



# CALIFORNIA INSTITUTE *of* TECHNOLOGY

*One Hundred Fourteenth Annual Commencement  
June 13, 2008*



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

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CALIFORNIA INSTITUTE  
*of* TECHNOLOGY

*One Hundred Fourteenth  
Annual Commencement*

Friday Morning at Ten O'Clock  
June Thirteenth, Two Thousand Eight

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.

And amazing things indeed have happened at Caltech over the years. Theodore von Kármán developed the principles that made jet flight possible, Charles Richter published his logarithmic scale for measuring the magnitude of earthquakes, and astronomer Maarten Schmidt discovered the nature of quasars. Here Linus Pauling determined the nature of the chemical bond, Max Delbrück conducted the studies of bacterial viruses that led to a new branch of biology called molecular genetics, Murray Gell-Mann theorized that all particles are made up of quarks and anti-quarks, and Roger Sperry developed new insights into the implications of right-brain and left-brain functions. And not only did the faculty have great impact on the world. Caltech alumni such as Charles Townes developed the laser, Chester Carlson invented Xerography; David Ho did landmark work in creating an effective AIDs drug treatment; Gordon Moore founded a semiconductor industry. Many alumni have gone on to make substantial marks in the business world, such as Simon Ramo and Ben Rosen, while others have become astronauts, university presidents, government leaders, and even authors, directors, and performance artists of note. Caltech's reach has certainly been wide and longlasting.

Caltech today has a 124-acre campus and operates eight 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 2,100 students, more than half of whom are in graduate studies; about 300 professorial faculty members, including five Nobel laureates and three Crafoord laureates; and about 60 research faculty members. Today Caltech will award 191 students the B.S. degree; 127 students the M.S. degree; one scholar the degree of Engineer; and 185 doctoral candidates the Ph.D. degree, for a total of 504 graduates—quite a leap from the one man and one woman who constituted the first collegiate graduating class of Throop Polytechnic Institute.

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 (1917–2007)*  
*Professor of History, Emeritus*



ROBERT KRULWICH is a radio and television journalist who explains complex topics in a style that is clear, compelling, and entertaining. He regularly reports on science, technology, and economics on ABC's *World News* and National Public Radio's *Morning Edition* and *All Things Considered*. He also cohosts a national radio series that explores new developments in science, *Radio Lab*, which is intended for people who are intellectually curious but not regular listeners of science shows. "I like talking about ideas," he says, "and I especially like creating images that will keep those ideas in people's heads."

To make sophisticated topics accessible, Krulwich combines images with casual conversation, interviews, storytelling, metaphors, and other creative methods. He pioneered the use of new animation techniques in reports on cellular biology and subprime lending, and in one of his most creative ventures, he created his own Italian opera, *Ratto Interesse*, to explain how the Federal Reserve regulates interest rates. He has explored a range of challenging subjects from the intricacies of Enron's accounting irregularities to the chemistry of global warming and the mysteries of RNA.

Krulwich has been called "the most inventive network reporter in television" by *TV Guide*, "the man who makes the dismal science swing," by the *Washington Journalism Review*, and "the man who simplifies without being simple," by *New York* magazine. According to Krulwich, "The most exciting news being

made at this moment is what human beings have learned about themselves, the planet they're on, and the universe they're part of."

After joining NPR in 1978 and serving as economics reporter until 1985, Krulwich joined CBS News, and in 1994, he became an ABC News correspondent. With Ted Koppel, he cohosted the eight-part primetime series *Brave New World*, which probed the "eight biggest questions facing humankind," and with Peter Jennings, he produced an animated history of Bosnia for a children's special. With Barbara Walters, he explored possible cures for cancer.

Krulwich is a regular correspondent on the PBS investigative series *Frontline*, for which he received an Alfred I. duPont–Columbia University Award for his coverage of campaign finance in the 1992 presidential campaign. He also received a national Emmy Award for his investigation of privacy on the Internet, "High Stakes in Cyberspace," and a George Polk Award for a piece on the savings-and-loan scandal. His ABC special on Barbie, a cultural history of the world-famous doll, also won a national Emmy. He received the Eleanor Nealon Extraordinary Communicator's Award from the National Cancer Institute in 2000, and for a NOVA special on the human genome, he was awarded the American Association for the Advancement of Science's 2001 Science Journalism Award.

Krulwich received a bachelor's degree in United States history from Oberlin College in 1969 and a Juris Doctor from Columbia Law School in 1974. He lives in New York City with his wife, Tamar Lewin, a national reporter for the *New York Times*. They have two children, Jesse and Nora Ann.

A C A D E M I C P R O C E S S I O N

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*Chief Marshal*

Konstantinos P. Giapis, Ph.D.

*Marshals*

Scott E. Fraser, Ph.D.

Barbara C. Green, Ph.D.

John F. Hall, Ph.D.

Melany L. Hunt, Ph.D.

Richard M. Murray, Ph.D.

Tapio Schneider, Ph.D.

*Faculty Officers*

Judith L. Campbell, Ph. D.

Fiona Cowie, Ph.D.

Richard M. Murray, Ph.D.

M A R C H I N G O R D E R

Candidates for the Degree of Bachelor of Science  
Candidates for the Degree of Master of Science  
Candidate for the Degree of Engineer  
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

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Organ Prelude	Leslie J. Deutsch, Ph.D.
PROCESSIONAL	The Caltech Convocations Brass and Percussion Ensemble <i>William W. Bing, M.M., Conductor</i>
PRESIDING	Kent Kresa <i>Chairman of the Board of Trustees California Institute of Technology</i>
COMMENCEMENT SPEAKER “Tell Me a Story”	Robert Krulwich, J.D. <i>Journalist</i>
CHORAL SELECTION “There’s Just One” music by George Frideric Handel, lyrics by K. Giapis and D. Caldwell	The Caltech Glee Clubs <i>L. Desiree LaVertu, M.M., Conductor</i>
CONFERRING OF DEGREES	Jean-Lou Chameau, Ph.D. <i>President California Institute of Technology</i>
PRESENTATION OF CANDIDATES FOR DEGREES	
For the Degree of Bachelor of Science	John F. Hall, Ph.D. <i>Dean of Students</i>
For the Degree of Master of Science and the Degree of Engineer	Michael R. Hoffmann, Ph.D. <i>Dean of Graduate Studies</i>
For the Degree of Doctor of Philosophy	Dean Hoffmann
Biology	Elliot M. Meyerowitz, Ph.D. <i>Division Chair</i>

Chemistry and Chemical Engineering	David A. Tirrell, Ph.D. <i>Division Chair</i>
Engineering and Applied Science	David B. Rutledge, Ph.D. <i>Division Chair</i>
Geological and Planetary Sciences	Kenneth A. Farley, Ph.D. <i>Division Chair</i>
Humanities and Social Sciences	Jonathan N. Katz, Ph.D. <i>Division Chair</i>
Physics, Mathematics and Astronomy	Thomas A. Tombrello, Ph.D. <i>Division Chair</i>

ANNOUNCEMENT OF AWARDS  
AND CONCLUDING REMARKS

President Chameau

ALMA MATER

“Hail CIT”

by Manton Barnes, BS ‘21 EE

*(The audience may join in;*

*lyrics are on page 56.)*

The Caltech Glee Clubs,  
The Caltech Convocations Brass  
and Percussion Ensemble,  
and Organ

RECESSIONAL

The Caltech  
Convocations Brass  
and Percussion Ensemble

Organ Postlude

Dr. Deutsch

*Video footage of commencement may be viewed on the Caltech website at  
<http://www.caltech.edu/commencement>. Broadcast is scheduled to begin after 3 p.m.*



*Bachelor of Science*

Carl Justin Allendorph *Godfrey, Illinois* Electrical Engineering  
 Olivia Jean Alley *Willits, California* Chemistry  
 Jessica Anne Arnold<sup>†</sup> *New City, New York* Astrophysics  
 Jonathan Mark Arnold\* *Arlington, Virginia* Physics  
 Jessica Nell Austin *Fort Worth, Texas* Mechanical Engineering and Control and  
 Dynamical Systems (Minor)  
 Ning Bao\* *Boys, Maryland* Physics  
 David Randall Barmore\* *Arlington Heights, Illinois* Independent Studies Program  
 Natalie Alexandra Becerra *Corona, California* Mechanical Engineering  
 Brandt Arthur Belson\* *Media, Pennsylvania* Mechanical Engineering and Business  
 Economics and Management  
 Juan Luis Benitez<sup>†</sup> *Fallbrook, California* Mechanical Engineering  
 Ryan Keith Bogner *Long Beach, California* Physics  
 Elette Chantae Boyle\* *Yamhill, Oregon* Mathematics  
 Elah Bozorg-Grayeli\* *Tempe, Arizona* Mechanical Engineering and Aerospace  
 Engineering (Minor)  
 Amanda Nicole Bozovich\* *La Habra Heights, California* Applied Physics  
 Katherine Breeden\* *Piedmont, California* Computer Science and History (Minor)  
 Stanley P. Burgos\* *Huntington Park, California* Applied Physics  
 Richard Hajime Carson *Pasadena, California* Chemistry  
 Derek Garvey Chan\* *Tucson, Arizona* Engineering and Applied Science (Aeronautics)  
 and Business Economics and Management  
 Matthew Hans Chan\* *San Carlos, California* Physics  
 Nathan Chan\* *Austin, Texas* Engineering and Applied Science (Environmental Science  
 and Engineering) and English  
 Angela Weijane Chang\* *Palos Verdes, California* Biology  
 Shelley Hsiao-I Chang *Richardson, Texas* Chemistry  
 Vamsidhar Chavakula\* *Agoura Hills, California* Biology and Electrical Engineering  
 Boris Anthony Chen\* *Foster City, California* Applied and Computational Mathematics  
 and Business Economics and Management  
 David Chen\* *Saratoga, California* Chemical Engineering (Biomolecular)  
 Si Stephen Cheng<sup>†</sup> *Chico, California* Mechanical Engineering  
 Michael Chiang\* *Upland, California* Physics

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

† *Students whose names are followed by a dagger are close to completion and will receive diplomas when all graduation requirements are met.*

## *Bachelor of Science* continued

- Waley Chun\* *Arcadia, California* Applied and Computational Mathematics and Economics
- William Randolph Clark\* *Boise, Idaho* Computer Science
- Derek Jay Conrod *Alamogordo, New Mexico* Computer Science
- Kate Melissa Craig\* *Sauk Centre, Minnesota* Applied Physics and History
- Ambrus Cszaszar *Pasadena, California* Mechanical Engineering
- Timothy Gordon Curran\* *Phoenix, Arizona* Mechanical Engineering and Computer Science
- Molly L. Davis *Magalia, California* Biology
- René Michele Davis *Corona, California* Biology
- Gary Alfred Demos *La Cañada, California* Engineering and Applied Science
- David DiCato *Huntington Beach, California* Computer Science
- Kevin Garland Dick\* *Woodinville, Washington* Computer Science and Mathematics
- Nathan Donnellan *Lago Vista, Texas* Mechanical Engineering
- Joseph Clarence Donovan\* *Wilmette, Illinois* Biology and Business Economics and Management
- David Carroll Dow *Lodi, California* Geology
- Marlena Liesel Fecho *Stoneham, Massachusetts* Electrical Engineering
- Joshua Jarrett Feingold *Winchester, Virginia* Mechanical Engineering and History (Minor)
- Leighland John Feinman *Larchmont, New York* Biology and History
- Csilla Nani Felsen\* *Encinitas, California* Biology and English
- Ludi Feng *Dalian, People's Republic of China* Biology
- Sarah Anthony Ferguson *Baltimore, Maryland* Engineering and Applied Science (Computation and Neural Systems)
- Kenneth Kiyoshi Fisher *La Cañada, California* Mechanical Engineering
- Erin Paul Flanagan† *Sammamish, Washington* Biology
- Michael James Forte\* *Bend, Oregon* Physics
- Edward Paxon Frady\* *Atlanta, Georgia* Engineering and Applied Science (Computation and Neural Systems) and Business Economics and Management
- Mark D. Freeman-Aloiau *Huntington Beach, California* Engineering and Applied Science
- Gina Anne Gage *Grand Junction, Colorado* Geobiology and English (Minor)
- Nicholas Benjamin Galitzki *Gorst, Washington* Astrophysics
- Ilya Gekhtman\* *Granger, Indiana* Mathematics
- Elizabeth Gilliam *La Cañada, California* Biology
- Todd Robert Gingrich\* *Columbia, Missouri* Chemistry
- Gaurav Giri\* *Kathmandu, Nepal* Chemical Engineering (Biomolecular)
- Manuel Godoy\* *Caracas, Venezuela* Electrical Engineering
- Brent Justin Goldman† *San Marino, California* Computer Science and Business Economics and Management



