
Karen Marie Daugherty* *Simi Valley, California* Biology
Aaron David Davies *Houston, Texas* Physics
Vikram R. Dendi* *Achampet, India* Engineering and Applied Science
Joshua Aaron DenHartog *Otley, Iowa* Engineering and Applied Science (Mechanical Engineering)
Rachel Jean Dexter *Fairfax Station, Virginia* Chemistry
Miroslav Dudik* *Trebisov Slovakia* Engineering and Applied Science
Deborah Elaine Eason* *Dallas, Texas* Geology
Frederik Hewitt Eaton* *Sacramento, California* Mathematics and Engineering and Applied Science
Serena Merteen Eley *Springfield, Virginia* Physics
Christopher Jon Elion *East Greenwich, Rhode Island* Applied and Computational Mathematics
Timothy James Elling *San Leandro, California* Engineering and Applied Science
Brian Hoi-Yuen Eng *Encinitas, California* Physics
Dirk Robert Englund* *Thousand Oaks, California* Physics
Alejandro Erives *Arleta, California* Engineering and Applied Science
John Aldon Estes *Laveen, Arizona* Physics
Joseph Daniel Fassler *Fortuna, California* Chemistry

Bachelor of Science *continued*

John-Eric Ferguson *Arlington, Virginia* Physics and Business Economics and Management
Cheryl Ann Forest *Peachtree City, Georgia* Biology
Leah Rebekah Fox* *Salt Lake City, Utah* Engineering and Applied Science
Philip Fung* *Brooklyn, New York* Electrical and Computer Engineering
Laurie Elizabeth Gagne *Santee, California* Chemical Engineering
Nicholas Mark Gerovac *Tulsa, Oklahoma* Applied Physics
Yuri Michael Goldfeld* *Moscow, Russia* Engineering and Applied Science
Cesar Gilberto Gonzalez Fernandez *Lima, Peru* Electrical and Computer Engineering
Emilio Castaño Graff *Sugar Land, Texas* Engineering and Applied Science (Aeronautics)
Dinkar Gupta* *Lucknow, India* Electrical and Computer Engineering
David Samuel Guskin *Aptos, California* Physics
Ryan Nicholas Gutenkunst* *Pueblo, Colorado* Physics
Siina Ilona Haapanen* *Nurmo, Finland* Engineering and Applied Science
Jeanette Chiles Hagan *Greensboro, North Carolina* Geology
Giao Bich Hang *Covina, California* Biology and Literature
Nadia Haq *Dhaka, Bangladesh* Chemistry
Brian Sauer Hardy* *Wallingford, Pennsylvania* Engineering and Applied Science (Mechanical Engineering)
John Kenyo Harris *Clovis, New Mexico* Engineering and Applied Science
Abraham Isaiah Harte* *San Anselmo, California* Physics
Garrett Collins Heffner* *Grosse Pointe Farms, Michigan* Biology
Jessica Paige Heller *Katonah, New York* Engineering and Applied Science
Kevin Peter Hickerson *Claremont, California* Physics
Aaron Mark Hicks *Carson, California* Economics
Kenneth Francis Higa *Los Angeles, California* Chemical Engineering
Justin Si-Qi Ho *Silver Spring, Maryland* Chemistry
Cuong Gia Hoang* *Ventura, California* Engineering and Applied Science
Michael J. Hochberg *Baton Rouge, Louisiana* Physics
David Christian Hockaday *Nashville, Tennessee* Physics
Loren Kimberly Hoffman* *Richmond, Virginia* Physics
Elizabeth Jennifer Hong* *Bridgewater, New Jersey* Biology
Bevan Emma Huang* *Little Rock, Arkansas* Mathematics
Sarah Lynette Hunyadi *Kalamazoo, Michigan* Planetary Science
Wook Hwang* *Marietta, Georgia* Physics
Yaniv Eitan Inbar *Haifa, Israel* Engineering and Applied Science
Kinsey E. Ingraham *Grapevine, Texas* Engineering and Applied Science (Mechanical Engineering)
Benjamin Gregory Kalenik *Manhattan Beach, California* Engineering and Applied Science (Mechanical Engineering)
Hyunah Kang *Seoul, Korea* Engineering and Applied Science (Mechanical Engineering)

Bachelor of Science *continued*

Beverly Malika Karhson *Houston, Texas* Engineering and Applied Science (Mechanical Engineering)
Richard Albert Karnesky *Richland, Washington* Engineering and Applied Science
Danail Kazachki *Sofia, Bulgaria* Mathematics
Amy Elizabeth Kelly *Paoli, Pennsylvania* Chemistry and Geochemistry
Amit Prakash Kenjale *Troy, Michigan* Engineering and Applied Science
Jean Eun Kim* *Sylmar, California* Economics
Nicholas Adrian Knouf *Clackamas, Oregon* Engineering and Applied Science
Katharina Kohler *Buehl, Germany* Astronomy
Barbara Karmen Kraatz *Orange Grove, Texas* Biology
Benjamin James Kulick* *San Luis Obispo, California* Physics
Abraham Kuo *New York, New York* Chemistry
Solomon J. Kutnicki *Elmwood Park, New Jersey* Electrical Engineering
Phuong-Nghi (Karen) Lam *Angouleme, France* Chemical Engineering
James Michael Lamanna* *Chagrin Falls, Ohio* Engineering and Applied Science
Douglas Robert Lanman* *Bartlesville, Oklahoma* Applied Physics
Benjamin Guocian Lee* *Toronto, Ontario, Canada* Applied Physics
Sang Ah Lee* *Princeton Junction, New Jersey* Astronomy
Guillermo Andres Letona *Silver Spring, Maryland* Economics
Jin Li* *Shanghai, China* Applied and Computational Mathematics
Daniel John Liebling *Houston, Texas* Engineering and Applied Science
Benjie Nguyen Limketkai* *Arcata, California* Electrical Engineering
Ralph Y. Lin *New Brighton, Minnesota* Engineering and Applied Science
Fu Liu* *Shanghai, China* Mathematics and Engineering and Applied Science
Michael Julius Liu* *Moorpark, California* Engineering and Applied Science
Yuan Liu* *Tianjin, China* Physics
Gabriel Lomeli *Grayson, California* Engineering and Applied Science
Thea Lu *Hendersonville, Tennessee* Biology
Don M. Ly* *League City, Texas* Engineering and Applied Science
Ryan David Mack *Palm Desert, California* Engineering and Applied Science
Sarah Jane Mahoney *La Crescenta, California* Biology
Samuel Makonnen* *Addis Ababa, Ethiopia* Engineering and Applied Science
Jia Mao* *Cerritos, California* Engineering and Applied Science
Christophe Arthur Annaise Maquestiaux* *Bierbeek, Belgium* Physics
Alvaro Giovanni Masias *Livington, New Jersey* Engineering and Applied Science
Michael Theodore Massey *Ottawa, Illinois* Physics
Wesley Charles McCullough* *Seattle, Washington* Engineering and Applied Science
Sean Thomas McHugh* *San Antonio, Texas* Chemical Engineering
Zachary James Medin* *New Brighton, Minnesota* Physics
Peter Benjamin Meilstrup *Santa Fe, New Mexico* Engineering and Applied Science

Bachelor of Science *continued*

Florian Tobias Merkle* *Bethesda, Maryland* Biology
Robert John Metcalf *Santa Rosa, California* Engineering and Applied Science (Mechanical Engineering)
Jordan Hood Miller *San Francisco, California* Engineering and Applied Science
Eric Paul Morganson *Novato, California* Physics
Auna Louise Moser* *Cardiff, California* Geology
Patrick Gary Mullen *Townsend, Massachusetts* Engineering and Applied Science
Aldo Navarro *Los Angeles, California* Engineering and Applied Science (Aeronautics)
Suhas Raghava Nayak* *Sydney, Australia* Chemistry and Mathematics
Albert Tuong-Quang Nguyen* *Manhattan Beach, California* Biology
Julie Erin Norville* *Lubbock, Texas* Electrical Engineering
Clayton Ryan Otey* *Santa Barbara, California* Physics
Mark Lee Oyama *Honolulu, Hawaii* Mathematics
Brian Allan Palmer *Warren, Ohio* Chemistry
Gerald William Palmrose *Portland, Oregon* Chemical Engineering
Daina Maria Paulikas* *Downers Grove, Illinois* Physics
Scott William Taylor Payne *Newberry Springs, California* Engineering and Applied Science (Mechanical Engineering)
Curtis Warren Pehl *Fresno, California* Geology
William Robert Peterson *Houston, Texas* Engineering and Applied Science
Bradley Alan Phillips* *Hoffman Estates, Illinois* Electrical and Computer Engineering
Gabriel Ashley Post* *Shakopee, Minnesota* Engineering and Applied Science (Mechanical Engineering)
Piyush Prakash* *Lusaka, Zambia* Electrical and Computer Engineering
Madeleine Emily Price* *San Diego, California* Biology
Sara Janine Quan *Bradbury, California* Chemistry
David Andrew Rahmlow *Bethlehem, Connecticut* Physics
Jingxiang Rao *Beijing, China* Physics and Engineering and Applied Science
Timothy David Raub* *Arlington Heights, Illinois* Geology
Lavanya Reddy *Chandigarh, India* Engineering and Applied Science
Neal Shuichi Reeves *San Pedro, California* Applied and Computational Mathematics
Bradley Charles Reynolds *Glendora, California* Electrical and Computer Engineering
Walter Carlos Richter* *Mission Hills, California* Engineering and Applied Science
Richard Aaron Robison* *Sierra Madre, California* Biology
Erik Ali Rodriguez* *El Paso, Texas* Chemistry
Jamal Tildon Rorie *Charlotte, North Carolina* Physics
Michael Anthony Russo* *Dover, New Hampshire* Astronomy
Christopher Michael Rutherglen *Castro Valley, California* Physics
Robb Brooks Rutledge* *Pasadena, California* Biology
Yuliya Yefimovna Ruvinskaya *Los Angeles, California* Engineering and Applied Science

