CALIFORNIA INSTITUTE
of TECHNOLOGY

One Hundred Eleventh Annual Commencement
June 10, 2005
Cover: Caltech’s commencement ceremony,
by Joseph Stoddard.

© 2005, California Institute of Technology

This program is produced by Caltech Public Relations.
Editor: Emily Adelsohn
Contributors: Natalie Gilmore, Gloria Brewster
CALIFORNIA INSTITUTE
of TECHNOLOGY

One Hundred Eleventh
Annual Commencement

Friday Morning at Ten O’Clock
June Tenth, Two Thousand Five
In his diary entry of September 1, 1891, Pasadena philanthropist Amos Throop wrote, “Planted potatoes, cleaned a water pipe, husked the corn… In afternoon, saw Mr. Wooster and rented his block for five years… and hope I have made no mistake.” Were he here today, Throop could rest assured in his decision. For the building of which he wrote, the Wooster Block, was rented for the purpose of establishing Throop University—the forerunner of Caltech.

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

Throop might have remained just a good local school had it not been for the arrival in Pasadena of George Ellery Hale. A faculty member at the University of Chicago and a noted astronomer, Hale settled here in 1903. From that time until his death in 1938, he made significant contributions to Pasadena and Southern California: he established the Mount Wilson Observatory, raised funds for Palomar Observatory and its 200-inch telescope, participated in the creation of the Huntington Library and Art Gallery, helped design the Civic Center in downtown Pasadena, and—perhaps his single greatest achievement—
set the course for the development of Throop into the California Institute of Technology, a school he envisioned as a scientific institution of the highest rank.

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

Caltech today has a 124-acre campus and operates seven off-campus astronomical, seismological, and marine biological facilities, and administers NASA’s Jet Propulsion Laboratory as well. At present, the Institute has an enrollment of some 2,000 students, more than half of whom are in graduate studies; about 280 professorial faculty members, including four Nobel laureates and three Crafoord laureates; and more than 100 research faculty members. Today, Caltech will award 217 students the B.S. degree; 120 students the M.S. degree; 2 scholars the degree of Engineer; and 182 doctoral candidates the Ph.D. degree, for a total of 521 graduates—quite a leap from the one man and one woman who constituted the first collegiate graduating class of Throop Polytechnic Institute.

Please note:

Video footage of commencement may be viewed on the Caltech website at http://www.caltech.edu/commencement/. Broadcast is scheduled to begin after 3:00 p.m.
These tribal rites have a very long history. They go back to the ceremony of initiation for new university teachers in mediaeval Europe. It was then customary for students, after an appropriate apprenticeship to learning and the presentation of a thesis as their masterpiece, to be admitted to the Guild of Masters of Arts and granted the license to teach. In the ancient University of Bologna this right was granted by authority of the Pope and in the name of the Holy Trinity. We do not this day claim such high authority.

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

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

Of particular interest is the cap or mortarboard. In the form of the biretta it was the peculiar sign of the master. Its use has now spread far beyond
that highly select group to school girls and choir boys and even to the nursery school. *Sic transit* . . .

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

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

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

*David C. Elliot*

*Professor of History, Emeritus*
Sandra Tsing Loh possesses an unusual, and singularly engaging, breadth of abilities. A graduate of Caltech, where she earned a bachelor’s degree in physics and literature in 1983, she appears to have inherited (either genetically or environmentally, or both) an aptitude for science, indicated by the fact that both her father and brother were Caltech physics graduates before her. After graduation, however, the alternative talents lurking within apparently demanded ascendancy; she entered USC’s graduate program in English, and ultimately embarked on a writing and performing career that has earned her local fame and growing national recognition as a humorist.

In the 1980s, Loh launched herself into the wacky world of performance art, using her skill at the piano (she was classically trained) to create quirky “spectacles” designed to amuse and amaze rush-hour commuters on the Harbor Freeway (“Spontaneous Demographics,” September 1987) or to cheer on the frenzied fish spawning on the beach at Malibu (“Night of the Grunion,” March 1989).