## *Bachelor of Science* continued

- Joshua David Goldstein *Dallas, Texas* Computer Science  
Christopher Grant Gonzales *Clemmons, North Carolina* Electrical Engineering  
Michael Sean Grinolds\* *Fort Collins, Colorado* Physics  
Robert A. Grogan *Port Washington, New York* Mechanical Engineering  
Marc Alexander Grossman *Chico, California* Mechanical Engineering  
Zhiyun Guan\* *Santa Barbara, California* Biology  
Tatiana Emilova Gueorguieva *Diamond Bar, California* Electrical Engineering  
Maria Christina Gutowski *Omaha, Nebraska* Computer Science  
David Duncanson Gutschick *Los Alamos, New Mexico* Mechanical Engineering and  
Aerospace Engineering (Minor)  
Peter Haderlein *North Hollywood, California* Mechanical Engineering and Philosophy  
(Minor)  
Yang Hai\* *Fairfax, Virginia* Electrical Engineering and Business Economics and  
Management  
Elena Hartoonian *Sunland, California* Applied Physics  
Alexei Harvard† *Great Neck, New York* Mathematics  
Jennifer Ann Hawley *Saint Joseph, Michigan* Biology  
Drew Frank Heltsley *Tullahoma, Tennessee* Mechanical Engineering  
Patrick Kenichi Herring\* *Idaho Falls, Idaho* Physics  
Stephen Thomas Heumann\* *Vernon Hills, Illinois* Computer Science  
Silas James Hilliard† *Spokane, Washington* Engineering and Applied Science  
(Aeronautics)  
George Herbert Hines\* *Kalamazoo, Michigan* Engineering and Applied Science  
(Aeronautics) and Control and Dynamical Systems (Minor)  
Bryan Henry Hires *Columbus, Indiana* Engineering and Applied Science (Aeronautics)  
Aaron Scott Hoffer *Northridge, California* Astrophysics and Business Economics and  
Management  
Steven Yoshiaki Horikoshi *Alameda, California* Applied Physics and Business Economics  
and Management  
Edward Hsiao\* *Lanoka Harbor, New Jersey* Electrical Engineering  
Scott Sigao Hsieh\* *Anaheim, California* Applied Physics and Business Economics and  
Management  
Harold Wenjing Hsu\* *Cupertino, California* Biology and English  
Tsung-Pai James Huang\* *Arcadia, California* Biology  
Peter Shek Ho Hung\* *Arcadia, California* Physics  
Rob Hunter† *Cooper City, Florida* Electrical Engineering  
Michael Inadomi\* *Rolling Hills Estates, California* Applied Physics  
Cedric Jeanty *Fairview, Tennessee* Mechanical Engineering  
Deborah Jiang *Rancho Palos Verdes, California* Biology and History (Minor)

## *Bachelor of Science* continued

- Michelle Jiang<sup>†</sup> *Rancho Palos Verdes, California* Computer Science and Business  
Economics and Management
- Richard Hayden Jones\* *Orono, Minnesota* Biology
- Brian D. Kearns\* *Cave Creek, Arizona* Computer Science and Business Economics and  
Management
- Meghan Catherine Kelleher *Jacksonville, Florida* Applied and Computational  
Mathematics and Business Economics and Management
- Jason Kephart\* *Billings, Montana* Mechanical Engineering and Business Economics and  
Management
- Henna Kermani\* *Beverly Hills, California* Computer Science
- Matthew Dean Kiesz *Lodi, California* Chemistry
- Kun Woo Kim\* *Seoul, South Korea* Physics
- Lindsay Marie King *Bedford, New Hampshire* Biology
- Christopher Robert Klein\* *Portland, Oregon* Astrophysics
- Chi Wan Ko\* *Alhambra, California* Mechanical Engineering and Business Economics and  
Management
- Huaising Cindy Ko *Ramona, California* Mechanical Engineering
- John Albert Kochalka *Tampa, Florida* Engineering and Applied Science (Computation  
and Neural Systems)
- Matthew James Krogstad *Maple Grove, Minnesota* Physics
- Russell-John Krom\* *Rochester, Minnesota* Chemistry
- Ashok Litwin Kumar\* *Oakton, Virginia* Physics and Philosophy (Minor)
- Simon F. Kung\* *Potomac, Maryland* Chemistry and Business Economics and  
Management
- Timothy Chung Kwa *Monterey Park, California* Mechanical Engineering
- Sy Tanapun Labthavikul *New York City, New York* Engineering and Applied Science  
(Environmental Science and Engineering)
- Nathanael Lau *South Pasadena, California* Chemistry and History
- Justin Scott Lazear *Phoenix, Arizona* Physics
- Andrew Jer Yin Lee\* *Overland Park, Kansas* Physics
- Helen Lee\* *Los Angeles, California* Chemical Engineering (Biomolecular) and Business  
Economics and Management
- Samantha Roslyn Levine *Mahwah, New Jersey* Chemistry
- Matthew Duk-Ying Lew\* *San Antonio, Texas* Electrical Engineering
- Li Song Li<sup>†</sup> *Minneapolis, Minnesota* Physics and Economics
- Sean Li\* *Round Rock, Texas* Mathematics
- Shawn Michael Ligocki\* *Pinole, California* Mathematics
- Laura Estelle Lindzey\* *Austin, Texas* Physics

## *Bachelor of Science* continued

- Yun-hsueh Rita Liu\* *Taipei, Taiwan (ROC)* Electrical Engineering and Control and Dynamical Systems (Minor)
- Zachary James Lizer\* *Winchester, Virginia* Engineering and Applied Science (Aeronautics)
- Xuan Luo *Albany, California* Computer Science
- Lisa Lyons *Silt, Colorado* Computer Science
- Thomas Joseph Mainiero\* *Coplay, Pennsylvania* Physics
- Jonathan Matthew Malmaud\* *Boca Raton, Florida* Computer Science
- Jonathan Andrew Marina\* *Arcadia, California* Applied Physics
- Raquel Angelina Martinez *South Pasadena, California* Astrophysics
- Sean Walter Mattingly† *Houston, Texas* Physics and Business Economics and Management
- Keegan Leinbach McAllister\* *Johnston, Iowa* Computer Science
- Parvathy Rama Menon\* *Portland, Oregon* Engineering and Applied Science
- Brigitta Emiko Miyamoto\* *San Francisco, California* Chemistry
- Garrett J. Mizuo *Torrance, California* Applied and Computational Mathematics
- Craig Samuel Montuori *Cranford, New Jersey* Engineering and Applied Science (Aeronautics)
- Christopher Erick Moody *Sumter, South Carolina* Physics
- Youssef Moussaoui\* *Casablanca, Morocco* Computer Science and Economics
- Vivek Narshimhan\* *West Lafayette, Indiana* Chemical Engineering (Materials)
- Kenneth Oslund\* *Castro Valley, California* Engineering and Applied Science (Computation and Neural Systems)
- Elliott Pallett *Houston, Texas* Mechanical Engineering and Aerospace Engineering (Minor)
- Erica Roxanne Pantel *Boca Raton, Florida* Mechanical Engineering
- Hyungmin Park\* *Cresskill, New Jersey* Physics
- Christine Ford Parry *Malvern, Pennsylvania* Applied and Computational Mathematics
- Sara Elizabeth Peek *Ocean Springs, Mississippi* Geology
- Edward Joseph Perepelitsky\* *San Jose, California* Physics
- Philipp Naum Perepelitsky\* *San Jose, California* Mathematics
- Krastina Valentinova Petrova\* *Denver, Colorado* Chemistry
- Drew Harmon Pollock *Anchorage, Alaska* Mechanical Engineering
- Victoria Hunzu Pon\* *Littleton, Colorado* Biology
- Daniel Yuenheen Poon *Ann Arbor, Michigan* Biology
- Lauren Ashley Porter *Berlin, Connecticut* Physics
- Aditya Rajagopal\* *Irvine, California* Electrical Engineering
- Thomas Rancy *Mount Pleasant, South Carolina* Computer Science
- Tamara Gene Reyda *San Jose, California* Electrical Engineering
- Mario Roa *Los Angeles, California* Engineering and Applied Science (Aeronautics)
- David Zeb Rocklin\* *Iowa City, Iowa* Physics and Economics

## *Bachelor of Science* continued

David Romero *Miami, Florida* Physics  
David Matthew Rosen\* *Torrance, California* Mathematics and Control and Dynamical Systems (Minor)  
Prashant Saraswat\* *Northridge, California* Physics  
Christopher James Schantz *Missoula, Montana* Mechanical Engineering and Control and Dynamical Systems (Minor)  
Cale Andrew Scholl *Buffalo, New York* Computer Science  
Jonathan Wyatt Seitel *Tucson, Arizona* Economics  
Weilin Shao *Lancaster, Pennsylvania* Applied and Computational Mathematics  
Tatyana A. Shatova\* *Highland Park, New Jersey* Chemical Engineering (Biomolecular)  
Jing Shen\* *Maitland, Florida* Mechanical Engineering and Business Economics and Management  
John Shen\* *Gaithersburg, Maryland* Physics  
Angela R. Shih\* *Yorba Linda, California* Chemistry  
Shafiq Shirinfar† *Los Angeles, California* Electrical Engineering  
Alexander Rigel Siegel\* *La Cañada, California* Biology and Chemistry  
Akshay Singal *Blacksburg, Virginia* Engineering and Applied Science (Materials Science) and Business Economics and Management  
Sukhmani Kaur Singh *Bakersfield, California* Chemistry  
Damien Zador Soghoian *New York City, New York* Biology  
Alexander Anthony Sonn *Fayetteville, Arkansas* Physics  
Michael Henry Spece Ibáñez\* *Tucson, Arizona* Applied and Computational Mathematics and Business Economics and Management  
Torrey Devon Spink *Chadron, Nebraska* Mechanical Engineering  
Sarah Elizabeth Stidham *Tulsa, Oklahoma* Chemistry  
Sarah Ann Stokes\* *Provo, Utah* Physics  
Adrienne Rose Stroup *Sandy Springs, Georgia* Engineering and Applied Science (Aeronautics)  
Pakpoom Subsoontorn\* *Phitsanulok, Thailand* Biology and Computer Science  
Shawn Dean Surdyk *Rochester, New York* Computer Science and Business Economics and Management  
Valerie J. Syverson *Fresno, California* Geology  
Natalie Jane Szweda *San Diego, California* Chemistry  
Andrew Ching-Hsing Tan *Houston, Texas* Computer Science  
Liang Zheng Tan\* *Singapore* Physics  
Sonia M. Tikoo\* *Cape Girardeau, Missouri* Geology and History (Minor)  
Daniel Tofan\* *Brasov, Romania* Chemistry  
Thomas Claudio Guillermo Tsai† *Torrance, California* Biology  
Christine L. Tung\* *Dallas, Texas* Biology