Bachelor of Science *continued*

Gray Austin Rybka *Scottsdale, Arizona* Physics
Eric Anthony Sagen *Jupiter, Florida* Electrical Engineering
Maria Faith Satterwhite *Lubbock, Texas* Science, Ethics, and Society/History and Philosophy of Science
Joseph Malcolm Schaeffer *Charlotte, North Carolina* Engineering and Applied Science
Todd Eugene Schuman *Dallas, Texas* Engineering and Applied Science (Mechanical Engineering)
Nathaniel Taras Senchy *Sacramento, California* Engineering and Applied Science
Rebecca Shafee* *Dhaka, Bangladesh* Physics
Kevin Lawson Shand *Floral Park, New York* Applied and Computational Mathematics
Derek Michael Shannon *Minot, North Dakota* Geobiology
Michael Abraham Shulman* *North Hollywood, California* Mathematics
Aaron Wyatt Simons *Dallas, Texas* Mathematics
Meghan Breslin Smith *Pebble Beach, California* Engineering and Applied Science
Angela Kathleen Snow *Hudson, Massachusetts* Engineering and Applied Science
Thomas Marshall Snyder* *Amherst, New York* Chemistry and Economics
Ali Afshin Soleimani *Olathe, Kansas* Physics
Lilach Somberg *Colorado Springs, Colorado* Chemistry
Lakshminarayan (Ram) Srinivasan* *Ellicott City, Maryland* Electrical and Computer Engineering
Richard Samuel Leopold Stein *Newport Beach, California* Chemistry
Daniel Lynn Stick *West Chester, Pennsylvania* Physics
Rebecca Erin Stob *Grand Rapids, Michigan* Economics
Victoria Carolyn Savedge Sturgeon *Charleston, West Virginia* Engineering and Applied Science (Mechanical Engineering)
Jeff Sullivan *Dedham, Massachusetts* Engineering and Applied Science and History
Anongpat Suttangkakul* *Lampang, Thailand* Biology
Molly Ellen Swanson* *Hopkins, Minnesota* Physics
Robert Phillip Swinney *Buckner, Kentucky* Astronomy
Ching Leung Sze* *Hong Kong, Sar, China* Engineering and Applied Science
Nicolay M. Tanushev* *Northridge, California* Applied and Computational Mathematics
Martin Krassimirov Tchernookov* *Sofia, Bulgaria* Physics
William Alexander Therien *Diamond Bar, California* Engineering and Applied Science
Elizabeth Gibbs Thomas *Winston-Salem, North Carolina* Mathematics
Adam Read Thomason *Thousand Oaks, California* Engineering and Applied Science
Samuel Edwin Thompson *San Antonio, Texas* Engineering and Applied Science
Stephen William Thrasher* *Wilson, North Carolina* Engineering and Applied Science (Mechanical Engineering)
Bryan Erik Fraser Tiedemann *San Ramon, California* Chemical Engineering
Melissa Jane Todd *Toms River, New Jersey* Engineering and Applied Science

Jason Tran *Mission Viejo, California* Engineering and Applied Science
Jennifer Patricia Tung* *Mercer Island, Washington* Biology
James Phillip Turpin *Olympia, Washington* Physics
Paul Gerhard Updike* *Mesa, Arizona* Engineering and Applied Science
James A. Vargo *Tualatin, Oregon* Mathematics
Morgan Kolya Venable* *San Francisco, California* Engineering and Applied Science
Amy Thi Vu* *Garden Grove, California* Chemistry
Dana Julie Vukajlovich *San Diego, California* Geochemistry
Travis Paxton Waddington* *Dallas, Texas* Mathematics
Chenyang Wang* *Tianjin, China* Physics and Engineering and Applied Science
Emily Wang *Van Nuys, California* Biology
Rui Wang *Mesa, Arizona* Chemistry and Literature
Sidney Wang* *Westlake, Ohio* Chemistry
Xiaobo Connie Wang* *Irvine, California* Chemistry
Ellen Yi-Pen Wei *Poway, California* Engineering and Applied Science
Benjamin Allen Welander *Monmouth, Oregon* Engineering and Applied Science (Aeronautics)
Gabriel Worthy Wenz* *Sand Lake, Michigan* Electrical Engineering
Bridget Lynn West *DeKalb, Illinois* Engineering and Applied Science
Ryan McKenzie White* *San Carlos, California* Electrical Engineering
John David Williams *Naperville, Illinois* Physics
Samuel David Williams *San Rafael, California* Engineering and Applied Science
Merrett Tinlok Wong *San Francisco, California* Chemical Engineering
Andrew Gregory Wright *Maynard, Massachusetts* Mathematics
Tiago Stephan Wright* *Barretos, Sao Paulo, Brasil* Electrical and Computer Engineering
Gilead Wurman *Palo Alto, California* Geophysics
Randall Adam Yates *Auberry, California* Electrical Engineering
Samuel Alan Yeager *Memphis, Tennessee* Engineering and Applied Science (Mechanical Engineering)
Muhammed Ali Yıldırım* *Diyarbakir, Turkey* Electrical Engineering and Physics
Jessica Lynn Yohe *Meadville, Pennsylvania* Biology
William Chad Young* *Boring, Oregon* Physics
Yu Frank Yu *Bejing, China* Engineering and Applied Science
David Manuel Zaragoza *Pico Rivera, California* Engineering and Applied Science
Jacob John Zasada* *Ellerslie, Georgia* Economics
Pei Zhang * *Bejing, China* Electrical Engineering
Zhen Hao Zhou* *Shanghai, China* Engineering and Applied Science

Master of Science

Charlene Sonja Ahn *(Physics)* A.B. *(Mathematics and Physics)*, Harvard College 1998.

Sanjeewa Aruna Athuraliya *(Electrical Engineering)* B.E., University of Melbourne 1998; M.Eng., 2001.

Andrei Rudolfovich Beresnyak *(Physics)* B.S., Moscow Institute of Physics and Technology 1995; M.S., 1997.

Parsa Hassan Bonderson *(Physics)* B.S. *(Physics and Mathematics/Applied Science)*, University of California, Los Angeles 2000.

Gianluca Bonuglia *(Applied Mechanics)* Laurea, University of Rome Tor Vergata 2001.

Christopher Shawn Boxe *(Environmental Science and Engineering)* B.S., Morehouse College 1999; M.S. *(Planetary Science)*, California Institute of Technology 2001.

Gentian Buzi *(Electrical Engineering)* B.S., State University of New York at Fredonia 2000.

Craig Warrington Cameron *(Electrical Engineering)* B.E., University of Melbourne 2001.

Ileana Cristina Carpen *(Chemical Engineering)* B.S., Stanford University 1999.

Julie Diane Casperson *(Applied Physics)* B.S., University of California, San Diego 1999.

John Richard Chevillet *(Chemistry)* A.A., Spokane Falls Community College 1996; B.S., Washington State University 1998.

Timothy Hahndeut Chung *(Mechanical Engineering)* B.S., Cornell University 2001.

Jason Blake Cohen *(Environmental Science and Engineering)* B.A., University of California, Berkeley 2000.

Amir Faraji Dana *(Electrical Engineering)* B.S., Sharif University of Technology 2001.

Olivier Delaire *(Materials Science)* Diplôme d'Ingénieur, École Centrale Lyon 1999; M.S., Pennsylvania State University 2000.

Matthew Paul Dorsten *(Physics)* B.S. *(Physics and Mathematics)*, Ohio State University 2000.

Joseph Anthony Duimstra *(Chemistry)* B.S., University of California, Berkeley 1997.

Kjerstin Irja Easton *(Electrical Engineering)* B.S., California Institute of Technology 2000.

Megan Elizabeth Eckart *(Physics)* A.B. *(Physics and Astrophysics)*, University of California, Berkeley 2000.

Ramez Ahmed Elgammal *(Physics)* B.S. *(Biology)*, H.B.S. *(Chemistry)*, Central Michigan University 1996; M.S. *(Applied Physics)*, California Institute of Technology 2001.

Mohamed Youssef El-Naggar *(Mechanical Engineering)* B.S., Lehigh University 2001.

Paul Eremenko *(Aeronautics)* S.B., Massachusetts Institute of Technology 2001.

Jonathan Christopher Erickson *(Aeronautics)* B.S., Harvey Mudd College 2001.

David Wayne Farnham *(Physics)* B.S., California Institute of Technology 1998.

Samantha Hayes Feakins *(Mechanical Engineering)* B.A., B.E., Dartmouth College 2001.

Xiaoli Feng *(Electrical Engineering)* B.S., Tsinghua University 1996; M.S., 2001.

Robert David Wenley Fergus *(Electrical Engineering)* B.A., M.Eng., University of Cambridge 2000.

Lucia Fernandez Ballester *(Chemical Engineering)* B.S., Universidad de Alicante 2000.

Emmanouil-Panagiotis Fitrakis *(Electrical Engineering)* B.S., University of Athens 2000.

Master of Science *continued*

Raquel Flores *(Electrical Engineering)* B.S., New Mexico State University 2001.

Ilja Heinrich Friedel *(Computer Science)* Diplom Informatiker, Universität Kaiserslautern 2000.

Prashanth Venkata Gangu *(Aeronautics)* B.Tech., Indian Institute of Technology, Bombay 2001.

Mathilde Laure Gauchet *(Aeronautics)* Bac.S., Lycée Wittmer 1997; Gradué en Ingénierie, École Nationale Supérieure de Techniques Avancées 2001; Diplôme d'Ingénieur, 2002.

Radhika Gowaikar *(Electrical Engineering)* B.Tech., Indian Institute of Technology, Bombay 2001.

Xiang Guan *(Electrical Engineering)* B.E., Tsinghua University 1996.