In the ‘90s, music gave way (temporarily) to a tumult of words—sharp, clever words; pithy, painful ones; uniquely Southern California metaphors. She began with columns for Buzz magazine in 1992, and thereafter produced an impressive amount of writing in a number of genres. Loh’s unsettlingly frank and funny take on living in greater Los Angeles developed into the subject matter for solo shows, plays, essays, a novel, and radio commentaries.
The list of her book-length publications includes *Depth Takes a Holiday: Essays from Lesser Los Angeles* (1996), *Aliens in America* (1997), the novel *If You Lived Here, You’d Be Home By Now* (1997), and *A Year in Provene Van Nuys* (2001). She has had short pieces published in the *New York Times*, *Elle*, *Harper’s Bazaar*, and *Vogue*, and she is a contributing editor to the *Atlantic Monthly*. Her short story “My Father’s Chinese Wives” received the Pushcart Prize in Fiction in 1995, and *If You Lived Here…* was named one of the best books of 1997 by the *Los Angeles Times*.

Loh’s distinctive voice is heard frequently on public radio: she delivers a national monthly commentary (*The Loh Down*) on the business program *Marketplace*, has been a regular commentator on NPR’s *Morning Edition* and on Ira Glass’s *This American Life*, and creates a side-splitting weekly program called *The Loh Life*, which airs locally in Southern California on KPCC-FM 89.3.

Musical expression continues to be a part of her life as well. She has composed and performed music for films, including writing the score for Jessica Yu’s 1997 Oscar-winning documentary *Breathing Lessons: The Life and Work of Mark O’Brien*.

Caltech affirmed its close tie with Loh in 2001, when it awarded her the highest honor bestowed upon alumni, the Distinguished Alumni Award. Will this academic mark of respect nudge her back to the halls of science? With such wide-ranging talent, anything is possible. Having mined so many other apparently humorless areas for comedic material, who’s to say that Sandra Tsing Loh can’t unearth the humor in theoretical physics?
Chief Marshal
Kim C. Border, Ph.D.

Marshals
David G. Goodwin, Ph.D.
Barbara C. Green, Ph.D.
Michael R. Hoffmann, Ph.D.
Christof Koch, Ph.D.
Jean-Paul Revel, Ph.D.
Anneila I. Sargent, Ph.D.

Faculty Officers
David G. Goodwin, Ph.D.
Henry A. Lester, Ph.D.
David B. Wales, Ph.D.

Marching Order
Candidates for the Degree of Bachelor of Science
Candidates for the Degree of Master of Science
Candidates for the Degree of 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

Organ Prelude
Leslie J. Deutsch, Ph.D.

Processional
The Caltech Convocations Brass and Percussion Ensemble
William W. Bing, M.M., Conductor

Presiding
Kent Kresa
Chairman of the Board of Trustees
California Institute of Technology

Commencement Speaker
Sandra Tsing Loh
“PS: The Last Caltech Lesson”
Caltech, B.S.’83
Writer, performer, humorist

Choral Selection
The Caltech Glee Clubs
“There’s Just One”
music by George Frideric Handel,
lyrics by K. Giapis and D. Caldwell

Confering of Degrees
David Baltimore, Ph.D.
President
California Institute of Technology

Presentation of Candidates for Degrees
For the Degree of Bachelor of Science
Jean-Paul Revel, Ph.D.
Dean of Students

For the Degree of Master of Science
Michael R. Hoffmann, Ph.D.
Dean of Graduate Studies

For the Degree of Engineer
Michael R. Hoffmann, Ph.D.
Dean of Graduate Studies

For the Degree of Doctor of Philosophy
Michael R. Hoffmann, Ph.D.
Dean of Graduate Studies
Biology
Elliot M. Meyerowitz, Ph.D.
Division Chair

Chemistry and Chemical Engineering
David A. Tirrell, Ph.D.
Division Chair

Engineering and Applied Science
Richard M. Murray, Ph.D.
Division Chair

Geological and Planetary Sciences
Kenneth A. Farley, Ph.D.
Division Chair

The Humanities and Social Sciences
Jean E. Ensminger, Ph.D.
Division Chair

Physics, Mathematics and Astronomy
Thomas A. Tombrello, Ph.D.
Division Chair

ANNOUNCEMENT OF AWARDS
AND CONCLUDING REMARKS
President Baltimore

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

“Hail CIT”
by Manton Barnes, BS ’21 EE
(The audience may join in;
lyrics are found on page 48.)