## *Bachelor of Science* continued

- Makoto Ueno *Sherman Oaks, California* Mechanical Engineering
- Michael Lee Underhill *Richmond, Texas* Mechanical Engineering and Business  
Economics and Management
- Sarah Elizabeth Wadsworth *Prescott, Arizona* Biology
- Mary Elizabeth Wahl\* *Davenport, Iowa* Biology
- Guan Wang *Foster City, California* Applied Physics and Business Economics and  
Management
- Karen Lee Wang\* *San Jose, California* Geochemistry
- Qian Wang\* *Vancouver, Canada* Computer Science
- Yao-Tseng Wang\* *Kaoshiung, Taiwan (ROC)* Applied Physics and Business Economics  
and Management
- Yi Wang\* *Chengdu, People's Republic of China* Electrical Engineering
- Kevin Watts\* *Madison, Wisconsin* Mechanical Engineering and Business Economics and  
Management and Aerospace Engineering (Minor)
- Eleanor Marie Waxman\* *Manchester, Connecticut* Chemistry
- Erin Mishelle White *Los Altos, California* Chemistry
- Michael Robert White\* *Rockford, Illinois* Mathematics
- June Ki Wicks *Pittsburgh, Pennsylvania* Geochemistry
- Matthew Kenneth Wierman *Lake Mary, Florida* Mechanical Engineering and Aerospace  
Engineering (Minor)
- Michael Janusz Woods *Torrance, California* Physics
- Wei Eileen Xie *San Diego, California* Biology
- Yingding (Bryan) Xu\* *Shanghai, People's Republic of China* Biology
- Hanwen Yan *Westport, Connecticut* Biology and Business Economics and Management
- Jed Chang-Chun Yang\* *Boston, Massachusetts* Mathematics
- Lingfeng Yang\* *Riverside, California* Mathematics and Computer Science
- Jessica Mary Yano\* *Placentia, California* Biology
- Jennifer Yim *Toronto, Canada* Electrical Engineering and Business Economics and  
Management
- Shawn Yu\* *Arcadia, California* Chemical Engineering (Biomolecular)
- Xi (Cecilia) Yu† *The Woodlands, Texas* Engineering and Applied Science (Environmental  
Science and Engineering) and Business Economics and Management
- Joshua Norbert Zahl\* *Ottawa, Canada* Mathematics
- Sami Zerrade *Boise, Idaho* Computer Science
- Yan Zhang\* *Macungie, Pennsylvania* Mathematics
- Zhonglin Johnny Zhang\* *Changzhou, People's Republic of China* Engineering and Applied  
Science (Aeronautics) and Control and Dynamical Systems (Minor)
- Ziqing (Winston) Zhao\* *Hangzhou, People's Republic of China* Chemistry and Biology
- Brian Boran Zhou\* *Ellicott City, Maryland* Physics
- Yaning Zhu\* *Palo Alto, California* Applied and Computational Mathematics

## *Master of Science*

- Pablo Abad-Manterola (*Mechanical Engineering*) B.S., Stanford University 2006.
- Zeeshan Ahmed (*Physics*) B.S., University of Southern California 2005.
- Yacine Ali-Haimoud (*Astrophysics*) Diplôme d'Ingénieur, École Polytechnique 2006.
- Laura Alisic (*Geophysics*) Propedeuse, Universiteit Utrecht 2002; Doctoraal, 2006.
- Adrianus Indrat Aria (*Aeronautics*) B.S., Bandung Institute of Technology 2006.
- Jennifer Prentice Arroyo (*Electrical Engineering*) B.S., Drexel University 2003.
- Dustin Hughes Beckett (*Social Science*) B.A., Claremont McKenna College 2004.
- Varun Bhalachandra Bhalariao (*Astrophysics*) B.Tech., Indian Institute of Technology, Bombay 2006.
- Nicholas Sebastian Boechler (*Aerospace Engineering*) B.S., Georgia Institute of Technology 2007.
- Jean-Loup Bourguignon (*Aeronautics*) Ingénieur Civil Physicien, Université de Liège 2007; Ingénieur, Institut Supérieur de l'Aéronautique et de l'Espace 2007.
- Daniel James Bower (*Geophysics*) B.Sc., University of Durham 2004; M.Phil., University of Cambridge 2006.
- Jason David Bradbury (*Electrical Engineering*) B.S., University of New Mexico 2006.
- Ryan Morrow Briggs (*Applied Physics*) B.S., Colorado School of Mines 2005; M.S., 2006.
- Evan Cornell Brown (*Materials Science*) B.S., University of California, Irvine 2006.
- Justin Lee Brown (*Mechanical Engineering*) B.S., University of New Mexico 2007.
- Daniel Stephen Brox (*Electrical Engineering*) B.Sc., M.Sc., University of British Columbia 2005.
- David Isaac Buchfuhner (*Computer Science*) B.S., Harvey Mudd College 2006.
- George Humberto Cadena III (*Electrical Engineering*) B.S., Georgia Institute of Technology 2004.
- Christopher SungWook Chang (*Electrical Engineering*) B.S., Seoul National University 2006.
- Steven Michael Chemtob (*Geochemistry*) B.A., Washington University in St. Louis 2006.
- Jay Zhuo Chen (*Electrical Engineering*) B.S., University of California, Berkeley 2006.
- Jihui Chen (*Electrical Engineering*) B.E., Zhengzhou University 1996; M.E., Beijing University of Aeronautics and Astronautics 1999.
- Ting Chen (*Geophysics*) B.S., University of Science and Technology of China 2005.
- Jie Cheng (*Environmental Science and Engineering*) B.S., Tsinghua University 2004.
- Mulin Cheng (*Applied and Computational Mathematics*) B.S., Peking University 2002; M.S., 2005.
- Mohsen Chitsaz (*Civil Engineering*) B.S. (*Civil Engineering*), B.S. (*Computer Software Engineering*), Sharif University of Technology 2007.
- In Ki Choi (*Aerospace Engineering*) B.S., Seoul National University 2005.
- Vedran Coralic (*Mechanical Engineering*) B.S., University of Illinois at Urbana-Champaign 2007.

## *Master of Science continued*

- Jason Scott Damazo (*Aerospace Engineering*) B.S. (*Mathematics*), B.S. (*Mechanical Engineering*), Walla Walla College 2007.
- Davis Solomon Darvish (*Applied Physics*) B.S., University of California, Berkeley 2006.
- Teresa Holly Emery (*Electrical Engineering*) B.S., Cornell University 2002; M.E., 2003.
- Matthew Alan Ferry (*Physics*) A.B., University of California, Berkeley 2006.
- Manuel Fuentes Hierro (*Aerospace Engineering*) Mechanical Engineer, University of Seville 2007.
- Vahe Gabuchian (*Aerospace Engineering*) B.S., University of California, Irvine 2007.
- Crystal Lynn Gammon (*Geobiology*) A.B., Washington University in St. Louis 2005.
- Alireza Ghaffari Fard Badkoubeh (*Electrical Engineering*) B.S., California State University, Los Angeles 1985.
- Shuo Han (*Electrical Engineering*) B.E., Tsinghua University 2003; M.E., 2006.
- Ajay Bangalore Harish (*Aeronautics*) B.Tech., National Institute of Technology, Karnataka 2007.
- Alexander Gerard Hayes (*Planetary Science*) B.A., Cornell University 2003; M.E., 2004.
- Scott Patrick Hersey (*Environmental Science and Engineering*) B.A., B.S., Rice University 2006.
- Amy Elizabeth Hofmann (*Geochemistry*) B.A., Franklin and Marshall College 2004.
- Cameron Richard Hughes (*Physics*) B.S., University of California, Santa Barbara 2002.
- Jason Yoshimi Imada (*Electrical Engineering*) B.S., Harvey Mudd College 2002.
- Ian Zachary Jacobi (*Aeronautics*) S.B., Massachusetts Institute of Technology 2006.
- Timothy Forest Jones (*Electrical Engineering*) B.S., California Institute of Technology 2003.
- Annelen Kahl (*Materials Science*) Diplom, University of Göttingen 2006.
- Gokcan Karakus (*Civil Engineering*) B.S., Bogazici University 2007.
- YoungHee Kim (*Geophysics*) A.B., University of California, Berkeley 2002; M.S., Seoul National University 2004.
- Russell Scott Komor (*Chemical Engineering*) B.S., University of California, Berkeley 2006.
- Craig Peter Kowal (*Chemical Engineering*) B.S.E., Princeton University 2005.
- Ian Michael Krajbich (*Social Science*) B.S., California Institute of Technology 2005.
- Le Kuai (*Planetary Science*) B.S., Nanjing University 2003; M.S., Iowa State University of Science and Technology 2006.
- Sandeep Kumar (*Aeronautics*) B.Tech., Indian Institute of Technology, Kanpur 2007.
- Derek Leong (*Electrical Engineering*) B.S., Carnegie Mellon University 2005.
- Cole Daniel Lepine (*Control and Dynamical Systems*) B.Sc., University of Toronto 2006.
- Inés Levin Fiorelli (*Social Science*) Licenciada en Economía, Universidad Ort Uruguay 2004.
- Chao Li (*Physics*) B.S., University of Science and Technology of China 2004.

## *Master of Science continued*

- Joe Chih Yao Liang (*Chemical Engineering*) B.S., University of California, Berkeley 2006.
- Esperanza Crystal Linares-Guerrero (*Mechanical Engineering*) B.Eng., National Autonomous University of Mexico 2006.
- Hsi-Chun Liu (*Electrical Engineering*) B.S., National Taiwan University 2004.
- Qing Liu (*Electrical Engineering*) B.S., California Institute of Technology 2006.
- Yizhou Liu (*Electrical Engineering*) B.S., Tsinghua University 2006.
- Bo Lu (*Electrical Engineering*) B.S., Peking University 2007.
- Morteza Tofangchi Mahyari (*Applied and Computational Mathematics*) B.Sc., University of Tehran 1995; M.Sc., 2001.
- Walter Kennerth Max-Moerbeck Astudillo (*Astrophysics*) Lic. Cs. Astronomía, Lic. Cs. Ing. Eléctrica, Universidad de Chile 2004; Ing. Civil Eléctrica, 2005.
- Prakhar Mehrotra (*Aeronautics*) B.Tech., National Institute of Technology, Trichy 2007.
- Joannah Marie Metz (*Planetary Science*) B.S. (*Geophysics*), B.S. (*Physics*), University of Illinois at Urbana-Champaign 2004; M.Phil., University of Cambridge 2006.
- Christopher Paul Michael (*Applied Physics*) B.S. (*Materials Science*), B.S. (*Physics*), University of Illinois at Urbana-Champaign 2003; M.Phil., University of Cambridge 2006.
- Darren John Michaels (*Electrical Engineering*) B.S., Colorado School of Mines 2006.
- Jonathan Michael Mihaly (*Aeronautics*) B.S., Syracuse University 2007.
- Alireza Mohammad Karim (*Aerospace Engineering*) B.S., University of California, Los Angeles 2007.
- Sarina Mohanty (*Biochemistry and Molecular Biophysics*) B.A., University of Virginia 2001.
- Francisco de Paula Montero Chacón (*Aerospace Engineering*) Mechanical Engineer, University of Seville 2007.
- Mohamed Mostagir (*Social Science*) B.Sc., Ain Shams University 1999; M.Sc., University of Delaware 2002; S.M., Massachusetts Institute of Technology 2005.
- Navneet Thiagarajan Narayan (*Civil Engineering*) B.Tech., Indian Institute of Technology, Madras 2007.
- David Andrew Nichols (*Physics*) B.A., Claremont McKenna College 2006.
- David Alexander Noblet (*Computer Science*) B.S., University of New Hampshire 2005.
- Tae-Sik Oh (*Materials Science*) B.S., Seoul National University 2004; M.S., 2006.
- Francisco Hernan Ortega Culaciati (*Geophysics*) B.Sc., Universidad de Chile 2005.
- Piya Pal (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Kharagpur 2007.
- Bharat Prasad Penmecha (*Mechanical Engineering*) B.Tech., Indian Institute of Technology, Madras 2007.
- Kerstin Marie Perez (*Physics*) B.A., Columbia University 2005.
- Laura Maria Perez Muñoz (*Astrophysics*) B.S., Universidad de Chile 2005; M.S., 2006.
- Katherine G. Poulin-Kerstien (*Chemistry*) B.A., Amherst College 2000.
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## *Master of Science continued*

- Marjan Praljak (*Social Science*) B.A., University of Zagreb 2002; M.S., 2006.
- Imogen Mary Pryce (*Chemical Engineering*) B.S., The Ohio State University 2006.
- Sanja Pudar (*Chemistry*) B.S., Iowa State University 2004.
- Morgan Charles Putnam (*Chemical Engineering*) B.S., Cornell University 2005.
- Elijah Langdon Quetin (*Astrophysics*) B.S., University of California, Santa Barbara 2005.
- James John Raftery (*Electrical Engineering*) B.S.E., Princeton University 2006.
- Paige Alicia Randall (*Applied and Computational Mathematics and Physics*) B.S., University of Washington 2002.
- Sky Rashby (*Geobiology*) B.S., University of California, Berkeley 2002.
- Andrea Robbett (*Social Science*) B.S., Haverford College 2005.
- Andrey Valeryevich Rodionov (*Physics*) Diploma, M.V. Lomonosov Moscow State University 2004.
- Christos Theodoros Santis (*Electrical Engineering*) Diploma, National Technical University of Athens 2005.
- Liza Hadiwinata Santoso (*Electrical Engineering*) B.S., Purdue University 2007.
- Penvipha Satsanarukkit (*Electrical Engineering*) B.E., Kasetsart University 2001; M.E., King Mongkut's University of Technology 2004.
- Megan Elizabeth Schwamb (*Astrophysics*) B.A., University of Pennsylvania 2006.
- Maia Kimberly Schweizer (*Geobiology*) A.B., Princeton University 2004.
- Brinton Anna Seashore-Ludlow (*Chemistry*) B.A., Macalester College 2005.
- Michelle Marie Selvans (*Geophysics*) B.A., University of Colorado at Boulder 2004.
- Kaushik Sengupta (*Electrical Engineering*) B.Tech., M.Tech., Indian Institute of Technology, Kharagpur 2007.
- Ashish Sharma (*Electrical Engineering*) B.Tech., Indraprastha University 2005.
- Wendian Shi (*Electrical Engineering*) B.S., Peking University 2004; M.S., 2007.
- Nicholas Paul Stadie (*Materials Science*) B.S., Arizona State University 2007.
- Matthew Alan Stevenson (*Astrophysics*) B.Sc., University of Victoria 2006.
- Borching Su (*Electrical Engineering*) B.S., National Taiwan University 1999; M.S., 2001.
- Ravi Teja Sukhavasi (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Kanpur 2007.
- Andrej Svorencik (*Social Science*) Engineer, University of Economics 2005; M.S., Comenius University 2006.
- Ivan Szelengowicz (*Aeronautics*) Diplôme d'Ingénieur, École Polytechnique 2006.
- Hongjin Tan (*Materials Science*) B.S., Nanjing University 2006.
- Xiangyan Tian (*Geophysics*) B.S., University of Science and Technology of China 1999; M.S., 2005.
- Pratyush Tiwary (*Materials Science*) B.Tech., Banaras Hindu University 2007.
- Frank Truong (*Chemical Engineering*) B.S., University of Houston 2006.
- Svitlana Vyetenko (*Electrical Engineering*) B.S., National Taras Shevchenko University of Kyiv 2003; M.S., University of Arkansas 2005.