Vijay Gupta *(Electrical Engineering)* B.Tech., Indian Institute of Technology, Delhi 2001.

Yong Hao *(Mechanical Engineering)* B.E., University of Science and Technology of China 2001.

Benedict Thomas Hebert *(Applied Physics)* B.Sc., McGill University 2000.

Loretta Yvonne Hidalgo *(Biology)* B.S., Stanford University 1996.

Hung-Te Hsieh *(Electrical Engineering)* B.S., National Taiwan University 1998.

Shira L. Jacobson-Rogers *(Chemistry)* B.A. *(French)*, B.S. *(Chemistry and Mathematics)*, Arizona State University 1998.

Alejandro Jenkins *(Physics)* A.B. *(Physics and Mathematics)*, Harvard College 2001.

Hao Jiang *(Mechanical Engineering)* B.S., Tsinghua University 1998.

Zhipu Jin *(Electrical Engineering)* B.E., Tsinghua University 1998; M.S., 2001.

Eric Johnsen *(Mechanical Engineering)* B.S., University of California, Santa Barbara 2001.

Brian Paul Johnson *(Chemistry)* B.S., Rhodes College 1998.

Elizabeth Anne Vincent Jones *(Chemical Engineering)* B.A.Sc., University of Waterloo 1999.

Scott Stephen Walter Joslin *(Mathematics)* B.S., Oklahoma State University 1995; M.S., 1997.

Dal Mo Kang *(Mechanical Engineering)* B.S., Seoul National University 2000.

Alex Kelly *(Applied Mechanics)* B.M.E., M.E., University of Delaware 2001.

Michael David Kempe *(Chemical Engineering)* B.S., University of Utah 1997.

Joseph Thomas Klamo *(Mechanical Engineering)* B.S.E., University of Michigan 2001.

Damian William Kraemer *(Planetary Science)* B.Sc.Eng., University of Manitoba 2000.

Gabriel Kreiman *(Computation and Neural Systems)* B.Sc., University of Buenos Aires 1996.

Yashashree Satish Kulkarni *(Applied Mechanics)* B.Tech., Indian Institute of Technology, Bombay 2001.

Amy Kar-Wei Lam *(Aeronautics)* B.Sc., University of British Columbia 1994; B.Eng., McGill University 2001.

Stuart Jon Laurence *(Aeronautics)* B.A., B.Sc., University of Auckland 2001.

Seung-Yub Lee *(Materials Science)* B.S., Yonsei University 1997.

Fei Fei Li *(Electrical Engineering)* A.B., Princeton University 1999.

John Jianzhong Li *(Applied Physics)* B.S., University of Science and Technology of China 1984.

Master of Science *continued*

Ling Li *(Computer Science)* B.Eng., Tsinghua University 1998; M.Eng., 2000.

Lun Li *(Electrical Engineering)* B.S., Tsinghua University 1999; M.S., University of California, Berkeley 2001.

Robert Han-Chung Lin *(Electrical Engineering)* B.S., California Institute of Technology 1997.

Aaron James Link *(Chemical Engineering)* B.S.E., Princeton University 2000.

Julie Chih-I Liu *(Chemical Engineering)* B.S.E., Princeton University 2000.

Wei Liu *(Mechanical Engineering)* B.E., Hebei Polytechnic Institute 2001.

Boonrat Lohwongwatana *(Materials Science)* B.S., Northwestern University 2000.

Hua Long *(Electrical Engineering)* B.E., Tsinghua University 1999; M.E., 2001.

Ricardo Antonio López Mejía *(Electrical Engineering)* Bachiller en Ciencias, Pontificia Universidad Catolica del Peru 1998; Ingeniero Electrónico, 2000.

Nathan Eric Lundblad *(Physics)* B.A., University of California, Berkeley 1998.

Rebekah Mary Main *(Chemistry)* B.S., Western Washington University 2000.

Michael Gerard Mattock *(Social Science)* B.A., Northwestern University 1983.

Mateusz Matuszewski *(Physics)* B.A., Columbia University 1999.

Brett Michael Maune *(Applied Physics)* B.S., University of Missouri-Rolla 2001.

Pierre Moreels *(Electrical Engineering)* Diplôme d'Ingénieur, Ecole Polytechnique 1999; DEA, Université de Bourgogne 2000; Diplôme d'Ingénieur, Ecole Nationale des Ponts et Chaussées 2002.

Bradford Stanley Morris *(Aeronautics)* B.Sc., University of Alberta 2001.

Christopher Andre Mouton *(Aeronautics)* B.S., University of Texas at Austin 2001.

Sriram Murali *(Electrical Engineering)* B.Tech., Indian Institute of Technology, Madras 2001.

Minh Tam Nguyen *(Electrical Engineering)* License en Informatique, Université de Marne la Vallée 2000; Diplôme d'Ingénieur, Ecole Supérieure d'Ingénieurs en Electronique et Electrotechnique 2002.

Jeff L. Noelte *(Environmental Science and Engineering)* B.S., University of California, Riverside 1990.

Ryan Christopher Ogliore *(Physics)* B.A., Claremont McKenna College 2000.

Neal Curtis Oldham *(Materials Science)* B.S., University of Tennessee, Knoxville 1999.

Karl Spyros Papadantonakis *(Computer Science)* B.A., Cornell University 2000.

Alexander Blair Papandrew *(Materials Science)* B.S., Columbia University 2000.

Julie Yongsun Park *(Chemistry)* A.B., Harvard College 1999; M.Phil., Cambridge University 2000.

Ann Marie Polsenberg *(Mechanical Engineering)* S.B., Massachusetts Institute of Technology 2001.

Sudipta Bardhan Quallen *(Biology)* B.S., California Institute of Technology 1998.

Rebecca Ann Rakow *(Bioengineering)* S.B., Harvard College 2001.

Chaitanya Kumar Rao *(Electrical Engineering)* B.E., University of Melbourne 2000; B.S., 2001.

Master of Science *continued*

Tracey Alayne Rissman *(Chemical Engineering)* B.S. *(Chemical Engineering and Environmental Engineering)*, Northwestern University 2000.

Robert Cashman Rogan *(Materials Science)* B.S., Boston College 2002.

Joseph McCarten Rosales *(Civil Engineering)* B.S., Columbia University 2001.

Fernando L. Rosario *(Chemistry)* B.S., University of Puerto Rico 1999.

Gary W. Rosene *(Mechanical Engineering)* B.E., State University of New York at Stony Brook 2001.

Cecily Anne Ryan *(Applied Physics)* S.B., Massachusetts Institute of Technology 2000.

Swaminathan Seetharaman *(Electrical Engineering)* B.E., Birla Institute of Technology and Science 1997.

Chi-yuan Shih *(Electrical Engineering)* B.S., National Tsing-Hua University 1996; M.S., 1998.

Leslie Renée Smith *(Aeronautics)* B.S., Georgia Institute of Technology 2001.

Soojin Son *(Chemical Engineering)* S.B., Massachusetts Institute of Technology 2000.

Yinan Song *(Mathematics)* B.S., Harvey Mudd College 2000.

Kartik Arvind Srinivasan *(Applied Physics)* B.S., California Institute of Technology 2000.

Devin Sean Sullivan *(Physics)* B.S. *(Mathematical Sciences and Physics)*, Carnegie Mellon University 2000.

Tabitha Liana Swan-Wood *(Materials Science)* B.S., University of California, Riverside 2000.

Meng How Tan *(Aeronautics)* B.S., B.A., University of California, Berkeley 2001.

Ao Tang *(Electrical Engineering)* B.E., Tsinghua University 1999; M.E., 2001.

Takahiro Taniguchi *(Electrical Engineering)* B.E., National Defense Academy 1997.

Min Tao *(Applied Mechanics)* B.S., Tsinghua University 1999.

Viet Quoc Tran *(Electrical Engineering)* B.S., California Institute of Technology 2001.

Yavuz Bogac Turkogullari *(Civil Engineering)* B.S. *(Civil Engineering and Industrial Engineering)*, Bogazici University 2001.

Carla Emily VanBeselaere *(Social Science)* B.A., University of Western Ontario 1995; M.A., 1996.

Varuntida Varutbangkul *(Chemical Engineering)* B.S., Stanford University 2000.

Zhengrong Wang *(Geochemistry)* B.S., University of Science and Technology of China 1996; M.S., 1999.

Rebecca Ann Washenfelder *(Environmental Science and Engineering)* B.A., Pomona College 1999.

Stephanie Nicole Waterman *(Aeronautics)* B.A.Sc., Queen's University 2001.

Lisa Renee Welp *(Environmental Science and Engineering)* B.S., Indiana University, Bloomington 2000.

Margaret Ellen Wessling *(Physics)* B.A. *(Physics and Mathematics)*, Amherst College 1999.

Andrea Palmisano Wight *(Chemical Engineering)* B.S., Tulane University 1997.

Rebecca Mary Wilson *(Chemistry)* B.S., Tufts University 1999.

Master of Science *continued*

Abigail Louise Winthrop *(Aeronautics)* B.S., Johns Hopkins University 2001.
Donghua Xu *(Materials Science)* B.E., Jilin University 1998.
Fu-Ling Yang *(Mechanical Engineering)* B.S., National Taiwan University 2000.
Byung-Jun Yoon *(Electrical Engineering)* B.S.E., Seoul National University 1998.
Xin Yu *(Computer Science)* B.Eng., Tsinghua University 2000.
James Michael Zahler *(Applied Physics)* B.S., Texas A&M University 1998.
Matias Gabriel Zielonka *(Aeronautics)* B.S., University of Buenos Aires 1998.

Doctor of Philosophy

DIVISION OF BIOLOGY

Girish Nanda Aakalu *(Biology)* B.A., Johns Hopkins University 1996; M.S., 1998.
Thesis: Building the Molecular Machinery of Memory: Local Protein Synthesis in Hippocampal Neurons.