RECESSIONAL
The Caltech Convocations Brass
and Percussion Ensemble

Organ Postlude
Dr. Deutsch

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

Maryam Ali  Islamabad, Pakistan  Chemical Engineering (Materials)
James Galante Anderson  New Hyde Park, New York  Economics
Luis Alberto Armendariz  El Paso, Texas  Applied and Computational Mathematics
Benjamin Shepard Aronin  White Plains, New York  Business Economics and Management
Vincent Churk-Man Auyeung*  Arcadia, California  Biology
Adam David Azarchs  Briarcliff Manor, New York  Physics
Robert Caston Bailey  Vacaville, California  Electrical Engineering
Arjun Krishnan Bansal*  Bangalore, India  Computer Science
Henry Adom Barnor  Accra, Ghana  Electrical Engineering
Kevin Carl Bartz*  Kailua, Hawaii  Applied and Computational Mathematics and Economics
Naman Jayant Bhatt*  Fremont, California  Physics
Adam Washburn Bongarzone  Hull, Massachusetts  Geophysics
Kyle Edward Bradley*  Cortez, Colorado  Geology
Ryan Payne Cabeen  Los Angeles, California  Engineering and Applied Science
Eric James Cady*  New Boston, New Hampshire  Physics and Control and Dynamical Systems (Minor)
Sirin Caliskan  Istanbul, Turkey  Astrophysics
Brant Edward Carlson*  Libertyville, Illinois  Physics
John Joseph Murphy Carrasco  Pasadena, California  Physics
Joseph Philip Carroll  Downers Grove, Illinois  Engineering and Applied Science
Luigi Francesco Celano  Boise, Idaho  Mechanical Engineering
Lyle Joseph Chamberlain  Oak City, Utah  Engineering and Applied Science and Control and Dynamical Systems (Minor)
Chelsea Chi Chang*  Arcadia, California  Electrical Engineering and Business Economics and Management
Kamalah Tai Santanisha Chang  Herndon, Virginia  Mechanical Engineering
Vincent Honping Chang  Irvine, California  Electrical Engineering
Jonathan Eric Chen*  Davie, Florida  Chemistry and Economics
Kwun Hung Cheung*  San Francisco, California  Physics
Carl Wing-Jang Chin  San Fernando, Trinidad  Electrical Engineering
Jeehwan Bryan Choi*  Los Angeles, California  Economics
Jeffrey Peter Chou  Somerset, New Jersey  Electrical Engineering and Control and Dynamical Systems (Minor)

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

Wendy W. Chou *Stamford, Connecticut*  Engineering and Applied Science
Neil Choudri *Folsom, California*  Biology and Business Economics and Management
Kyle Chrystal *Mission Viejo, California*  Mechanical Engineering
William C. Chueh*  *Rowland Heights, California*  Applied Physics
Kevin Anthony Churchel *Anchorage, Alaska*  Physics
Lorian Victoria Churchill*  *Kalamazoo, Michigan*  Biology
Brian Lowman Cleary *Grand Junction, Colorado*  Biology and Business Economics and Management
Joanna Renee Cohen*  *White Plains, New York*  Mechanical Engineering
Wei Lien Stephen Dang*  *La Canada, California*  Applied Physics
Delia Rosca Davies  *Fullerton, California*  Mechanical Engineering
Nora Lee DeDonnley  *Cloverdale, California*  Mechanical Engineering and Geology
Elizabeth Rose Dorman*  *Chicago, Illinois*  Biology
Kevin Edward Duncklee  *Shorewood, Wisconsin*  Electrical Engineering
Zachary Thompson Dydek*  *Austin, Texas*  Mechanical Engineering and Control and Dynamical Systems (Minor)
Richard Driessnack Eager*  *Falls Church, Virginia*  Physics and Mathematics
Aimee Margaret Eddins  *Warrenton, Virginia*  Mechanical Engineering
Abigail Mary Elliott  *Arcadia, California*  Biology
Jesse Ramon Escobedo  *San Francisco, California*  Mechanical Engineering
Elizabeth Anne Felnagle  *Gilbert, Arizona*  Geobiology
Abraham Jacob Fetterman  *Pittsford, New York*  Physics and Business Economics and Management
Jason Rigel Finney  *Santa Barbara, California*  Physics
Kathleen Elizabeth Fischer*  *Dallas, Texas*  Mechanical Engineering
Jenny Allison Fisher*  *Arcata, California*  Planetary Science
Kathryn Watkins Fitch  *San Antonio, Texas*  Geobiology
Scott Michael Fleming  *Cotati, California*  Mechanical Engineering
Christopher Brian Franco*  *Chula Vista, California*  Biology
Lisa Fukui*  *San Jose, California*  Computer Science
Jared Matthew Gabor*  *Greensburg, Pennsylvania*  Physics
Juan Ramon Garcia  *San Antonio, Texas*  Engineering and Applied Science
Manuel Moses Garcia  *Stockton, California*  Engineering and Applied Science
John David Geiszler  *Great Falls, Montana*  Applied Physics
Rajiv Kotesh Ghanta  *Hyderabad, Andhra Pradesh, India*  Electrical Engineering
Michelle Kim-Mai Giron  *Los Angeles, California*  Chemical Engineering (Materials)
Francisco Javier Godoy*  *Caracas, Venezuela*  Electrical Engineering
Yelena Golubov Kurchanova  *St. Petersburg, Russia*  Applied Physics and Business Economics and Management
Bachelor of Science continued