## *Master of Science continued*

- Yingying Wang (*Electrical Engineering*) B.S., Beihang University 2004.  
Jerome S. White, Jr. (*Computer Science*) B.S., Rensselaer Polytechnic Institute 2003.  
Christine Eve Winiarz (*Mechanical Engineering*) S.B., Massachusetts Institute of Technology 2007.  
Huan Xu (*Mechanical Engineering*) S.B., Harvard College 2007.  
Weiwei Yang (*Computer Science*) B.S., California Institute of Technology 2004.  
Jonathan Stockwell Young (*Computation and Neural Systems*) A.B., Harvard College 2004.  
Xiao Yan Yuan (*Electrical Engineering*) B.S., Shenyang Institute of Aeronautical Engineering 2002.  
Benjamin Miller Zegarelli (*Chemistry*) B.A., Middlebury College 2005.  
Guoan Zheng (*Electrical Engineering*) B.S., Zhejiang University 2007.  
Yuan Zhong (*Mathematics*) B.A., University of Cambridge 2006.  
Roseanna Nellie Zia (*Mechanical Engineering*) B.S.M.E., University of Missouri 1995; M.E., The University of Michigan 1999.

## *Degree of Engineer*

- Laurent Jean-Michel Benezech (*Aeronautics*) M.Sc., Chalmers University 2004.

## *Doctor of Philosophy*

### DIVISION OF BIOLOGY

- Stijn Cassenaer (*Biology*) B.S., University of California, San Diego 1999.  
Thesis: Spike-Timing Dependent Plasticity and Synchronous Oscillations in an Invertebrate Olfactory System.
- Robert Sidney Cox III (*Biology*) B.S., New College of University of San Francisco 2001.  
Thesis: Transcriptional Regulation and Combinatorial Genetic Logic in Synthetic Bacterial Circuits.
- Jennifer Leigh Green (*Biology*) A.A., Los Angeles Pierce College 1999; B.S., University of California, Los Angeles 2001.  
Thesis: The *C. elegans* ROR Receptor Tyrosine Kinase, CAM-1, Regulates Wnt Signaling by Two Distinct Mechanisms.
- Asha Muthuraman Iyer (*Biology*) B.S., Stanford University 1998.  
Thesis: fMRI Correlates of Planning Goal-Directed Actions.
- Ali Mortazavi (*Biology*) B.S., California Institute of Technology 1993; M.S., California State University, Los Angeles 2004.  
Thesis: Structure and Evolution of Mammalian Gene Networks.
- Anna Maria Salazar (*Biology*) B.S., California Institute of Technology 1997.  
Thesis: A Pumilio Domain that Forms Heritable Amyloid Aggregates in Yeast Can Regulate Pumilio-Mediated Translational Repression in *Drosophila*.
- Stephen Edward Paucha Smith (*Biology*) B.A., Occidental College 2002.  
Thesis: Maternal Immune Activation and Abnormal Behavior in the Adult Offspring: Towards a Mechanism.
- Luigi Andrea Warren (*Biology*) B.Sc., University College London 1982; B.S., Columbia University 2001.  
Thesis: Single-Cell Gene-Expression Analysis by Quantitative RT-PCR.
- Brian Matthew Zid (*Biology*) B.S., Truman State University 2000.  
Thesis: Translational Control Mediates Lifespan Extension Due to Dietary Restriction in *Drosophila*.

### DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING

- Donde R. Anderson (*Chemistry*) B.A., Northwestern University 2002.  
Thesis: Ruthenium Olefin Metathesis Complexes: Catalyst Development and Mechanistic Studies.
- Melissa Jane Archer (*Chemical Engineering and Applied Physics*) B.S., Syracuse University 2003; M.S., California Institute of Technology 2005.  
Thesis: Multijunction Solar Cells on Epitaxial Templates.

*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*

- Kimberly Elizabeth Beatty (*Chemistry and Biology*) B.S., University of California, Santa Barbara 2002.  
Thesis: Imaging the Proteome: Metabolic Tagging of Newly Synthesized Proteins with Reactive Methionine Analogues.
- Teresa Diane Beeson (*Chemistry*) B.S., Colorado State University 2000.  
Thesis: Development of Enantioselective Organocatalytic Technologies for the Alpha-Functionalization of Aldehydes and Ketones.
- Amie Kathleen Boal (*Chemistry*) B.A., Pomona College 2002.  
Thesis: DNA-Mediated Charge Transport in DNA Repair.
- Akram Issam Boukai (*Chemistry*) B.S., University of California, Los Angeles 2002.  
Thesis: Thermoelectric Properties of Bismuth and Silicon Nanowires.
- Mark Butler (*Chemistry*) B.S., Brigham Young University 1995; M.S., University of Utah 1999.  
Thesis: Novel Methods for Force-Detected Nuclear Magnetic Resonance.
- Christie Anne Canaria (*Chemistry*) B.S., University of California, San Diego 2000.  
Thesis: Self-Assembled Monolayers for the Study of Biological Targets.
- Daniel David Caspi (*Chemistry*) B.S., University of California, San Diego 2002.  
Thesis: The Adaptive Nature of Palladium Reactivity in Synthesis.
- Rebecca Elizabeth Connor (*Chemistry*) B.S., Carnegie Mellon University 1999.  
Thesis: N-terminal Modification and Codon Reassignment with Non-Canonical Amino Acids in Proteins.
- Ubaldo M. Córdova-Figueroa (*Chemical Engineering*) B.S., University of Puerto Rico, Mayaguez 2003.  
Thesis: Directed Motion of Colloidal Particles via Chemical Reactions: Osmotic Propulsion.
- Ralph Leonard Ameri David (*Chemical Engineering*) A.S., Dixie College 1998; B.S., Brigham Young University 2003.  
Thesis: Associative Polymers as Antimisting Agents and Other Functional Materials via Thiol-ene Coupling.
- Claudiu Adrian Giurumescu (*Chemical Engineering and Biology*) S.B., Massachusetts Institute of Technology 2001.  
Thesis: Quantitative Insights into Developmental Signals and Phenotypes in *C. elegans*.
- Erin Nicole Guidry (*Chemistry*) B.S., Texas A&M University 2002.  
Thesis: Interlocked Molecules Using Olefin Metathesis.
- Jason P. Jordan (*Chemistry*) B.S., Carnegie Mellon University 2001.  
Thesis: The Development of Water-Soluble Olefin Metathesis Catalysts Containing an *N*-Heterocyclic Carbene Ligand.

*Doctor of Philosophy continued*

- Neena Sujata Kadaba (*Chemistry*) S.B., Massachusetts Institute of Technology 2002; S.M., 2003.  
Thesis: Structural Studies of the *E. coli* Methionine ABC Transporter and Its Cognate Binding Protein.
- Victor Wai Tak Kam (*Chemistry*) B.A., Cornell University 2001.  
Thesis: Methods in Computational Protein Design.
- Jordan E. Katz (*Chemistry*) B.A., Reed College 1999.  
Thesis: Metal Oxide-Based Photoelectrochemical Cells for Solar Energy Conversion.
- Jason M. Keith (*Chemistry*) B.S., University of North Texas 2001.  
Thesis: Palladium Mediated Activation of Molecular Oxygen.
- John A. Keith (*Chemistry*) B.A., Wesleyan University 2001.  
Thesis: Computational Insight into Homogeneous Organopalladium Catalysis.
- Hugh Inkon Kim (*Chemistry*) B.S., University of California, Berkeley 2003.  
Thesis: Fundamental and Applied Studies of the Structures and Reaction Dynamics of Biomolecules Using Mass Spectrometry and Ion Mobility Spectrometry.
- Tsun Yin Lai (*Chemistry*) B.A., The Johns Hopkins University 2003.  
Thesis: Characterizing  $\alpha$ -Synuclein Membrane Bound Structure.
- Sandra Lee (*Chemistry*) B.S., University of California, Berkeley 2000.  
Thesis: Development of Iminium-Activation Technologies and the Total Synthesis of (+)-Fronodosin B.
- Michael J. Mackel (*Chemical Engineering*) B.A., University of California, Davis 1995; B.S., University of California, Santa Barbara 2000.  
Thesis: Hydrophilic Polymers in Gels and Solutions: Surface Properties and Structure.
- Eric Louis Margelefsky (*Chemical Engineering*) B.S., Cornell University 2004.  
Thesis: Cooperative Catalysis by Bifunctionalized Mesoporous Silica.
- Ryan Michael McFadden (*Chemistry*) B.S., Purdue University 2002.  
Thesis: Applications of Palladium-Catalyzed Enantioselective Decarboxylative Alkylation in Natural Products Total Synthesis.
- Sarina Mohanty (*Biochemistry and Molecular Biophysics*) B.A., University of Virginia 2001.  
Thesis: Akt Phosphorylation of *Drosophila* Heat-Shock Factor: A Signature for Stress Resistance.
- Vijay Natraj (*Chemical Engineering*) B.E., National University of Singapore 1998; M.E., 2001; M.S., California Institute of Technology 2004.  
Thesis: Radiative Transfer Modeling for the Retrieval of CO<sub>2</sub> from Space.
- Nicholas George Nickols (*Chemistry*) B.A., Pomona College 2000.  
Thesis: Endogenous Gene Regulation by DNA Binding Polyamides.

*Doctor of Philosophy continued*

- Clifford Anders Olson (*Biochemistry and Molecular Biophysics*) B.A., New York University 2001.  
Thesis: mRNA Display Selection Using a Combinatorial 10FnIII Protein Library for Detection and Modulation of Cellular Processes.
- Christopher Richard Otey (*Biochemistry and Molecular Biophysics*) B.S., University of California, Santa Barbara 1999.  
Thesis: Structural and Functional Analysis of an Artificial Family of Cytochromes P450.
- Yan Shuen Poon (*Chemistry*) B.A., B.S., University of California, Berkeley 2000.  
Thesis: The Characterization and Structure of Mechanosensitive Channels of Small Conductance.
- David J. Robichaud (*Chemistry*) B.S., B.A., California State University, Fullerton 2001.  
Thesis: High-Resolution Study of the O<sub>2</sub> A-Band using Frequency Stabilized Cavity Ring-Down Spectroscopy.
- Katie Rose Saliba (*Chemistry*) B.S., Georgia Institute of Technology 2001.  
Thesis: Methodologies for the Rapid Synthesis of Hexoses and Their Application towards a Differentially-Protected Chondroitin Sulfate Tetrasaccharide.
- Fangwei Shao (*Chemistry*) B.S., Fudan University 1999; M.S., 2002.  
Thesis: DNA-Mediated Hole and Electron Transport.
- Crystal Shih (*Chemistry*) S.B., Massachusetts Institute of Technology 2003.  
Thesis: Electron Tunneling and Hopping Through Proteins.
- Armin Sorooshian (*Chemical Engineering and Environmental Science and Engineering*) B.S., The University of Arizona 2003; M.S., California Institute of Technology 2005.  
Thesis: Aerosol Composition and Hygroscopicity Studies: Instrument Development/Characterization, Ambient and Laboratory Measurements, and Modeling.
- Ryan Leonard Stafford (*Chemistry*) B.S. (*Biology*), B.S. (*Chemistry*), University of California, Irvine 2002.  
Thesis: Design of Protein-DNA Dimerizers.
- Matthew C. Traub (*Chemistry*) A.B., Princeton University 2001.  
Thesis: Chemical Functionalization and Electronic Passivation of Gallium Arsenide Surfaces.
- Sherry Mon-Yue Tsai (*Chemistry*) B.S., Yale University 2000.  
Thesis:  $\alpha$ -Diaminobutyric Acid-Linked Hairpin Polyamide-Alkylator Conjugates.
- Jamison Bryce Tuttle (*Chemistry*) B.A., Connecticut College 1999.  
Thesis: Development of Enantioselective Organocatalytic Hydrogenation Methods and Progress toward the Total Synthesis of (+)-Minfiensine.
- Christina Luisa Vizcarra (*Chemistry*) B.S., University of Kansas 2002.  
Thesis: Development and Evaluation of Protein Design Methods for Functional Targets.