Benjamin Jacob Arthur *(Computation and Neural Systems)* B.S., Trinity University 1992.
Thesis: Neural Computations Leading to Space-specific Auditory Responses in the Barn Owl.

Alejandro Bäcker *(Biology and Computational and Neural Systems)* S.B., Massachusetts Institute of Technology 1995; M.S., California Institute of Technology 1998.
Thesis: Priming, Gain Control and Coding Issues in the Locust Olfactory System.

Daniel N. Bolon *(Biochemistry and Molecular Biophysics)* B.S., Duke University 1997.
Thesis: Computational Enzyme Design.

Tianxin (Cynthia) Chen *(Biochemistry and Molecular Biophysics)* B.S., Tsinghua University 1996.
Thesis: Regulatory Mechanisms of the Heat Shock Response.

Wonchae Choe *(Biology)* B.S., Kyung Hee University 1992; M.S., 1994; M.S., California Institute of Technology 2000.
Thesis: Biochemical and Biological *in vivo* Functions of Dna2p in *Saccharomyces cerevisiae.*

Fangyong Du *(Biology)* B.S., Peking University 1991; M.S., 1994.
Thesis: Allosteric Activation of the Ubiquitin Ligase UBR1 by Short Peptides: Molecular Mechanisms and Physiological Functions.

David Julian Dubowitz *(Computation and Neural Systems)* B.A., University of Cambridge 1985; M.A., 1989; B.M., University of Oxford 1988.
Thesis: Functional Magnetic Resonance Imaging in Rhesus Macaque Monkeys.

Sebastian de la Soudière Gerety *(Biology)* B.S., Tufts University 1992.
Thesis: Eph Signaling in Vascular Development.

Zsuzsa Andrea Hamburger *(Biology)* B.S., Purdue University 1996.
Thesis: Crystallographic Studies of Invasin, a Bacterial Adhesion Molecule from *Yersinia pseudotuberculosis.*

Gabriel Kreiman *(Biology)* B.Sc., University of Buenos Aires 1996.
Thesis: On the Neuronal Activity in the Human Brain during Visual Recognition, Imagery and Binocular Rivalry.

Anthony Leonardo *(Computation and Neural Systems)* B.S., Carnegie Mellon University 1994.
Thesis: Neural Dynamics Underlying Complex Behavior in a Songbird.

When more than one field of study is listed, the first is the major, and the second and others are minors.

Doctor of Philosophy *continued*

Tanya Munnecke Moreno *(Biology)* B.S., University of California, San Diego 1992.
Thesis: *Noelins* in Neural Development.

David Rosenbluth *(Computation and Neural Systems)* A.B., Columbia University 1988; M.S., New York University 1991.
Thesis: Eye Position Modulation of Visual Cortex and the Sensory Set Hypothesis.

David J. Shuey *(Biochemistry and Molecular Biophysics)* B.S., Pennsylvania State University 1982.
Thesis: A Detailed Analysis of the DNA Binding Properties and the Affinity Purification of the *Drosophila* Heat-Shock Transcription Factor.

Pavel Strop *(Biochemistry and Molecular Biophysics)* B.S., University of Arizona 1997.
Thesis: Characterization of the Mechanosensitive Channel of Large Conductance.

Stephanie Yeager Vernooy *(Biology)* B.A., Pomona College 1994; M.S., California Institute of Technology 2000.
Thesis: Identification of Apoptotic Regulators in *Drosophila* and their Nonapoptotic Roles in Spermatogenesis: Implications for the Existence of a "Caspase Cassette" which Regulates Diverse Biological Processes.

Mariela Zirlinger *(Biology)* B.S., University of Buenos Aires 1996.
Thesis: Application of Microarray, Laser Capture and Transgenic Technologies to the Study of Neural Diversity.

DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING

Peter Jonathan Adams *(Chemical Engineering and Environmental Science and Engineering)* B.S., Cornell University 1996; M.S., California Institute of Technology 1998.
Thesis: Representing Tropospheric Aerosols and Their Climatic Effects in Global Models.

Xenia Amashukeli *(Chemistry)* Sc.B., Brown University 1997.
Thesis: Electron-Transfer Reorganization Energies of Isolated Molecules.

Jason Matthew Belitsky *(Chemistry)* B.A., Amherst College 1997.
Thesis: DNA Binding Polyamides in Biological Systems.

Kimberly Davis Copeland *(Chemistry)* B.S., Duke University 1996.
Thesis: The Reactions of Metallointercalator-Peptide Conjugates and DNA.

Michael Todd Feldmann *(Chemistry and Applied Computation)* B.A., Luther College 1998.
Thesis: Quantum Monte Carlo: Quest to Get Bigger, Faster, and Cheaper.

Anne Yen-Chen Fu *(Chemistry)* B.S., University of California, Berkeley 1996.
Thesis: Microfabricated Fluorescence-Activated Cell Sorters (μFACS) for Screening Bacterial Cells.

Eva Rose Garland *(Chemistry)* B.A., Columbia University 1997.
Thesis: Laboratory Studies of Atmospheric Reactions Using Infrared Cavity Ringdown Spectroscopy.

Doctor of Philosophy *continued*

Doan Nguyen Hackley *(Chemistry)* B.Sc., Brock University 1997.
Thesis: Allosteric Inhibition of Zinc Finger Proteins by DNA Binding Polyamides.

Sven Halstenberg *(Chemical Engineering)* B.S., Stanford University 1995; M.S., California Institute of Technology 1997.
Thesis: Biologically Engineered Protein-*graft*-Poly(Ethylene Glycol) Hydrogels: A Cell-Adhesive and Plasmin-Degradable Biosynthetic Material for Tissue Repair.

Kirk Charles Hansen *(Chemistry)* B.S., Colorado State University 1995.
Thesis: Using Photolabile Protecting Groups for the Rapid Triggering of Fast Biological Events.

Corinna Renate Hess *(Chemistry)* B.S., University of Chicago 1996.
Thesis: Probing the Active Site of Amine Oxidase with Electron Tunneling Wires.

Kevin Richard Hoke *(Chemistry)* B.A., Rice University 1993.
Thesis: Electron Tunneling in Blue and Purple Copper Proteins.

Jennifer C. Lee *(Chemistry)* B.A., B.S., University of California, Berkeley 1997.
Thesis: Mapping Heme Protein Folding Landscapes.

Zenghe Liu *(Chemistry)* B.S., University of Science and Technology of China 1985; M.S., 1988; M.S., Baylor University 1997.
Thesis: Vanadium-Schiff Base Complexes as Catalysts for the Four-Electron Reduction of Dioxygen.

Louis Albert Madsen *(Chemistry)* B.A., Grinnell College 1994.
Thesis: Force-Detected NMR in a Homogeneous Field: Experiment Design, Apparatus, and Observations.

Shannon Alicia Marshall *(Chemistry)* B.S., Yale University 1997.
Thesis: Stability and Conformational Specificity in Protein Design: Models for Binary Patterning and Electrostatics.

Megan Elizabeth Núñez *(Chemistry)* B.A., Smith College 1996.
Thesis: Oxidation of DNA by Long-range Charge Transport.

Patrick Manuel Piccione *(Chemical Engineering)* S.B., Massachusetts Institute of Technology 1995.
Thesis: Thermodynamics of Formation of Molecular Sieves.

Robert Charles Rossi *(Chemistry)* B.S., University of Wisconsin-Madison 1993.
Thesis: The Electrical Properties of Nanoscale Parallel Semiconductor Interfaces.

Asimina Sierou *(Chemical Engineering)* Diploma, National Technical University of Athens 1996.
Thesis: Accelerated Stokesian Dynamics: Development and Application to Sheared Non-Brownian Suspensions.

A. C. Sobrero *(Chemical Engineering)* B.S.E., Princeton University 1978.
Thesis: Surface Structure Determination by Low-Energy Electron Diffraction.

Ganesh Subramanian *(Chemical Engineering and Applied and Computational Mathematics)* B.S., University of Bombay 1996.
Thesis: Inertial Effects in Suspension Dynamics.

Vidyasankar Sundaresan *(Chemical Engineering and Chemistry)* B.Tech., Indian Institute of Technology, Bombay 1991.
Thesis: Selective Molecular Recognition in Imprinted Polymeric Adsorbents and in Biological Macromolecules.

Giyoong Tae *(Chemical Engineering)* B.S., Korea Advanced Institute of Science and Technology 1992; M.S., 1994.
Thesis: *In situ* Forming Hydrogels Using Self-assembly of Fluoroalkyl-ended Poly(ethylene glycol)s.

Yi Tang *(Chemical Engineering and Biology)* B.S., Pennsylvania State University 1997.
Thesis: Protein Engineering Using Unnatural Amino Acids: Incorporation of Leucine Analogs into Recombinant Protein *in vivo.*

Adam Robert Urbach *(Chemistry)* B.S., University of Texas at Austin 1996.
Thesis: 1:1 Motif for DNA Recognition by β-Alanine-Linked Polyamides.

Randy M. Villahermosa *(Chemistry)* B.A., Occidental College 1996.
Thesis: Electron Tunneling Through Phenylene Bridges.

Clay Chia Chun Wang *(Chemistry)* A.B., Harvard College 1996.
Thesis: Sequence Specific Trapping of Topoisomerase I by Camptothecin Polyamide Conjugates.

Antek G. Wong-Foy *(Chemistry)* B.S., University of Rochester 1994.
Thesis: Ancillary Ligand Effects in Zirconium(IV) Aminoborollide and Nitrogen Chelated Pt(II) Complexes.

Nicholas R. Wurtz *(Chemistry)* B.A., Grinnell College 1996.
Thesis: Sequence Specific Alkylation of DNA by Polyamide-Chlorambucil Conjugates.