Yiyang Gong*  Lancaster, Pennsylvania  Electrical Engineering and Economics
Yuliya Gorlina  Skokie, Illinois  Mathematics
Viviana Gradinaru*  Vaslui, Romania  Biology
Jessica Lynn Gray*  Plano, Texas  Computer Science
Julian Ray Greene  Colorado Springs, Colorado  Physics
Isaac N. Gremmer  San Antonio, Texas  Engineering and Applied Science
David Richard Griswold*  Tupelo, Mississippi  Engineering and Applied Science
Haluna Penelope Frances Gunterman*  Placerville, California  Chemical Engineering
(Enviromental) and Business Economics and Management
ChongQui Guo*  Garden Grove, California  Biology and Business Economics and Management
Christian Alexander Gutierrez  Torrance, California  Electrical Engineering and Business Economics and Management
Stephen Patrick Habegger  Elkhart, Indiana  Social Science
Christopher Hayes Habliston  Eugene, Oregon  Computer Science
Philip Coleman Harris  Armonk, New York  Physics
Yisen Susan He  Austin, Texas  Electrical Engineering and Economics
Bernadette Heyburn*  Littleton, Colorado  Physics
Barrett Emerson Heyneman*  Fallbrook, California  Mechanical Engineering
Jaclyn Marie Homnick  Delray Beach, Florida  Physics
Sue Ann Hong*  Seoul, Korea  Computer Science
Tina Hsu  Saratoga, California  Electrical Engineering
Haomiao Huang*  Austin, Texas  Electrical Engineering and Control and Dynamical Systems (Minor)
Judith Ariadne Hubbard*  Ithaca, New York  Geology
Tracy Elizabeth Janov  Penn Valley, Pennsylvania  Mechanical Engineering
Lionel Prandi Jingles  San Francisco, California  Mechanical Engineering
Matthew Leigh Johnston*  Lodi, California  Electrical Engineering
Richard Kalantair Ohanian  Pasadena, California  Electrical and Computer Engineering
Jeffrey Lynn Kauffman*  New Holland, Pennsylvania  Engineering and Applied Science (Aeronautics)
Margot Chieko Kimura  Waipahu, Hawaii  Mechanical Engineering
Victor Kiplangat Kirui  Nairobi, Kenya  Business Economics and Management
Ian Michael Krajbich*  Portland, Oregon  Physics and Business Economics and Management
Oran James Ali Kremen  Falls Church, Virginia  Biology
Michael Kuhn*  Leipzig, Germany  Computer Science
Andrea Shin Hwei Kung  Edison, New Jersey  Chemistry
David Matthew Kurtz*  Idaho Falls, Idaho  Chemistry
Bachelor of Science continued