*Doctor of Philosophy continued*

- Maung Nyan Win (*Chemistry*) B.S., Virginia Commonwealth University 2003; M.S., California Institute of Technology 2005.  
Thesis: Engineering RNA Devices for Gene Regulation, Biosensing, and Higher-Order Cellular Information Processing.
- Xinan Xiu (*Biochemistry and Molecular Biophysics*) B.S., University of Louisville 2002.  
Thesis: Structure-function Studies of Nicotinic Acetylcholine Receptors Using Unnatural Amino Acids.
- Tae Hyeon Yoo (*Chemical Engineering*) B.S., Seoul National University 1996; M.S., 1998.  
Thesis: Proteins of Novel Composition: Synthesis, Evolution, Dynamics.
- Cheng-Zhong Zhang (*Chemical Engineering and Physics*) B.E., Tsinghua University 2001; M.S., California Institute of Technology 2003.  
Thesis: Interplay between Long-Range and Short-Range Interactions in Polymer Self-Assembly and Cell Adhesion.

DIVISION OF ENGINEERING AND APPLIED SCIENCE

- Anelia Angelova (*Computer Science*) M.S., Sofia University 2000; M.S., California Institute of Technology 2004.  
Thesis: Visual Prediction of Rover Slip: Learning Algorithms and Field Experiments.
- Meher Kiran Prakash Ayalasomayajula (*Applied Physics*) B.Tech., Indian Institute of Technology, Madras 2001; M.S., California Institute of Technology 2003.  
Thesis: Theoretical Studies of Single Molecule Biophysical Systems and Photochemical Ensembles.
- Aydin Babakhani (*Electrical Engineering*) B.S., Sharif University of Technology 2003; M.S., California Institute of Technology 2005.  
Thesis: Direct Antenna Modulation (DAM) for On-chip mm-Wave Transceivers.
- Iván Bermejo Moreno (*Aeronautics and French and German*) Aeronautical Engineer, Universidad Politecnica de Madrid 2001; M.S., California Institute of Technology 2004.  
Thesis: On the Non-Local Geometry of Turbulence.
- Antoine Jean Bruguiier (*Electrical Engineering*) Diplôme d'Ingénieur, École Supérieure d'Ingénieurs en Électrotechnique et Électronique 2004; M.S., California Institute of Technology 2004.  
Thesis: Encoding of Financial Signals in the Human Brain.
- John Maurice Carson III (*Mechanical Engineering and Control and Dynamical Systems*) B.S., The University of Texas at Austin 1992; M.S., 1997.  
Thesis: Robust Model Predictive Control with a Reactive Safety Mode.

*Doctor of Philosophy continued*

- Yuval Cassuto (*Electrical Engineering*) B.Sc., Technion – Israel Institute of Technology 2001; M.S., California Institute of Technology 2004.  
Thesis: Coding Techniques for Data-Storage Systems.
- Gang Chow (*Bioengineering*) B.S., University of California, San Diego 1998; M.S., California State University, Northridge 2002.  
Thesis: Laser Tweezers for Moving Live Dissociated Neurons.
- Roger David Donaldson (*Applied and Computational Mathematics*) B.A.Sc., The University of British Columbia 2001; M.S., 2003.  
Thesis: Discrete Geometric Homogenisation and Inverse Homogenisation of an Elliptic Operator.
- Gang Duan (*Materials Science*) B.S., Beijing University 1999; M.S., 2002; M.S., California Institute of Technology 2004.  
Thesis: Simulations, Modeling, and Designs of Bulk Metallic Glasses.
- Mary Julia Dunlop (*Mechanical Engineering*) B.S.E., Princeton University 2002; M.S., California Institute of Technology 2004.  
Thesis: Dynamics and Correlated Noise in Gene Regulation.
- Tamer El Sayed (*Mechanical Engineering*) A.S., Chaffey Community College 1997; B.S., California State Polytechnic University, Pomona 2002; M.S., California Institute of Technology 2004.  
Thesis: Constitutive Models for Polymers and Soft Biological Tissues.
- Teresa Holly Emery (*Electrical Engineering*) B.S., Cornell University 2002; M.E., 2003.  
Thesis: Fabrication of Nanowire-based Magnetic Structures for Magnetic Resonance Applications.
- Michael Steven Epstein (*Mechanical Engineering*) B.S., University of California, Los Angeles 2002; M.S., California Institute of Technology 2003.  
Thesis: Managing Information in Networked and Multi-Agent Control Systems.
- Jonathan Christopher Erickson (*Bioengineering*) B.S., Harvey Mudd College 2001; M.S., California Institute of Technology 2002.  
Thesis: The Neurochip: A Complete System for Long-Term Investigation of Cultured Neural Network Connectivity.
- Claudio Fanti (*Computer Science*) Diploma Di Laurea, Università Degli Studi Di Padova 2001; M.S., California Institute of Technology 2004.  
Thesis: Towards Automatic Discovery of Human Movemes.
- Daniel Robert Feldman (*Environmental Science and Engineering*) S.B., Massachusetts Institute of Technology 2002; M.S., California Institute of Technology 2004.  
Thesis: Remote Sensing of Radiative Fluxes and Heating Rates from Satellite Instrument Measurements.



*Doctor of Philosophy continued*

- Melvin Estuardo Flores Contreras (*Control and Dynamical Systems*) B.S.E., Arizona State University 1998.  
Thesis: Real-Time Trajectory Generation for Constrained Nonlinear Dynamical Systems Using Non-Uniform Rational B-Spline Basis Functions.
- Ebraheem Ihsan Fontaine (*Mechanical Engineering*) S.B., Massachusetts Institute of Technology 2002; M.S., California Institute of Technology 2004.  
Thesis: Automated Visual Tracking for Behavioral Analysis of Biological Model Organisms.
- Christian Franck (*Aeronautics*) B.S., University of Virginia 2003; M.S., California Institute of Technology 2004.  
Thesis: Quantitative Characterization of 3D Deformations of Cell Interactions with Soft Biomaterials.
- Jiansong Gao (*Applied Physics*) B.S., Tsinghua University 1999; M.S., 2002; M.S., California Institute of Technology 2004.  
Thesis: The Physics of Superconducting Microwave Resonators.
- Xiaojie Gao (*Computer Science*) B.S., Peking University 2002; M.S., California Institute of Technology 2004.  
Thesis: On A Capacitated Multivehicle Routing Problem.
- Anna Grosberg (*Bioengineering*) B.S., University of Minnesota 2002.  
Thesis: A Bioinspired Computational Model of Cardiac Mechanics: Pathology and Development.
- Katalin Anna Grubits (*Control and Dynamical Systems*) B.Sc., University of Sydney 2001.  
Thesis: Low-dimensional Representations of Transitions in Molecular Systems.
- Lin Han (*Applied Physics*) B.S., Jilin University 2001; M.S., California Institute of Technology 2003.  
Thesis: *In vitro* DNA Mechanics in Gene Regulation: One Molecule at a Time.
- Hannes Helgason (*Applied and Computational Mathematics*) B.S. (*Electrical Engineering*), B.S. (*Mathematics*), University of Iceland 2001.  
Thesis: Nonparametric Detection and Estimation of Highly Oscillatory Signals.
- Xin Heng (*Electrical Engineering and Applied Physics*) B.S., Nanjing University 2002; M.S., California Institute of Technology 2003.  
Thesis: Optofluidic Microscopy: Technology Development and Its Applications in Biology.
- Jinseong Heo (*Applied Physics*) B.S., Korea Advanced Institute of Science and Technology 2002; M.S., California Institute of Technology 2004.  
Thesis: Probing Electronic Properties of Carbon Nanotubes.
- David Hoch (*Applied and Computational Mathematics*) Diploma, Kantonsschule Im Lee 1996; C.S.A.E., Swiss Federal Institute of Technology 2001.  
Thesis: Nonreflecting Boundary Conditions Obtained from Equivalent Sources for Time-Dependent Scattering Problems.

*Doctor of Philosophy continued*

- Tomonori Honda (*Mechanical Engineering and Control and Dynamical Systems*) B.S., University of California, Berkeley 2002; M.S., California Institute of Technology 2003.  
Thesis: Formalization and Applications of Grayscale Reliability Analysis for Engineering Design.
- Princess Izevbua Ikhianosen Uerenikhosen Imoukhuede (*Bioengineering*) S.B., Massachusetts Institute of Technology 2002.  
Thesis: Visualizing the Membrane Confinement, Trafficking and Structure of the GABA Transporter, GATI.
- Winston Paul Jackson (*Applied Mechanics*) B.S., Southern University 2003; B.S., Texas A&M University 2003; M.S., California Institute of Technology 2005.  
Thesis: Characterization of Soft Polymers and Gels Using the Pressure-Bulge Technique.
- Wonjin Jang (*Computer Science*) B.A., Seoul National University 1998; M.S., California Institute of Technology 2004.  
Thesis: Soft-error Tolerant Quasi Delay-insensitive Circuits.
- Hao Jiang (*Mechanical Engineering and Electrical Engineering*) B.E., Tsinghua University 1998; M.S., California Institute of Technology 2002.  
Thesis: Adaptive Feature Selection in Pattern Recognition and Ultra-wideband Radar Signal Analysis.
- Eric Johnsen (*Mechanical Engineering*) B.S., University of California, Santa Barbara 2001; M.S., California Institute of Technology 2002.  
Thesis: Numerical Simulations of Non-Spherical Bubble Collapse with Applications to Shockwave Lithotripsy.
- Shannon Theresa Kao (*Mechanical Engineering*) B.S., The Johns Hopkins University 2002.  
Thesis: Detonation Stability with Reversible Kinetics.
- Shwetank Kumar (*Applied Physics*) B.Tech., Indian Institute of Technology, Delhi 2000; M.S., California Institute of Technology 2003.  
Thesis: Submillimeter Wave Camera Using A Novel Photon Detector Technology.
- Wonhee Lee (*Applied Physics*) B.S., Korea Advanced Institute of Science and Technology 2002; M.S., California Institute of Technology 2004.  
Thesis: Microfluidic Chip Calorimeters for Biological Applications.
- Sebastien Leprince (*Electrical Engineering*) Diplôme de Technologue, École Supérieure de Technologie Électronique 2000; Diplôme d'Ingénieur, École Supérieure d'Ingénieurs en Électrotechnique et Électronique 2002; M.S., California Institute of Technology 2003.  
Thesis: Monitoring Earth Surface Dynamics with Optical Imagery.
- Zhenyu Li (*Electrical Engineering*) B.S., Tsinghua University 1999; M.S., University of California, Santa Barbara 2001.  
Thesis: Optofluidic Dye Lasers.