Andrew Peter Yeh *(Chemistry)* B.A., Cornell University 1996.
Thesis: Crystallographic Studies of Iron Proteins.

Tehshik Peter Yoon *(Chemistry)* A.B., Harvard College 1996; M.S., California Institute of Technology 1999.
Thesis: The Acyl-Claisen Rearrangement. Development of a Novel Metal-Catalyzed Claisen Rearrangement and Enantioselective Variants of the Acyl-Claisen Rearrangement.

DIVISION OF ENGINEERING AND APPLIED SCIENCES

David Deloyd Anderson *(Applied Mechanics)* B.S., Utah State University 1996; M.S., California Institute of Technology 1997.
Thesis: Experimental Investigation of Quasistatic and Dynamic Fracture Properties of Titanium Alloys.

Ichiro Aoki *(Electrical Engineering)* B.S., Universidade Estadual de Campinas 1987.
Thesis: Distributed Active Transformer for Integrated Power Amplification.

Peter David Bogdanoff *(Materials Science)* B.S., Harvey Mudd College 1994; M.S., California Institute of Technology 1997.
Thesis: The Phonon Entropy of Metals and Alloys: The Effects of Thermal and Chemical Disorder.

Doctor of Philosophy *continued*

Dong Eui Chang *(Control and Dynamical Systems)* B.S., Seoul National University 1994; M.S., 1997.
Thesis: Controlled Lagrangian and Hamiltonian Systems.

Ioannis Chasiotis *(Aeronautics and Materials Science)* Diploma, Aristotle University of Thessaloniki 1996; M.S., California Institute of Technology 1998.
Thesis: The Strength of Polycrystalline Silicon at the Micro- and Nano-Scales with Applications to MEMS.

Min Chen *(Computer Science)* B.S., Peking University 1994; M.S., 1997.
Thesis: Mathematical Methods for Image Synthesis.

Catherine J. G. Cornu *(Environmental Science and Engineering and Geochemistry)* Kandidaat Burgerlijk Ingenieur, Vrije Universiteit Brussel 1992; Burgerlijk Scheikundig Ingenieur, 1995; M.S., California Institute of Technology 1998.
Thesis: Photocatalysis under Periodic Illumination.

Bogdan Craciun *(Applied and Computational Mathematics)* B.Sc., Universitatea 'Al. I. Cuza' 1996; M.Sc., Weizmann Institute 1997.
Thesis: Phase Boundary Propagation in Heterogeneous Media.

Jeffrey D. Eldredge *(Mechanical Engineering)* B.S., Cornell University 1996; M.S., California Institute of Technology 1997.
Thesis: A Dilating Vortex Particle Method for Compressible Flow with Application to Aeroacoustics.

Joseph Alexander Fax *(Control and Dynamical Systems)* B.S.E., Princeton University 1993.
Thesis: Optimal and Cooperative Control of Vehicle Formations.

Hanying Feng *(Electrical Engineering)* B.E., Tsinghua University 1997; M.S., California Institute of Technology 1998.
Thesis: Rate Loss of Network Source Codes.

Xiaolin Feng *(Electrical Engineering)* B.E., Tsinghua University; M.S., California Institute of Technology 1996.
Thesis: Methods for the Analysis of Visual Motion.

Philip Malcolm Fine *(Environmental Science and Engineering)* B.S., University of California, Berkeley 1993; M.S., California Institute of Technology 1997.
Thesis: The Contribution of Biomass Combustion to Ambient Fine Particle Concentrations in the United States.

Kevin Foltz *(Electrical Engineering)* B.A., B.S., Rice University 1997; M.S., California Institute of Technology 1998.
Thesis: Periodic Broadcast Scheduling for Data Distribution.

Roman Ginis *(Computer Science)* B.S., University of Rhode Island 1996.
Thesis: Automating Resource Management for Distributed Business Processes.

Luis González Liñero *(Aeronautics)* Ingeniero Mecanico Electricista, Universidad Panamericana 1995; M.S., California Institute of Technology 1998.
Thesis: Global Fracture Analysis of Laminated Composite Materials for Aerospace Structures.

Doctor of Philosophy *continued*

Nils William Halverson *(Applied Physics)* B.S., Stanford University 1991; M.S., California Institute of Technology 1993.
Thesis: A Measurement of the Cosmic Microwave Background Angular Power Spectrum with DASI.

Donhee Ham *(Electrical Engineering)* B.S., Seoul National University 1996.
Thesis: Statistical Electronics: Noise Processes in Integrated Communication Systems.

Adam Thomas Hayes *(Computation and Neural Systems)* A.B., Harvard College 1998.
Thesis: Self-Organized Robotic System Design and Autonomous Odor Localization.

Scott David Kee *(Electrical Engineering)* B.S., University of Delaware 1998.
Thesis: The Class E/F Family of Harmonic-Tuned Switching Power Amplifiers.

Joseph Roland Kiniry *(Computer Science)* B.S., Florida State University 1992; M.S., University of Massachusetts, Amherst 1995; M.S., California Institute of Technology 1998.
Thesis: Kind Theory.

Cin-Young Lee *(Mechanical Engineering)* B.S., University of California, Berkeley 1997.
Thesis: Efficient Automatic Engineering Design Synthesis via Evolutionary Exploration.

Hong Liao *(Environmental Science and Engineering)* B.S., Peking University 1986; M.S., 1989; M.S., California Institute of Technology 1996.
Thesis: Interactions between Tropospheric Chemistry and Aerosols in a Unified GCM Simulation.

Zhiwen Liu *(Electrical Engineering)* B.S., Peking University 1992; M.S., 1995; M.S., California Institute of Technology 1997.
Thesis: Optical Information Storage and Processing.

Jun Lu *(Mechanical Engineering and Materials Science)* B.S., Tsinghua University 1992; M.S., 1995; M.S. *(Mechanical Engineering)*, California Institute of Technology 2000; M.S. *(Electrical Engineering)*, 2001.
Thesis: Mechanical Behavior of a Bulk Metallic Glass and Its Composite over a Wide Range of Strain Rates and Temperatures.

José Mumbrú *(Electrical Engineering and Social Science)* Engineer *(Communications and Electronics)*, Universitat Politécnica de Catalunya, 1996; M.S., California Institute of Technology 1998.
Thesis: Optoelectronic Circuits using Holographic Elements.

Todd David Murphey *(Control and Dynamical Systems)* B.S., University of Arizona 1997.
Thesis: Control of Multiple Model Systems.

Olivier Thanh Nguyen *(Aeronautics and Business, Economics and Management)* Diplôme d' Ingénieur, Université de Liege 1996; M.S., California Institute of Technology 1998.
Thesis: Cohesive Models of Fatigue Crack Growth and Stress-Corrosion Cracking.

Alexander Nicholson *(Computer Science)* B.A.Sc., University of Toronto 1996; M.S., California Institute of Technology 2000.
Thesis: Generalization Error Estimates and Training Data Valuation.

Doctor of Philosophy *continued*

Jeff L. Noelte *(Environmental Science and Engineering)* B.S., University of California, Riverside 1990.

Thesis: Effects of Surface Chemistry on Deposition Kinetics of Colloidal Hematite (α-Fe_2O_3) in Packed Beds of Silica Sand.

Paul Ivan Pénzes *(Computer Science)* B.S., California Institute of Technology 1996; M.S., 1999.

Thesis: Energy-Delay Complexity of Asynchronous Circuits.

Alberto Pesavento *(Electrical Engineering and Business, Economics and Management)* Laurea, Università degli Studi di Padova 1995; M.S., California Institute of Technology 1997.

Thesis: Visual Sensors for Focal Plane Computation of Image Features.

Danny Petrasek *(Applied and Computational Mathematics)* B.A., Bar-Ilan University 1980; M.D., University of Health Sciences, Chicago Medical School 1984.

Thesis: Diffusion-Mediated Regulation Endocrine Networks.

Teerachai Nicholas Pornsinsirirak *(Electrical Engineering)* B.S., California Institute of Technology 1993; M.S., Stanford University 1995.

Thesis: Parylene MEMS Technology for Adaptive Flow Control of Flapping Flight.

Prashant Kishore Purohit *(Applied Mechanics)* B.Tech., Indian Institute of Technology, Delhi 1997; M.S., California Institute of Technology 1998.

Thesis: Dynamics of Phase Transitions in Strings, Beams and Atomic Chains.

Regina Ragan *(Applied Physics)* B.S., University of California, Los Angeles 1996; M.S., California Institute of Technology 1998.

Thesis: Direct Energy Bandgap Group IV Alloys and Nanostructures.

Clarence Worth Rowley III *(Mechanical Engineering)* B.S.E., Princeton University 1995; M.S., California Institute of Technology 1996.

Thesis: Modeling, Simulation, and Control of Cavity Flow Oscillations.

Charles F. Spence *(Applied Physics)* B.S., Harvey Mudd College 1985.

Thesis: Nanobiology: Halting Steps into a Portion of Richard Feynman's Vision.

Jennie Catherine Stephens *(Environmental Science and Engineering and Science, Ethics and Society)* A.B., Harvard College 1997; M.S., California Institute of Technology 1998.

Thesis: Response of Soil Mineral Weathering to Elevated Carbon Dioxide.

Lawrence H. Sverdrup *(Applied Physics)* B.A., Reed College 1978; M.S., California Institute of Technology 1980.

Thesis: Lower Hybrid Current Drive Experiments on the Encore Tokamak.

Luz Vianey Vela-Arevalo *(Control and Dynamical Systems)* B.S., Autonomous University of Aguascalientes 1994; M.S., Universidad Autonoma Metropolitana, Iztapalapa 1996.

Thesis: Time-Frequency Analysis Based on Wavelets for Hamiltonian Systems.

Jelena Vučković *(Electrical Engineering)* B.Sc., Faculty of Electronics NIS 1993; M.S., California Institute of Technology 1997.