Jeffrey Charles Lamb  Temple City, California  Engineering and Applied Science
Thomas Matthew Lasko  Mentor, Ohio  Mechanical Engineering
Samantha Michelle Lawler  La Crescenta, California  Astrophysics
Jason Jaewan Lee  Gardenia, California  Biology
Lucie Siu Lee  Sacramento, California  Chemistry
Peishan Lee*  Taipei, Taiwan  Biology
Shaun Philip Lee*  Pasadena, California  Electrical and Computer Engineering
Tony Fielo Lee*  Palo Alto, California  Physics
Ann Leu  Union City, California  Engineering and Applied Science
Shannon Doane Lewis  Alexandria, Virginia  Chemical Engineering (Materials)
Jennifer Xinge Li*  Morgantown, West Virginia  Biology
Ting Xi Timothy Liao*  Hong Kong, China  Physics and Computer Science
Alice Lin*  Huntington Beach, California  Biology and Business Economics and Management
Logan Thomas Teeley Linderman  Stockton, California  Geobiology
Binghai Ling*  Rochester, New York  Chemistry
EthelMae Victoria Loewer*  Arlington, Virginia  Chemical Engineering (Enviromental)
Galen Randall Loram*  Ashland, Oregon  Economics
Manisha Ulhas Lotlikar*  Syosset, New York  Biology
Bertrand Howyen Lui*  Sebastian, Florida  Applied Physics
Kenneth Ly  West Covina, California  Engineering and Applied Science
Tammy Yee Wing Ma  Fremont, California  Engineering and Applied Science (Aeronautics)
Elizabeth Marie MacWilliams-Brooks  Colorado Springs, Colorado  Planetary Science
Davin Brice Maddox  Los Angeles, California  Mathematics
Marin Vassilev Markov*  Plovdiv, Bulgaria  Business Economics and Management
Christopher Lee McClendon*  Poquoson, Virginia  Biology
Neal Donald McDaniel*  Bartlesville, Oklahoma  Chemistry
Susan Terese McDonald  Berkeley Heights, New Jersey  Planetary Science
David Earle McKinney  Sun Valley, California  Biology
Christopher Joseph Meagher  Bangkok, Thailand  Electrical Engineering and English
Erik Michael Measure*  Las Cruces, New Mexico  Physics
Tomonari Scott Miyashita  Ann Arbor, Michigan  Physics
Brandon Michael Moore*  Iowa City, Iowa  Computer Science and Mathematics
Clare Elizabeth Moynihan*  Oak Park, California  Biology
Steven Mueller  Tucson, Arizona  Computer Science
Hung Dinh Nong*  Alhambra, California  Applied and Computational Mathematics and Control and Dynamical Systems (Minor)
Karin Ingegerd Öberg*  Karlshkona, Sweden  Chemistry
Ryan Ewy Olf*  Carmel, California  Physics
Bachelor of Science continued

Gwendolyn Giok Bwee Ong Buena Park, California Chemistry
Mhair-Armen Hagop Orchanian* North Hollywood, California Applied Physics
Sandra Neuenschwander Ottensmann* Zionsville, Indiana Chemistry
Kally Zhang Pan Rochester, Minnesota Biology and History
Weronika Anna Patena* Nowy Sacz, Poland Biology and Computer Science
Xiao Peng Peng* New City, New York Chemistry
Belle Eve Philibosian* Pasadena, California Geology
Aaron Grove Plattner* Iowa City, Iowa Computer Science
David Naoki Powers* Thousand Oaks, California Chemistry
Michael Orlando Priolo Mission, Texas Engineering and Applied Science (Aeronautics)
Justin James Purewal* Huntington Beach, California Applied Physics
Yan Qi* Tianjin, China Chemistry and Biology
Jason Daniel Quimby Santa Ana, California Biology
Jason Michael Raycroft Brooklyn Park, Minnesota Electrical Engineering
Elizabeth Hesper Rego Albuquerque, New Mexico Physics
Katherine Anne Richardson Rowlett, Texas Physics
Laura L. Rogers Kansas City, Missouri Mechanical Engineering
Nicholas Andrew Rupprecht* Gurnee, Illinois Mathematics
Evan David Rushton Los Angeles, California Biology
Ryan Scott Samson* Poway, California Economics
Peter Curtis Samuelson* Cedar Hill, Texas Mathematics
Hans Christopher Scholze Kodiak, Alaska Electrical Engineering
Ryan Scott Schram Los Angeles, California Engineering and Applied Science
Peter Stuart Seidel Titusville, Florida Economics
Candace Sachi Wai Mei Seu* Hilo, Hawaii Chemistry
Henry Po-ting Shu* Walnut, California Electrical and Computer Engineering
Scott Benjamin Singer* Houston, Texas Physics
Hans Peter Smith Cincinnati, Ohio Engineering and Applied Science
Jonathan Ching-Wah So* Ottawa, Canada Applied Physics
Benjamin Anthony Solecki Pittsburgh, Pennsylvania Business Economics and Management and Engineering and Applied Science
Alan William Somers San Antonio, Texas Electrical Engineering
Veronica Tatiana Sovero Thousand Oaks, California Economics
Katherine Diane Stoy Bakersfield, California Mechanical Engineering
Chia Hsin Suen Houston, Texas Engineering and Applied Science
Joan Karen Sum Ping* Port-Louis, Mauritius Chemical Engineering (Enviromental)
Derrick Yuan Sun* Sugarland, Texas Biology
Chalita Thanyakoop Khon Kaen, Thailand Biology
Rohit Parathundiyil Thomas Iowa City, Iowa Mathematics
Bachelor of Science continued