*Doctor of Philosophy continued*

- Wei Liang (*Applied Physics*) B.S., Tsinghua University 2001; M.S., California Institute of Technology 2003.  
Thesis: Study of Optical Phase Lock Loops and the Applications in Coherent Beam Combining and Coherence Cloning.
- Yongqiang Liang (*Mechanical Engineering*) B.S., University of Science and Technology of China 1998; M.E., 2001; M.S., California Institute of Technology 2004.  
Thesis: Robotic Training for Motor Rehabilitation after Complete Spinal Cord Injury.
- Hsuan-Tien Lin (*Computer Science*) B.S., National Taiwan University 2001; M.S., California Institute of Technology 2005.  
Thesis: From Ordinal Ranking to Binary Classification.
- Mary Laura Lind (*Materials Science*) B.S., Yale University 2002; M.S., California Institute of Technology 2004.  
Thesis: Ultrasonic Investigation of the Elastic Properties and Liquid Fragility of Bulk Metallic Glasses in the Supercooled Liquid Region.
- Manuel Lombardini (*Aeronautics*) Diplôme d'Ingenieur, École Polytechnique 2003; M.S., California Institute of Technology 2004.  
Thesis: Richtmyer-Meshkov Instability in Converging Geometries.
- Jian Lu (*Bioengineering*) B.S., Tsinghua University 2002; M.S., California Institute of Technology 2003.  
Thesis: Quantitative Three-dimensional Imaging of Droplet Convection and Cardiac Cell Motions Based on Micro DDPIV.
- Sebastian Josef Maerkl (*Biochemistry and Molecular Biophysics*) B.S., Fairleigh Dickinson University 2001.  
Thesis: Microfluidic Large Scale Integration and its Application to Systems Biology.
- Georgios Matheou (*Aeronautics*) Diploma, National Technical University of Athens 2002.  
Thesis: Large-Eddy Simulations of Molecular Mixing in a Recirculating Shear Flow.
- Matthew Sanford Mattson (*Applied Physics*) B.S., Marshall University 2002; M.S., California Institute of Technology 2004.  
Thesis: Understanding and Treating Eye Diseases: Mechanical Characterization and Photochemical Modification of the Cornea and Sclera.
- Kevin L. McHale (*Bioengineering and Control and Dynamical Systems*) B.S. (*Chemistry*), B.S. (*Mathematics*), University of Florida 2002.  
Thesis: Feedback Tracking and Correlation Spectroscopy of Fluorescent Nanoparticles and Biomolecules.
- Jeffrey Mendez (*Environmental Science and Engineering*) B.S., California Institute of Technology 1999.  
Thesis: Iron and Manganese in the Ocean. A Coastal Ocean Time Series, and an Investigation of Atmospheric Input by Dust.

## *Doctor of Philosophy* continued

- John Anderson Monro, Jr. (*Applied and Computational Mathematics*) B.S., California Institute of Technology 1996.  
Thesis: A Super-Algebraically Convergent, Windowing-Based Approach to the Evaluation of Scattering from Periodic Rough Surfaces.
- Pierre Moreels (*Electrical Engineering*) Diplôme d'Ingénieur, École Polytechnique 1999; DEA, Université de Bourgogne 2000; Diplôme d'Ingénieur, École Nationale des Ponts et Chaussées 2001; M.S., California Institute of Technology 2002.  
Thesis: Probabilistic, Features-Based Object Recognition.
- Grant Haverstock Mulliken (*Computation and Neural Systems*) B.S., The Colorado School of Mines 1998; M.S., The Johns Hopkins University 2002.  
Thesis: Continuous Sensorimotor Control Mechanisms in Posterior Parietal Cortex: Forward Model Encoding and Trajectory Decoding.
- Helia Naeimi (*Computer Science*) B.S., Sharif University of Technology 2002; M.S., California Institute of Technology 2005.  
Thesis: Reliable Integration of Terascale Systems with Nanoscale Devices.
- Fabien Nicaise (*Mechanical Engineering*) B.S., Rensselaer Polytechnic Institute 2000; M.B.A., 2001; M.S., California Institute of Technology 2003.  
Thesis: Automated Design Synthesis of Discrete Structures using Growth Enhanced Evolution.
- Chang Kook Oh (*Civil Engineering*) B.S., Seoul National University 1998; M.S., 2000; M.S., California Institute of Technology 2004.  
Thesis: Bayesian Learning for Earthquake Engineering Applications and Structural Health Monitoring.
- Anna H. Olsen (*Civil Engineering*) B.S., Harvey Mudd College 2003; M.S., California Institute of Technology 2004.  
Thesis: Steel Moment-Resisting Frame Responses in Simulated Strong Ground Motions: Or How I Learned to Stop Worrying and Love the Big One.
- Changlin Pang (*Electrical Engineering*) B.S., Tsinghua University 2000; M.S., 2002; M.S., California Institute of Technology 2003.  
Thesis: Parylene Technology for Neural Probes Applications.
- Piyush Prakash (*Computer Science*) B.S., California Institute of Technology 2002; M.S., 2005.  
Thesis: Throughput Optimization of Quasi Delay Insensitive Circuits via Slack Matching.
- Amrit Pratap (*Computer Science*) M.Sc., Indian Institute of Technology, Kanpur 2001; M.S., California Institute of Technology 2004.  
Thesis: Adaptive Learning Algorithms and Data Cloning.

*Doctor of Philosophy continued*

- Derek Gresham Rinderknecht (*Bioengineering*) S.B., Massachusetts Institute of Technology 2002.  
Thesis: Development of a Microimpedance Pump for Pulsatile Flow Transport - Part 1: Flow Characteristics of the Microimpedance Pump. Part 2: A Systematic Study of Steady and Pulsatile Transport in Microscale Cavities.
- Damien Craig Rodger (*Bioengineering*) B.S., Cornell University 2000.  
Thesis: Development of Flexible Parylene-based Microtechnologies for Retinal and Spinal Cord Stimulation and Recording.
- Angel Ruiz Angulo (*Mechanical Engineering*) B.S., National University of Mexico 2002; M.S., California Institute of Technology 2004.  
Thesis: Surface Deformation in a Liquid Environment Resulting from Single Particle Collisions.
- Ueli Rutishauser (*Computation and Neural Systems*) B.S., University of Applied Sciences, Rapperswil 2003.  
Thesis: Learning and Representation of Declarative Memories by Single Neurons in the Human Brain.
- Effrosyni Seitaridou (*Applied Physics*) B.A., Smith College 2002; B.E., Dartmouth College 2002; M.S., California Institute of Technology 2004.  
Thesis: Non-Equilibrium Dynamics: Diffusion in Small Numbers and Ribosomal Self-Assembly.
- Jason Shih (*Electrical Engineering*) B.S., California Institute of Technology 2003; M.S., 2004.  
Thesis: Microfabricated High-Performance Liquid Chromatography (HPLC) System with Closed-Loop Flow Control.
- Edwin Soedarmadji (*Electrical Engineering and Biology*) B.S., California Institute of Technology 1997; M.S., 2003.  
Thesis: Generalized Network Routing Metrics and Algorithms.
- David Soloveichik (*Computation and Neural Systems*) A.B., S.M., Harvard College 2002.  
Thesis: Molecules Computing: Self-Assembled Nanostructures, Molecular Automata, and Chemical Reaction Networks.
- Mihailo Stojnic (*Electrical Engineering*) Dipl. Ing., Belgrade School of Electrical Engineering 2001; M.S., California Institute of Technology 2003.  
Thesis: Optimization Algorithms in Wireless and Quantum Communications.
- Borching Su (*Electrical Engineering*) B.S., National Taiwan University 1999; M.S., 2001.  
Thesis: Blind Channel Estimation Using Redundant Precoding: New Algorithms, Analysis, and Theory.
- Luke A. Sweatlock (*Applied Physics*) B.S., Cornell University 2001; M.S., California Institute of Technology 2003.  
Thesis: Plasmonics: Numerical Methods and Device Applications.

## *Doctor of Philosophy* continued

- Sarah Lynne Sweatlock (*Applied and Computational Mathematics*) B.S. (*Applied Math*), B.S. (*Electrical Engineering*), Northwestern University 2003.  
Thesis: Asymptotic Weight Analysis of Low-Density Parity Check (LDPC) Code Ensembles.
- Alexandros Tafflinidis (*Civil Engineering and Control and Dynamical Systems*) Diploma, Aristotle University of Thessaloniki 2002; M.S., 2003.  
Thesis: Stochastic System Design and Applications to Stochastically Robust Structural Control.
- Kunihiko Taira (*Mechanical Engineering and Aeronautics*) B.S., University of Tennessee 2002; M.S., California Institute of Technology 2003.  
Thesis: The Immersed Boundary Projection Method and Its Application to Simulation and Control of Flows around Low-Aspect-Ratio Wings.
- Katsuaki Tanabe (*Materials Science*) B.Eng., University of Tokyo 2001; M.Eng., 2003; M.S., California Institute of Technology 2005.  
Thesis: Low-Cost High-Efficiency Solar Cells with Wafer Bonding and Plasmonic Technologies.
- Lixiu Tian (*Applied and Computational Mathematics*) B.S., M.S., Peking University 1998.  
Thesis: Effective Behavior of Dielectric Elastomer Composites.
- Ching Hang Tong (*Environmental Science and Engineering*) B.S., University of Delaware 2001; M.S., California Institute of Technology 2004.  
Thesis: Thermodynamic Modeling of Organic Aerosol.
- Ke Wang (*Applied and Computational Mathematics*) B.S., Tsinghua University 1999; M.S., Hong Kong University of Science and Technology 2001.  
Thesis: A Subdivision Approach to the Construction of Smooth Differential Forms.
- Stephen J. Waydo (*Control and Dynamical Systems*) B.S., University of Washington 2001.  
Thesis: Explicit Object Representation by Sparse Neural Codes.
- Julie Anne Wolf (*Civil Engineering*) B.S., University of California, San Diego 1999; M.S., California Institute of Technology 2000.  
Thesis: A Plasticity Model to Predict the Effects of Confinement on Concrete.
- Michael Timothy Wolf (*Mechanical Engineering and Control and Dynamical Systems*) B.S., Stanford University 1997; M.S., California Institute of Technology 2005.  
Thesis: Target Tracking Using Clustered Measurements, with Applications to Autonomous Brain-Machine Interfaces.
- Gunsu S. Yun (*Applied Physics*) B.S., Pohang University of Science and Technology 1998; M.S., California Institute of Technology 2004.  
Thesis: Dynamics of Plasma Structures Interacting with External and Self-Generated Magnetic Fields.

*Doctor of Philosophy continued*

Pun To (Douglas) Yung (*Bioengineering*) B.S. (*Electrical Engineering*), B.S. (*Mathematics*), University of California, Los Angeles 2003.

Thesis: Detection of Aerobic Bacterial Endospores: From Air Sampling, Sterilization Validation to Astrobiology.

Lin Zhu (*Electrical Engineering*) B.S., Tsinghua University 2000; M.S., 2003.

Thesis: Photonic Crystal Bragg Lasers: Design, Fabrication, and Characterization.

DIVISION OF GEOLOGICAL AND PLANETARY SCIENCES

Kristina Marie Barkume (*Planetary Science*) B.A., Reed College 2003; M.S., California Institute of Technology 2005.

Thesis: Surface Properties of Kuiper Belt Objects and Centaurs.

Min Chen (*Geophysics*) B.S., University of Science and Technology of China 2001.

Thesis: Numerical Simulations of Seismic Wave Propagation in Anisotropic and Heterogeneous Earth Models: The Japan Subduction Zone.

Laura Baker Hebert (*Geochemistry*) B.S., University of Maryland 2001; M.S., California Institute of Technology 2004.

Thesis: (I) A Coupled Geochemical and Geodynamical Approach to Subduction Zone Modeling and (II) Development of Color in Greenish Quartz.

Troy Lee Hudson (*Planetary Science*) S.B. (*Materials Science and Engineering*), S.B. (*Planetary Science*), Massachusetts Institute of Technology 2000.

Thesis: Growth, Diffusion, and Loss of Subsurface Ice on Mars: Experiments and Models.

Ali Ozgun Konca (*Geophysics*) B.S., Koç University 2000.

Thesis: Investigating Large Earthquake Rupture Kinematics from Joint Analysis of Seismological, Geodetic and Remote Sensing Data.

Cody Zane Nash (*Geobiology*) B.Sc., Rhodes College 2000; M.S., International Space University 2001.

Thesis: Mechanisms and Evolution of Magnetotactic Bacteria.

Emily Lauren Schaller (*Planetary Science*) B.A., Dartmouth College 2002; M.S., California Institute of Technology 2004.

Thesis: I. Seasonal Changes in Titan's Cloud Activity. II. Volatile Ices on Outer Solar System Objects.

Teh-Ru Alex Song (*Geophysics*) B.S., National Central University 1997; M.S., 1997.

Thesis: Broad Band Modeling Earthquake Source and Upper Mantle Structure on Plate Boundary Zones.