Thesis: Photonic Crystal Structures for Efficient Localization or Extraction of Light.

Guofeng Wang *(Materials Science and Computer Science)* B.E., Tsinghua University 1995; M.S. 1997.
Thesis: First Principles Based Multiscale Modeling of Single Crystal Plasticity: Application to BCC Tantalum.

Luoyu Roy Xu *(Aeronautics and Materials Science)* B.S., Beijing University of Aeronautics and Astronautics 1987; M.S., 1991.
Thesis: Dynamic Failure Characteristics in Layered Materials and Structures.

Yong Xu *(Electrical Engineering)* B.S., Tsinghua University 1997.
Thesis: Flexible MEMS Skin Technology for Distributed Fluidic Sensing.

Tze-Jung Yao *(Electrical Engineering and Biology)* B.S., National Taiwan University 1995; M.S., California Institute of Technology 1998.
Thesis: Parylene for MEMS Applications.

Ka-Veng Yuen *(Civil Engineering)* B.S., National Taiwan University 1997; M.S., Hong Kong University of Science and Technology 1999.
Thesis: Model Selection, Identification and Robust Control for Dynamical Systems.

Weidong Zhu *(Mechanical Engineering)* B.S., Tsinghua University 1991; M.S., State University of New York at Buffalo 1995; M.S., California Institute of Technology 1997.
Thesis: Nonlinearly Viscoelastic Response of Glassy Polymers.

Shiming Zhuang *(Aeronautics and Materials Science)* B.S., Chongqing University 1984; M.S., Chinese Academy of Engineering Physics 1988.
Thesis: Shock Wave Propagation in Periodically Layered Composites.

Daniel Marc Zimmerman *(Computer Science)* B.S., California Institute of Technology 1996; M.S., 1998.
Thesis: Dynamic UNITY.

DIVISION OF GEOLOGICAL AND PLANETARY SCIENCES

Magali I. Billen *(Geophysics)* B.S., University of Puget Sound 1995; M.S., California Institute of Technology 1998.
Thesis: I. Seafloor Morphology of the Osbourn Trough and Kermadec Trench and II. Multiscale Dynamics of Subduction Zones.

Ulyana Anatolyevna Dyudina *(Planetary Science and Computer Science)* Diploma, Moscow State University 1993.
Thesis: Light Scattering in the Clouds on Jupiter.

Chen Ji *(Geophysics)* B.S., Peking University 1991; M.S., Chinese Academy of Science 1994.
Thesis: Analysis of Complex Faulting: Wavelet Transform, Multiple Datasets and Realistic Fault Geometry.

Ronit Kessel *(Geochemistry)* B.S., Hebrew University 1992; M.Sc., 1995.
Thesis: The Activity of Chromite in Multicomponent Spinels: An Experimental Study with Implications for the Metamorphic History of Equilibrated Ordinary Chondrites.

Doctor of Philosophy *continued*

Sujoy Mukhopadhyay *(Geochemistry)* B.Sc., Presidency College 1993; M.Sc., Indian Institute of Technology, Kharagpur 1995.
Thesis: I. Extraterrestrial ^{3}He in the Sedimentary Record. II. Geochemistry of Shield Stage Lavas from Kauai, Hawaii.

Julie Jeannine Nazareth *(Geophysics)* B.S., University of California, Los Angeles 1993; M.S., California Institute of Technology 1996.
Thesis: The Structure of the Crust and Distribution of Earthquakes in Southern California.

Nathan Alan Niemi *(Geology)* B.A., Cornell University 1994; M.S., California Institute of Technology 1996.
Thesis: Extensional Tectonics in the Basin and Range Province and the Geology of the Grapevine Mountains, Death Valley Region, California and Nevada.

Michael E. Oskin *(Geology)* B.S., University of California, Los Angeles 1995.
Thesis: Part I. Tectonic Evolution of the Northern Gulf of California, Mexico, Deduced from Conjugate Rifted Margins of the Upper Delfin Basin. Part II. Active Folding and Seismic Hazard in Central Los Angeles, California.

Edwin Arthur Schauble *(Geology)* B.A., University of Chicago 1994.
Thesis: I. Predicting Equilibrium Stable Isotope Fractionations of Iron, Chlorine, and Chromium. II. Oxygen-isotope Investigation of Mesozoic and Cenozoic Granitoids of the Northeastern Great Basin, Nevada and Utah.

Sarah T. Stewart-Mukhopadhyay *(Planetary Science and Astronomy)* A.B. *(Astronomy and Physics)*, Harvard College 1995.
Thesis: Collisional Processes Involving Icy Bodies in the Solar System.

Anupama Venkataraman *(Geophysics)* B.Sc., Indian Institute of Technology, Kharagpur 1994; M.Sc., 1996.
Thesis: Investigating the Mechanics of Earthquakes Using Macroscopic Seismic Parameters.

DIVISION OF HUMANITIES AND SOCIAL SCIENCES

Valentina Andrea Bali *(Social Science)* B.A., Stanford University 1993; B.S., 1994.
Thesis: The Initiative Process and the Reform of Educational Policies.

Steven Callander *(Social Science)* B.Com., University of New South Wales 1996.
Thesis: Voting and Electoral Competition.

Marco Casari *(Social Science)* D.E.S., Università Commerciale "Luigi Bocconi" 1996; M.S., California Institute of Technology 1998.
Thesis: Understanding an Economic Dilemma: Essays on Common Property Resources.

Sean Gailmard *(Social Science)* B.S., Indiana University, Bloomington 1996; M.S., 1997.
Thesis: Principal Agent Models of Bureaucratic and Public Decision Making.

Doctor of Philosophy *continued*

DIVISION OF PHYSICS, MATHEMATICS AND ASTRONOMY

Kurt L. Adelberger *(Astronomy)* B.S., Harvey Mudd College 1993.
Thesis: Star Formation and Structure Formation between Redshifts One and Four.

Kashif Alvi *(Physics)* A.B., Harvard College 1994; M.A., University of California, Santa Barbara 1997.
Thesis: Topics in General Relativity: Binary Black Holes and Hyperbolic Formulations of Einstein's Equations.

Joshua Simon Bloom *(Astronomy)* A.B., Harvard College 1996.
Thesis: Toward an Understanding of the Progenitors of Gamma-Ray Bursts.

Adam Jonathan Burgasser *(Physics and Planetary Science)* B.S., University of California, San Diego 1996.
Thesis: The Discovery and Characterization of Methane-bearing Brown Dwarfs and the Definition of the T Spectral Class.

Mehmet Burak Erdoğan *(Mathematics)* B.S., Bilkent University 1994; M.S., 1997.
Thesis: Mapping Properties of Certain Averaging Operators.

Matthew John Evans *(Physics)* B.S., Harvey Mudd College 1996.
Thesis: Lock Acquisition in Resonant Optical Interferometers.

Robert Michael Gingrich *(Physics and Computer Science)* B.A., B.S., University of California, Santa Cruz 1995; M.S., California Institute of Technology 1998.
Thesis: Entanglement of Multipartite Quantum States and the Generalized Quantum Search.

Antonio Hernández Garduño *(Mathematics)* Licenciatura, Universidad Nacional Autónoma de México 1994.
Thesis: Regularization of the Amended Potential around a Symmetric Configuration.

Brian Daniel Kern *(Astronomy)* B.S. *(Astronomy and Mathematics)*, Indiana University 1993; B.A., 1994.
Thesis: Optical Pulse-Phased Observations of Faint Pulsars with a Phase-Binning CCD Camera.

Sophia Kyriazopoulou *(Physics)* B.S., University of Thessaloniki 1988; M.S., California Institute of Technology 1990.
Thesis: A Search for Slow Magnetic Monopoles Below the Parker Bound.

Andrew John Landahl *(Physics)* B.S., Virginia Polytechnic Institute and State University 1996; M.S., California Institute of Technology 2000.
Thesis: Controlling Quantum Information.

Yoram Lithwick *(Physics)* B.A.Sc., University of Toronto 1994; M.Sc., 1995.
Thesis: Topics in MHD Turbulence.

Peter Hsih-Jen Mao *(Physics)* S.B., Massachusetts Institute of Technology 1994.
Thesis: Hard X-ray Observations of the Extragalactic Sky: The High Energy Focusing Telescope and the Serendipitous Extragalactic X-ray Source Identification Survey.

Doctor of Philosophy *continued*

Robert G. Nolty *(Physics)* B.S. *(Computer Science and Engineering Physics)*, Texas Tech University 1985; M.S., California Institute of Technology 1990.
Thesis: Semi-contained Interactions of Atmospheric Neutrinos in the MACRO Detector.

Janet Mary Pavelich *(Mathematics)* B.A., University of Colorado, Boulder 1993; M.S., University of California, Irvine 1996.
Thesis: Commuting Equivalence Relations and Scales on Differentiable Functions.

Bijan Pesaran *(Physics)* B.A., Cambridge University 1995.
Thesis: Analysis of Neuronal Dynamics in Behaving Animals.

Byron Jacob Philhour *(Physics)* A.B., University of California, Berkeley 1995; M.S., California Institute of Technology 2000.
Thesis: Measurement of the Polarization of the Cosmic Microwave Background.

Eugene Pivovarov *(Physics)* B.Tech., St. Petersburg State Technical University 1995.
Thesis: Aspects of Non-Fermi-liquid Metals.

Hongxing Tang *(Physics)* B.S., University of Science and Technology of China 1993; M.S., 1995; M.Phil., University of Hong Kong 1997.
Thesis: Semiconductor Magnetoelectronics for Spintronics and Suspended 2DEG for Mechanoelectronics.

Michele Vallisneri *(Physics)* Laurea, Università degli Studi di Parma 1997.
Thesis: Modeling and Detecting Gravitational Waves from Compact Stellar Objects.

Song Wang *(Mathematics)* B.S., Peking University 1996.
Thesis: An Effective Version of the Grunwald-Wang Theorem.

John Strawn Ward *(Physics)* B.S., Principia College 1993; M.S., California Institute of Technology 1997.
Thesis: Observations of Carbon Monoxide in the Starburst Galaxy M82 with a 690 GHz Wide Spectral Bandwidth Receiver.

Clinton Thomas White *(Mathematics)* B.S., University of Tennessee, Knoxville 1996.
Thesis: Two Cyclic Arrangement Problems in Finite Projective Geometry: Parallelisms and Two-Intersection Sets.

Ah-San Wong *(Physics)* B.S., California State University, Fresno 1992; M.S., California Institute of Technology 1995.
Thesis: Photochemical Studies of Jupiter and Titan.

Georgios Zamanakos *(Physics and Computer Science)* B.S., University of Athens 1994; M.S., California Institute of Technology 1997.
Thesis: A Fast and Accurate Analytical Method for the Computation of Solvent Effects in Molecular Simulations.

Prizes and awards are listed only for those students receiving degrees in 2002, and include prizes and awards received by them in previous years.

MILTON AND FRANCIS CLAUSER DOCTORAL PRIZE

Awarded to the Ph.D. candidate whose research is judged to exhibit the greatest degree of originality as evidenced by its potential for opening up new avenues of human thought and endeavor as well as by the ingenuity with which it has been carried out.

Recipient to be announced at commencement.

FREDERIC W. HINRICHS, JR., MEMORIAL AWARD

Awarded to the seniors who, in the opinion of the undergraduate Deans, have made the greatest undergraduate contribution to the welfare of the student body and whose qualities of leadership, character, and responsibility have been outstanding.

2002 *Victoria Carolyn Sturgeon, Dana Julie Vukajlovich*

MABEL BECKMAN PRIZE

Awarded to an undergraduate woman upon completion of her junior or senior year in recognition of demonstrated academic and personal excellence, contributions to the Institute community, and outstanding qualities of character and leadership.

2002 *Nadia Haq, Hyunah Kang*

ROSALIND W. ALCOTT MERIT SCHOLARSHIP, CALTECH PRIZE SCHOLARSHIP, CARNATION SCHOLARSHIP, AND JOHN STAUFFER MERIT SCHOLARSHIP

Each year Caltech awards these prizes for academic excellence to undergraduates. They are based solely on merit (selection is made on the basis of grades, faculty recommendations, and demonstrated research productivity) with no consideration given to need or any other nonacademic criteria.

1996 *Paul Ivan Penzes*

1999 *Kartik Arvind Srinivasan*

2000 *Ingrid Anda Cotoros*
Suhas Raghava Nayak
Timothy David Raub
Kartik Arvind Srinivasan

2001 *Richard Chiu*
Kristen Lee Cook
Elizabeth Jennifer Hong
Michael Julius Liu
Christophe Maquestiaux
Daina Maria Paulikas
Rebecca Shafee
Ching Leung Sze
Chenyang Wang

2002 *Brock Raymond Beauchamp*
Kristen Cook
Philip Fung
Michael J. Hochberg
Elizabeth Jennifer Hong
Bevan Emma Huang
Douglas Robert Lanman
Benjamin Guocian Lee
Michael Julius Liu
Christophe Maquestiaux
Sean Thomas McHugh
Florian Tobias Merkle
Suhas Raghava Nayak
Clayton Ryan Otey
Daina Maria Paulikas
Timothy David Raub
Richard Aaron Robison
Rebecca Shafee
Molly Ellen Swanson
Ching Leung Sze
Paul Gerhard Updike
Chenyang Wang
Muhammed Ali Yıldırım

CHARLES D. BABCOCK AWARD

Awarded, by vote of the aeronautics faculty, to a graduate student whose achievements in teaching or other assistance to students have made a significant contribution to the aeronautics department.

1999 *Ioannis Chasiotis*

2002 *Luis González Liñero*

WILLIAM F. BALLHAUS PRIZE

Awarded to aeronautics students for outstanding doctoral dissertations.

2002 *Shiming Zhuang*

ERIC TEMPLE BELL UNDERGRADUATE MATHEMATICS RESEARCH PRIZE

Awarded to one or more juniors or seniors for outstanding original research in mathematics.

2002 *Suhas Raghava Nayak*

BHANSALI PRIZE IN COMPUTER SCIENCE

Awarded to an undergraduate student for outstanding research in computer science in the current academic year.

2002 *Miroslav Dudik*

RICHARD G. BREWER PRIZE IN PHYSICS

Awarded to the freshman with the most interesting solutions to the Physics 11 "hurdles," in recognition of demonstrated intellectual promise and creativity at the very beginning of his or her Caltech education.

1999 *Frederik Hewitt Eaton*

ROLF D. BUHLER MEMORIAL AWARD IN AERONAUTICS

Awarded to an aeronautics student for outstanding academic achievement in the Master's program.

2002 *Mathilde Laure Gauchet*

FRITZ B. BURNS PRIZE IN GEOLOGY

Awarded to an undergraduate who has demonstrated both academic excellence and great promise of future contributions in the fields represented by the Division of Geological and Planetary Sciences.

2001 *Timothy David Raub*

THE W. P. CAREY & CO., INC., PRIZE IN MATHEMATICS

Awarded to a student receiving a Doctor of Philosophy degree for an outstanding doctoral dissertation in applied mathematics or pure mathematics.

2002 *Bogdan Craciun*

BONNIE CASHIN PRIZE FOR IMAGINATIVE THINKING

Awarded each year to the entering freshman who has written the most imaginative essays in the application for freshman admission. The award may be shared if there is more than one deserving student in a particular year.

1997 *David Christian Hockaday*

1998 *Philip Fung*

RICHARD BRUCE CHAPMAN MEMORIAL AWARD

Awarded to a graduate student in hydrodynamics who has distinguished himself or herself in research in the Division of Engineering and Applied Science.

2002 *Jeffrey D. Eldredge, Clarence Worth Rowley III*

DONALD S. CLARK MEMORIAL AWARDS

May be awarded to two juniors in recognition of service to the campus community and academic excellence. Preference is given to students in the Division of Engineering and Applied Science and to those in Chemical Engineering.

2001 *Agedi Nicholson Boto, Lakshminarayan Srinivasan*

DEANS' CUP AND DIRECTOR OF RESIDENCE LIFE AND MASTER'S AWARD

Two awards, selected by the Deans, the Director of Residence Life, and the Master of Student Houses, presented to undergraduates whose concern for their fellow students has been demonstrated by persistent efforts to improve the quality of undergraduate life and by effective communication with members of the faculty and administration.

2001 *Andrew Gregory Wright, Residence Life and Master's Award*

2002 *Timothy Andrews Crosby, Richard Albert Karnesky, and Todd Eugene Schuman, Residence Life and Master's Award*

David Samuel Guskin and Lakshmirarayan Srinivasan, Deans' Cup

CONSTANTIN G. ECONOMOU MEMORIAL PRIZE

Awarded to a chemical engineering graduate student distinguished by outstanding research accomplishments and exemplary attitude while fulfilling candidacy requirements for the Ph.D. degree.

1999 *Yi Tang*

2001 *Ileana Cristina Carpen*

EVERHART DISTINGUISHED GRADUATE STUDENT LECTURER AWARD

Awarded to a graduate student who has demonstrated exemplary presentation ability and graduate research.

2001 *Gabriel Kreiman, Sujoy Mukhopadhyay*

2002 *Joshua Bloom*

DORIS EVERHART SERVICE AWARD

Awarded annually to an undergraduate who has actively supported and willingly worked for organizations that enrich not only student life, but also the campus and/or community as a whole, and who has, in addition, exhibited care and concern for the welfare of students on a personal basis. The award was established in 1999 by Martin and Sally Ridge in honor of Doris Everhart.

2002 *Elisa Ka Yee Chan*

LAWRENCE L. AND AUDREY W. FERGUSON PRIZE
Awarded to the graduating Ph.D. candidate in biology who has produced the outstanding Ph.D. thesis for the past year.

2002 *Gabriel Kreiman*

RICHARD P. FEYNMAN PRIZE IN THEORETICAL PHYSICS
Awarded to a senior on the basis of excellence in theoretical physics.

2002 *Aaron Wyatt Simons*

HAREN LEE FISHER MEMORIAL AWARD IN JUNIOR PHYSICS
Awarded to a junior physics major who demonstrates the greatest promise of future contributions in physics.

2001 *Clayton Ryan Otey*

HENRY FORD II SCHOLAR AWARD
Awarded either to the engineering student with the best academic record at the end of the third year of undergraduate study, or to the engineering student with the best first-year record in the graduate program.

2001 *Lakshminarayan Srinivasan*

JACK E. FROEHLICH MEMORIAL AWARD
Awarded to a junior in the upper five percent of his or her class who shows outstanding promise for a creative professional career.

2001 *Elizabeth Jennifer Hong, Thomas Marshall Snyder*

GRADUATE DEANS' AWARD FOR OUTSTANDING COMMUNITY SERVICE
Awarded to a Ph.D. candidate who, throughout his or her graduate years at the Institute, has made great contributions to graduate life and whose qualities of leadership and responsibility have been outstanding.

2002 *Alejandro Bäcker, Teerachai Nicholas Pornsinsirirak*

GEORGE W. GREEN MEMORIAL PRIZE

Awarded to the undergraduate student who, in the opinion of the division chairs, has shown outstanding ability and achievement in creative scholarship.

2002 *Timothy David Raub*

ARIE J. HAAGEN-SMIT MEMORIAL AWARD

Awarded to a sophomore or junior in biology or chemistry who has shown academic promise and who has made recognized contributions to Caltech.

2000 *Elizabeth Jennifer Hong*

2001 *Richard Aaron Robison*

SCOTT RUSSELL JOHNSON GRADUATE DISSERTATION PRIZE IN MATHEMATICS

Awarded for the best graduate dissertation in mathematics.