Zhonghua Yang (*Geochemistry*) B.S., University of Science and Technology of China 2000; M.S., California Institute of Technology 2005.

Thesis: Constraining Global Carbon Budget Using Vertically-Integrated CO<sub>2</sub> Measurements.

*Doctor of Philosophy continued*

DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

Meghana Bhatt (*Social Science*) A.B., Harvard College 2001; M.S., California Institute of Technology 2004.

Thesis: Three Papers in Neuroeconomics.

Alexander L. Brown (*Social Science*) B.S., The Ohio State University 2003; M.S., California Institute of Technology 2005.

Thesis: Investigating Psychology-Influenced Economic Models in Lab, Field, and Theory.

Laurent Alexandre Mathevet (*Social Science*) B.S., Jean Monnet University 2002; M.S., 2003; M.S., California Institute of Technology 2005.

Thesis: Selection, Learning, and Nomination: Essays on Supermodular Games, Design, and Political Theory.

Kyle Alan Mattes (*Social Science*) B.A., Northwestern University 1997; M.S., California Institute of Technology 2005.

Thesis: When Candidates Attack: Who Goes Negative, and Why it Works.

DIVISION OF PHYSICS, MATHEMATICS AND ASTRONOMY

Igor Bargatin (*Physics and Electrical Engineering*) Diploma, M.V. Lomonosov Moscow State University 2000.

Thesis: High-Frequency Nanomechanical Resonators for Sensor Applications.

Joanna Margaret Brown (*Astronomy*) B.A., Swarthmore College 2002.

Thesis: Childhood to Adolescence: Dust and Gas Clearing in Protoplanetary Disks.

Chi Ming Hubert Chen (*Physics*) S.B., Massachusetts Institute of Technology 1999.

Thesis: Development of Hard X-ray Imaging Detectors for the High Energy Focusing Telescope.

Micol Huw Christopher (*Astrophysics*) A.B., Harvard College 1999; M.S., California Institute of Technology 2005.

Thesis: Young, Massive Star Clusters in the Antennae.

Paul Langabi Hogan Cook (*Physics*) B.A., University of Witwatersrand 2002; B.S., 2003

Thesis: Aspects of Topological String Theory.

Theodore Allen Corcovilos (*Physics*) B.A., University of Tennessee 1999.

Thesis: Fluid Phase Thermodynamics: I) Nucleate Pool Boiling of Oxygen under Magnetically Enhanced Gravity and II) Superconducting Cavity Resonators for High-Stability Frequency References and Precision Density Measurements of Helium-4 Gas.

Melissa Lanae Enoch (*Astrophysics*) A.B., University of California, Berkeley 2001.

Thesis: Molecular Clouds and Star Formation: A Multiwavelength Study of Perseus, Serpens, and Ophiuchus.



*Doctor of Philosophy continued*

- Lisa Maria Goggin (*Physics*) B.S., University College Cork 2001; M.S., 2002; M.S., California Institute of Technology 2004.  
Thesis: A Search for Gravitational Waves from Perturbed Black Hole Ringdowns in LIGO Data.
- Ivan S. Grudinin (*Physics*) Diploma, Moscow State University 2003.  
Thesis: Crystalline Whispering Gallery Mode Resonators for Quantum and Nonlinear Optics.
- Aliekber Gürel (*Mathematics*) B.S., Bilkent University 2000; M.A., University of California, Santa Barbara 2002.  
Thesis: An Exact Average Formula for the Symmetric Square L-Function at the Center.
- Laura J. Hainline (*Astrophysics*) B.S., Indiana University, Bloomington 2001.  
Thesis: Multi-Wavelength Properties of Submillimeter-Selected Galaxies.
- Rassul Karabalin (*Physics*) B.S., Moscow Institute of Physics and Technology 2002; M.S., 2003.  
Thesis: Nonlinear, Coupled, and Parametric Nanoelectromechanical Systems.
- Claire Isabelle Levaillant (*Mathematics*) Ingénieur, École Normale Supérieure de Cachan 2002; M.S., California Institute of Technology 2005.  
Thesis: Irreducibility of the Lawrence-Krammer Representation of the BMW Algebra of Type An-1.
- Ziyang Ma (*Physics*) B.S., University of Science and Technology of China 2001.  
Thesis: Precision Optical Measurements of DNA Structure and Synthesis.
- Ilya Mandel (*Physics*) B.S., Stanford University 2000; M.S., 2001; M.S., California Institute of Technology 2003.  
Thesis: The Three S's of Gravitational-Wave Astronomy: Sources, Signals, Searches.
- Sean Michael Moran (*Astrophysics*) A.B., Harvard College 2002.  
Thesis: Understanding the Physical Processes Driving Galaxy Evolution in Clusters: A Case Study of Two  $z \sim 0.5$  Galaxy Clusters.
- Bret Justin Naylor (*Physics*) B.S., University of California, San Diego 1998.  
Thesis: Broadband Millimeter-Wave Spectroscopy with Z-Spec: An Unbiased Molecular-Line Survey of the Starburst Galaxy M82.
- Tracy Eleanor Northup (*Physics*) A.B., Harvard College 1999.  
Thesis: Coherent Control in Cavity QED.
- Francis Thomas O'Donovan (*Astrophysics*) B.Sc., National University of Ireland, Cork 2001; M.Sc., 2004; M.S., California Institute of Technology 2004.  
Thesis: The Detection and Exploration of Planets from the Trans-Atlantic Exoplanet Survey.
- Eric Lee Peterson (*Physics*) B.S., Brigham Young University 2003.  
Thesis: A Random Walk in Physical Biology.

*Doctor of Philosophy continued*

- Christian L. Reichardt (*Physics*) B.S., California Institute of Technology 2001.  
Thesis: A High Resolution Measurement of Temperature Anisotropies in the Cosmic Microwave Background Radiation with the Complete ACBAR Data Set.
- Pavlin Savov (*Physics*) S.B., Massachusetts Institute of Technology 2001.  
Thesis: Topics in Gravitational-Wave Physics.
- Jack Sayers (*Physics*) B.S. (*Mathematics and Computer Science and Physics*), Colorado School of Mines 2002; M.S., California Institute of Technology 2004.  
Thesis: A Search for Cosmic Microwave Background Anisotropies on Arcminute Scales.
- Catherine L. Slesnick (*Astrophysics*) B.A., New York University 2000.  
Thesis: 1-10 Myr-old Low Mass Stars and Brown Dwarfs in Nearby Star Forming Regions.
- Tristan Laine Smith (*Physics*) B.A., The University of Chicago 2003.  
Thesis: The Gravity of the Situation.
- Sherry Hsuan Suyu (*Physics*) B.Sc., Queen's University 2001.  
Thesis: Dissecting the Gravitational Lens B1608+656: Implications for the Hubble Constant.
- Lisa A. Tracy (*Physics*) B.S., Arizona State University 2001.  
Thesis: Studies of Two Dimensional Electron Systems via Surface Acoustic Waves and Nuclear Magnetic Resonance Techniques.
- Todor Dimitrov Tsankov (*Mathematics*) B.S., Sofia University 2003.  
Thesis: Amenability, Countable Equivalence Relations, and Their Full Groups.
- Rupert William Venzke (*Mathematics*) B.S., M.A., University of Pittsburgh 2003.  
Thesis: Braid Forcing, Hyperbolic Geometry, and Pseudo-Anosov Sequences of Low Entropy.
- Jie Yang (*Physics*) B.S., University of Science and Technology of China 2000; M.S., 2003.  
Thesis: Holomorphic Anomaly Equations in Topological String Theory.
- Ki Won Yoon (*Physics*) B.A., University of California, Berkeley 2000.  
Thesis: Design and Deployment of BICEP: A Novel Small-Aperture CMB Polarimeter to Test Inflationary Cosmology.
- Michael Philip Zwolak (*Physics*) B.A., B.S. (*Chemical Engineering*), B.S. (*Chemistry*), Virginia Polytechnic Institute and State University 2002; M.S., 2003.  
Thesis: Dynamics and Simulation of Open Quantum Systems.

## PRIZES AND AWARDS

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*Prizes and awards are listed only for those students receiving degrees in 2008, 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.

*Name of 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.

2008 *Parvathy Rama Menon, Michael Janusz Woods*

### 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.

2008 *Csilla Nani Felsen*

### GEORGE W. HOUSNER AWARD

Formerly the Sigma Xi Award, awarded to a senior selected for an outstanding piece of original scientific research.

2008 *Michael Sean Grinolds*

*The four prizes above are announced at the commencement ceremony.*

ROSALIND W. ALCOTT MERIT SCHOLARSHIP, UPPER CLASS MERIT AWARD, 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.

2006 *Todd Robert Gingrich*  
*Qian Wang*  
*Michael Janusz Woods*

2007	<i>Jonathan Mark Arnold</i>	<i>Todd Robert Gingrich</i>	<i>Kevin William Watts</i>
	<i>Elette Chantae Boyle</i>	<i>Michael Sean Grinolds</i>	<i>Jed Chang-Chun Yang</i>
	<i>Elah Bozorg-Grayeli</i>	<i>Yang Hai</i>	<i>Shawn Xiao Yu</i>
	<i>Nathan Chan</i>	<i>Michael Henry Spece Ibáñez</i>	<i>Yan Zhang</i>
	<i>Angela Weijane Chang</i>	<i>Jonathan Matthew Malmaud</i>	<i>Ziqing (Winston) Zhao</i>
	<i>David Chen</i>	<i>Vivek Narshimhan</i>	
	<i>Csilla Nani Felsen</i>	<i>Aditya Rajagopal</i>	
	<i>Ilya Gekhtman</i>	<i>Shafiqh Shirinfar</i>	

2008	<i>Jonathan Mark Arnold</i>	<i>Edward Hsiao</i>	<i>Yao-Tseng Wang</i>
	<i>Ning Bao</i>	<i>Richard Hayden Jones</i>	<i>Yi Wang</i>
	<i>Elette Chantae Boyle</i>	<i>Christopher Robert Klein</i>	<i>Kevin William Watts</i>
	<i>Vamsidhar Chavakula</i>	<i>Matthew Duk Ying Lew</i>	<i>Yingding (Bryan) Xu</i>
	<i>David Chen</i>	<i>Vivek Narshimhan</i>	<i>Jed Chang-Chun Yang</i>
	<i>William Randolph Clark</i>	<i>Aditya Rajagopal</i>	<i>Shawn Xiao Yu</i>
	<i>Kevin Garland Dick</i>	<i>David Zeb Rocklin</i>	<i>Joshua Norbert Zahl</i>
	<i>Csilla Nani Felsen</i>	<i>Prashant Saraswat</i>	<i>Yan Zhang</i>
	<i>Ilya Gekhtman</i>	<i>Shafiqh Shirinfar</i>	<i>Ziqing (Winston) Zhao</i>
	<i>Todd Robert Gingrich</i>	<i>Michael Henry Spece Ibáñez</i>	<i>Brian Boran Zhou</i>
	<i>Yang Hai</i>	<i>Mary Elizabeth Wahl</i>	
	<i>Patrick Kenichi Herring</i>	<i>Qian Wang</i>	

#### AXLINE MERIT SCHOLARS

Awarded to selected freshmen whose record of personal and academic accomplishment is judged outstanding among incoming freshmen. These scholarships are renewable, contingent on academic performance.

2005    *Jonathan Mark Arnold*      *Sara Elizabeth Peek*  
          *Angela Weijane Chang*      *John Shen*  
          *Parvathy Rama Menon*      *Angela R. Shih*

#### 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.

2004    *Chang-Kook Oh*  
2007    *Winston Paul Jackson*

#### ROBERT P. BALLE CALTECH MATHEMATICS SCHOLARS AWARD

Awarded to the mathematics major entering his or her senior year who has demonstrated the most outstanding performance in mathematics courses completed in the student's first three years at Caltech.

2007    *Elette Chantae Boyle*

#### WILLIAM F. BALLHAUS PRIZE

Awarded to aeronautics students for outstanding doctoral dissertations.

2008    *Iván Bermejo Moreno, Christian Franck*

ERIC TEMPLE BELL UNDERGRADUATE MATHEMATICS RESEARCH PRIZE

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

2007 *Jed Chang-Chun Yang*

2008 *Philipp Naum Perepelitsky*

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.

2005 *Michael Janusz Woods*

2006 *Liang Zheng Tan*

ROLF D. BUHLER MEMORIAL AWARD IN AERONAUTICS

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

2008 *Jean-Loup Bourguignon, Jason Scott Damazo*

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.

2007 *Sonia M. Tikoo*

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

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

2008 *Hannes Helgason, David Hoch*

#### 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.

2004 *Cedric Jeanty*

#### CENTENNIAL PRIZE FOR THE BEST THESIS IN MECHANICAL ENGINEERING

Awarded each year to a candidate for the degree of Doctor of Philosophy in mechanical engineering whose doctoral thesis is judged to be the most original and significant by a faculty committee appointed annually by the executive officer for mechanical engineering. The prize consists of a citation and a cash award of \$1,000, and was established with gifts from alumni following the division's centennial celebration in 2007.

2008 *Eric Johnsen, Michael Timothy Wolf*

#### 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.

2008 *Kunihiko Taira*

#### DONALD S. CLARK MEMORIAL AWARD

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.

2007 *Brandt Arthur Belson, Jing Shen*

#### DEANS' CUP AND CAMPUS LIFE AND MASTER'S AWARDS

Two awards, selected by the deans, the director of campus 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.

2007 *Craig Samuel Montuori, Erin Mishelle White, Campus Life*  
*George Herbert Hines, Dean's Cup*

2008 *Nathan Donnellan, Leighland John Feinman, Peter Haderlein, Adrienne Rose Stroup, Eleanor Marie Waxman, Campus Life*  
*Peter Shek Ho Hung, Russell-John Krom, Lauren Ashley Porter, Dean's Cup*

#### DEMETRIADES-TSAFKA-KOKKALIS PRIZE IN BIOTECHNOLOGY OR RELATED FIELDS

Awarded annually to a Ph.D. candidate for the best thesis, publication, or discovery in biotechnology or related fields at the Institute in the preceding 12 months. Winners are selected by the bioengineering faculty. This award is made possible by a gift from Anna Kokkalis Demetriades and Sterge T. Demetriades, Eng '58.

2008 *Sebastian Josef Maerkl*

#### DEMETRIADES-TSAFKA-KOKKALIS PRIZE IN BENIGN RENEWABLE ENERGY SOURCES OR RELATED FIELDS

Awarded annually to a Ph.D. candidate for the best thesis, publication, discovery, or related efforts in benign renewable energy sources or related fields at the Institute in the preceding 12 months. This prize is made possible by a gift from Anna Kokkalis Demetriades and Sterge T. Demetriades, Eng '58.

2008 *Melissa Jane Archer*



DEMETRIADES-TSAFKA-KOKKALIS PRIZE IN NANOTECHNOLOGY OR RELATED FIELDS

Awarded annually to a Ph.D. candidate for the best thesis, publication, or discovery in nanotechnology or related fields at the Institute in the preceding 12 months. This prize is made possible by a gift from Anna Kokkalis Demetriades and Sterge T. Demetriades, Eng '58.

2008 *Rassul Karabalin*

EVERHART DISTINGUISHED GRADUATE STUDENT LECTURER AWARD

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

2008 *Chi Ming Hubert Chen*

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.

2007 *René Michele Davis*

LAWRENCE L. AND AUDREY W. FERGUSON PRIZE

Awarded to the graduating Ph.D. candidate in biology who has produced the outstanding doctoral thesis for the past year.

2008 *Ali Mortazavi, Ueli Rutishauser*

RICHARD P. FEYNMAN PRIZE IN THEORETICAL PHYSICS

Awarded to a senior on the basis of excellence in theoretical physics.

2008 *Prashant Saraswat*

#### HAREN LEE FISHER MEMORIAL AWARD IN JUNIOR PHYSICS

Awarded to a junior physics major who demonstrates the greatest promise of future contributions in physics.

2007 *Michael Sean Grinolds*

#### 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.

2007 *Yao-Tseng Wang*

#### JACK E. FROEHLICH MEMORIAL AWARD

Awarded to a junior in the upper 5 percent of his or her class who shows outstanding promise for a creative professional career.

2007 *William Randolph Clark*

#### 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.

2008 *Mary Julia Dunlop, Anna Maria Salazar*

#### LUCY GUERNSEY SERVICE AWARD

Awarded to one or two students who have provided exceptional service to the Caltech Y and/or the community, are involved with service projects, have demonstrated leadership in community and volunteer service efforts, and who exemplify a spirit of service.

2007 *Daniel Robert Feldman*

2008 *Vamsidhar Chavakula*

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.

2007 *Victoria Hunzu Pon*

ALEXANDER P. AND ADELAIDE F. HIXON PRIZE FOR WRITING

Awarded annually in recognition of the best writing in freshman humanities courses.

2005 *Qian Wang*

BIBI JENTOFT-NILSEN MEMORIAL AWARD

Awarded to an upperclass student who exhibits outstanding qualities of leadership and who actively contributes to the quality of student life at Caltech.

2007 *June Ki Wicks*

2008 *Katherine Breeden*

SCOTT RUSSELL JOHNSON PRIZE FOR EXCELLENCE IN GRADUATE STUDY IN MATHEMATICS

Awarded to continuing graduate students for excellence in one or more of the following: extraordinary progress in research, excellence in teaching, or excellent performance as a first-year graduate student.

2007 *Aliekber Gürel, Todor Dimitrov Tsankov*

SCOTT RUSSELL JOHNSON GRADUATE DISSERTATION PRIZE IN MATHEMATICS

Awarded for the best graduate dissertation in mathematics.

2008 *Todor Dimitrov Tsankov*

#### 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.

2008 *Jed Chang-Chun Yang*

#### KALAM PRIZE FOR AEROSPACE ENGINEERING

Awarded to a student in the aerospace engineering Master's program whose academic performance was exemplary and who shows high potential for future achievements at Caltech. This prize was made possible through the generosity of Dr. Abdul Kalam, the 11th president of India, himself an aerospace engineer.

2008 *Jean-Loup Bourguignon*

#### D. S. KOTHARI PRIZE IN PHYSICS

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

2008 *Michael Sean Grinolds*

#### MARGIE LAURITSEN LEIGHTON PRIZE

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

2006 *Sarah Ann Stokes*

#### HARRY LEITER MEMORIAL MECHANICAL ENGINEERING PRIZE

Awarded to a candidate for the degree of Bachelor of Science in mechanical engineering who has demonstrated extraordinary creativity as judged by a faculty committee appointed each year by the executive officer for mechanical engineering. The prize consists of a citation and a cash award and was made possible by a gift from Dr. Symme Leiter.

2008 *Marc Alexander Grossman, Cedric Jeanty*

#### 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. This prize is renewable, contingent on academic performance.

2005     *John Shen*

#### THE HERBERT NEWBY McCOY AWARD

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

2008     *Teresa Diane Beeson, Amie Kathleen Boal*

#### MARY A. EARL MCKINNEY PRIZE IN LITERATURE

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

2006     *Zhiyun Guan*

2008     *Molly L. Davis, Csilla Nani Felsen*

#### 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.

2007     *Csilla Nani Felsen, Todd Robert Gingrich, Richard Hayden Jones*

2008     *Michael Sean Grinolds, Victoria Hunzu Pon*

#### RODMAN W. PAUL HISTORY PRIZE

Awarded to a junior or senior who has displayed an unusual interest in and talent for history.

2008     *Kate Melissa Craig*

## PRESIDENT'S SCHOLARS

Awarded to selected freshmen to promote the breadth and diversity of the Caltech undergraduate student body. The scholarships are renewable, contingent on academic performance.

2005 *Olivia Jean Alley, Natalie Alexandra Becerra, Elette Chantae Boyle, Raquel Angelina Martinez, Lauren Ashley Porter, Sarah Elizabeth Stidham, Matthew Kenneth Wierman*

## 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.

2006 *Karen Lee Wang*

## HERBERT J. RYSER MEMORIAL SCHOLARSHIPS

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

2007 *Elette Chantae Boyle, Ilya Gekhtman, Jed Chang-Chun Yang*

## RICHARD P. SCHUSTER MEMORIAL PRIZE

Awarded to one or more juniors or seniors in chemistry or chemical engineering on the basis of financial need and academic promise.

2008 *Todd Robert Gingrich, Ziqing (Winston) Zhao*

## 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.

2006 *Christian Franck*

#### 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.

2005 *Timothy Gordon Curran, Joseph Clarence Donovan, George Herbert Hines*

2006 *Katherine Breeden, Gina Anne Gage, Kevin William Watts, Xi (Cecilia) Yu*

2007 *Nathan Chan, Molly L. Davis, Csilla Nani Felsen, Richard Hayden Jones*

#### 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.

2008 *Erin Paul Flanagan*

#### 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."

2008 *Natalie Alexandra Becerra*

#### CHARLES AND ELLEN WILTS PRIZE

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

2008 *Borching Su*

#### 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.

2006 *Ilya Gekhtman*

*In the oft practiced Baroque tradition of adapting  
a different text to the same music . . . .*

## *There's Just One!*

*G.F. Handel\**

Hallelujah!

In Pasadena, graduation, jubilation, the time has come.  
Sounds of music, glorious cheering, exaltation, adulation,  
the time is now!

Graduates on this day we salute you!  
Sing praises, you've done it, it's over, hallelujah!  
For your accomplishments, we give honor.  
Sing praises, you've done it, it's over, hallelujah!

Praise on this day of great celebration!

You've done it, you're through, no more take-homes, no problem sets,  
hallelujah!

No thesis, no flicking, no flaming, no more work, hallelujah!

No finals, no midterms, no more nights in the lab, hallelujah!

For there is life beyond quantum physics.

For there is life beyond the house alleys.

No research, no UASH, all-nighters are all gone,

No classes, no letters from the Dean!

Free weekends, real life begins!



With vision now go forth and seek a new horizon, and make your  
alma mater proud.

And she shall reign forever in science.

There's just one!

- in theories of protons, electrons and chem bonds.

Caltech can stun!

- in science with rigor, in research with vigor.

There's just one!

- in rockets, in astro, in seismo, in neurons.

Tech is the sun:

- with medals of science, with Nobel achievements.

There's just one!

- for ever exalted remember the Rose Bowl!

And now you're done, you have won, hail new alum.

And you shall spread Tech's passion for science.

New alum, Tech needs you, remit a sum, contribute!

For Tech to reign in science forever.

There's just one! A star of stars!

There's just one! Renown on Mars!

And Tech shall reign forever in science.

You've won the day, we shout hooray!

We honor your passion, your achievement, your triumph, hallelujah!

*\*Music: September 1741, George Frideric Handel*

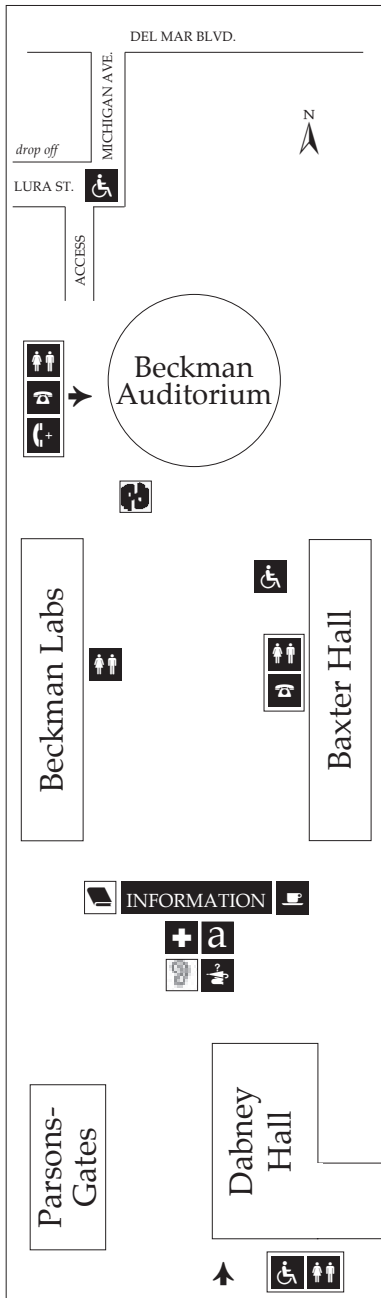
*Text: April 2004, K. Giapis and D. Caldwell*

## *Hail CIT*







*(Caltech Alma Mater)*

by Manton Barnes, B.S. '21 E.E.







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, 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.)
-  CALTECH BOOKSTORE sells souvenirs, film, and other items. ATHENAEUM luncheon tickets on sale 8-10 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 of Baxter Hall.
-  AMPLIFIED TELEPHONE is available in Beckman Auditorium.