2001 *Mehmet Burak Erdoğan, Song Wang*

SCOTT RUSSELL JOHNSON UNDERGRADUATE MATHEMATICS PRIZE

Awarded for the best graduating mathematics major. Special consideration is given to independent research done as a senior thesis or SURF project.

2002 *Fu Liu, Suhas Raghava Nayak*

D. S. KOTHARI PRIZE IN PHYSICS

Awarded to a graduating senior in physics who has produced an outstanding research project during the year.

2002 *Dirk Robert Englund*

MARGIE LAURITSEN LEIGHTON PRIZE

Awarded to one or two undergraduate women who are majoring in physics, astrophysics, or astronomy, and who have demonstrated academic excellence.

2000 *Daina Maria Paulikas*

DOROTHY B. AND HARRISON C. LINGLE SCHOLARSHIP

Awarded to an incoming freshman in recognition of interest in a career in science or engineering, outstanding academic record, demonstrated fair-mindedness, and unquestioned integrity.

1998 *Andrew James Coe*

THE HERBERT NEWBY McCOY AWARD

Awarded to chemistry doctoral students for outstanding contributions to the science of chemistry.

2002 *Tehshik Peer Yoon*

MARY A. EARL McKINNEY PRIZE IN LITERATURE

Awarded to undergraduate students for excellence in writing in three cateories: poetry, prose fiction, and nonfiction essays.

1997 *Robert Han-Chung Lin*

2000 *David Christian Hockaday*

2001 *Giao Bich Hang, Michael Anthony Russo*

MERIT AND PRESIDENT'S SCHOLARS

Awarded to selected freshmen whose record of personal and academic accomplishment is judged outstanding among incoming freshmen.

1997 *Kevin Lawson Shand*
Ali Afshin Soleimani
James Phillip Turpin
Travis Paxton Waddington

1998
Zhaosheng (Josh) Bao
Agedi Nicholson Boto
Richard Mendel Bowman
Joel Elihu Carranza
Andrew James Coe
Kristen Lee Cook
Serena Merteen Eley
Dirk Robert Englund
Emilio Castano Graff
Garrett Collins Heffner
Loren Kimberly Hoffman
Elizabeth Jennifer Hong
Bevan Emma Huang
Beverly Malika Karhson
Nicholas Adrian Knouf
Barbara Karmen Kraatz
Guillermo Andres Letona
Florian Tobias Merkle
Daina Maria Paulikas
Curtis Warren Pehl
David Andrew Rahmlow
Timothy David Raub
Robb Brooks Rutledge
Derek Michael Shannon
Michael Abraham Shulman
Aaron Wyatt Simons
Thomas Marshall Snyder
Lakshminarayan Srinavasan
Rebecca Erin Stob
Adam Read Thomason
Morgan Kolya Venable
Emily Wang
Bridget Lynn West
Jacob John Zasada

MILLIKAN SCHOLARSHIP

Awarded to selected freshmen whose record of personal and academic accomplishment is judged outstanding among the remarkable group of incoming freshmen.

1993 *Robert Han-Chung Lin*

ROBERT L. NOLAND LEADERSHIP SCHOLARSHIP

Awarded to undergraduate students who exhibit qualities of outstanding leadership, which are most often expressed as personal actions that have helped other people and that have inspired others to fulfill their capabilities.

1997 *Maria Faith Satterwhite*

2002 *Ayeh Bandeh-Ahmadi*
Joseph Daniel Fassler
Dinkar Gupta
Richard Aaron Robison

HOWARD REYNOLDS MEMORIAL PRIZE IN GEOLOGY

Awarded to a sophomore or junior who demonstrates the potential to excel in the field of geology and who actively contributes to the quality of student life at Caltech.

2000 *Timothy David Raub*

HERBERT J. RYSER MEMORIAL SCHOLARSHIPS

Awarded to undergraduate students for academic excellence, preferably in mathematics.

2001 *Fu Liu, Michael Abraham Shulman*

ERNEST E. SECHLER MEMORIAL AWARD IN AERONAUTICS

Awarded to an aeronautics student who has made the most significant contribution to the teaching and research efforts of GALCIT (Graduate Aeronautical Laboratories of the California Institute of Technology). Preference is given to students working in structural mechanics.

2002 *David Deloyd Anderson*

DON SHEPARD AWARD

Awarded to students who would find it difficult, without additional financial help, to engage in extracurricular and cultural activities. The recipients are selected on the basis of their capacity to take advantage of and to profit from these activities rather than on the basis of their scholastic standing.

1999 *Benjamin James Kulick*
Dustin Boswell

2000 *Richard Chiu*

2001 *Elisa Marie Bueno*
Elisa Ka Yee Chan
Timothy Andrews Crosby
David Samuel Guskin
Justin Si-Qi Ho

SIGMA XI AWARD

Awarded to a senior selected for an outstanding piece of original scientific research.

2002 *Elizabeth Jennifer Hong*

HALLETT SMITH PRIZE

Established in 1997 to commemorate Professor Smith's long career as one of the 20th century's most distinguished Renaissance scholars. The cash prize is given annually by the literature faculty to the undergraduate student who writes the finest essay on Shakespeare.

2000 *Robert Phillip Swinney*

PAUL STUDENSKI MEMORIAL FUND PRIZE

A travel grant awarded to a Caltech undergraduate who would benefit from a period away from the academic community in order to obtain a better understanding of self and his or her plans for the future.

2001 *Nathaniel Pickens Austin*

ALAN R. SWEEZY PRIZE IN ECONOMICS

Awarded to a senior who has shown unusual interest in and talent for economics.

2002 *Jin Li*

FRANK TERUGGI MEMORIAL AWARD

Awarded to an undergraduate student who honors the spirit of Frank Teruggi's life through participation "in the areas of Latin American Studies, radical politics, creative radio programming, and other activities aimed at improving the living conditions of the less fortunate."

1999 *David Manuel Zaragoza*

CHARLES WILTS PRIZE

Awarded to a graduate student for outstanding independent research in electrical engineering leading to a Ph.D.

2002 *Donhee Ham*

FREDRICK J. ZEIGLER MEMORIAL AWARD

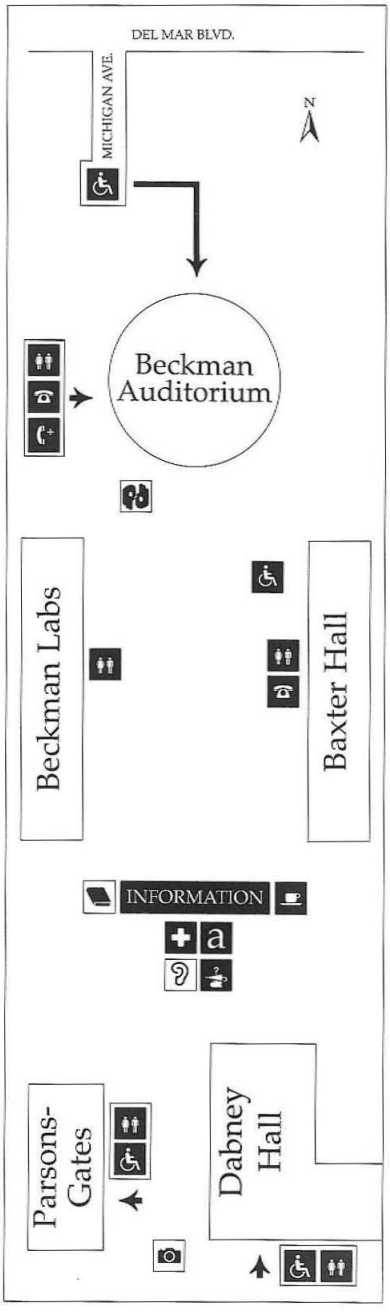
Awarded to an outstanding sophomore or junior in pure or applied mathematics, for excellence in scholarship as demonstrated in class activities or in the preparation of an original paper or essay in any subject area.

2000 *Michael Abraham Shulman*

Caltech Alma Mater

by Manton Barnes, BS '21 EE

In Southern California with grace and splendor bound,
Where the lofty mountain peaks look out to lands beyond,
Proudly stands our Alma Mater, glorious to see;
We raise our voices proudly, hailing, hailing Thee!
Echoes ringing while we're singing over land and sea;
The halls of fame resound thy name, noble CIT!



SERVICES FOR COMMENCEMENT GUESTS

PUBLIC TELEPHONES are available in Baxter Hall and Beckman Auditorium.

RESTROOMS are available in Baxter Hall, Beckman Labs, Dabney Hall, Parsons-Gates Hall of Administration, and Beckman Auditorium.

Information about the nearest location for FIRST AID SERVICES is available at the Information Center.

LOST AND FOUND items may be reported and/or claimed at the Information Center.

Complimentary COFFEE and PUNCH (beginning at 8:30 a.m.)

Informal cap and gown photographs 8:30 a.m.–9:30 a.m.

CALTECH BOOKSTORE sells souvenirs, film, and other items. ATHENAEUM luncheon tickets on sale 8 a.m.–10 a.m.

SPECIAL SERVICES FOR PERSONS WITH DISABILITIES

ASSISTIVE LISTENING DEVICES are available at the Information Center. A driver's license or state-issued ID card is required.

LARGE-TYPE PROGRAMS (abridged) are available at the Information Center.

AMERICAN SIGN LANGUAGE (ASL) interpreters are stationed at the west front of the Ceremony seating area.

PEOPLE WHO USE WHEELCHAIRS, and their guests, will find a special section near the east front of the Ceremony seating area.

RESTROOMS ACCESSIBLE TO PEOPLE WHO USE WHEELCHAIRS are located on the first floor of Dabney Hall and in the Parsons-Gates Hall of Administration.

AMPLIFIED TELEPHONE is available in Beckman Auditorium.