Samuel Wilford Thomsen*  Hyrum, Utah  Physics
Chirath Neranjena Thouppuarachchi  Colombo, Sri Lanka  Engineering and Applied Science
Neil Kumar Tiwari*  Glendale, California  Chemistry
Leo J. Tominna*  Troy, Michigan  Computer Science
Felipe Martin Torres  Cypress, California  Engineering and Applied Science (Aeronautics)
Vi Tuong Tran  Irvine, California  Chemistry
My-Ngoc Thi Truong  New York, New York  Engineering and Applied Science
Brian Saxton Underwood*  West Chester, Pennsylvania  Chemistry and Electrical Engineering
Stephen Eric Underwood*  Springfield, Pennsylvania  Physics
Jared Fisher Updike  Mesa, Arizona  Computer Science
Jaime Manuel Valle  Miami Lakes, Florida  Physics
Nicholas James Van Buer*  Los Angeles, California  Geology
William Raymond Van de Water*  Lunenburg, Massachusetts  Physics and Business Economics and Management
Andrea Elena Vasconcellos  Morganville, New Jersey  Biology
Igor Vaynman  Redwood City, California  Physics
Parth Ramanan Venkat  Grosse Pointe Farms, Michigan  Biology and Business Economics and Management
Russeen Paul Wali  Van Nuys, California  Chemistry
Nicholas Reid Wall*  Sunnyvale, California  Biology
Claire Lydia Walton*  El Paso, Texas  Mathematics and English
Xiao Yu Wang*  Cerritos, California  Electrical Engineering
Joseph Vaughn Wasem*  Pullman, Washington  Physics
Jacob Johannes Weel  Stein, the Netherlands  Computer Science
Lauren Anne Wessel*  Dallas, Texas  Mechanical Engineering
Cory Haley White*  Grove City, Pennsylvania  Physics
Aaron Wiest*  Eagle Rock, California  Applied Physics
Elisabeth Blanche Wildanger  Los Altos, California  Mechanical Engineering
Sarah Michelle Wilhoit  Little Rock, Arkansas  Mechanical Engineering
Michael James Wilson*  Portland, Oregon  Computer Science
Philip Hao-chang Wong  Cleveland Heights, Ohio  Mechanical Engineering
Bin Wu*  Shanghai, China  Electrical Engineering
Jing Xiong*  Arcadia, California  Electrical Engineering
Joseph Zhen Ying Xu  Shanghai, China  Computer Science
Naijie Xu*  Beijing, China  Mathematics and Economics
Chuck-Hou Yee  Sacramento, California  Physics
Terry A. Yen*  Torrance, California  Chemistry
Mehmet Yenmez*  Konya, Turkey  Mathematics and Economics
Bachelor of Science continued

Joanne Wing Lan Yim*  Honolulu, Hawaii  Electrical Engineering
In Jung Yoon  Portland, Oregon  Electrical Engineering
Thomas Joseph Zacharia  Hinsdale, Illinois  Economics
David Yu Zhang  Overland Park, Kansas  Biology
Libin Zhang*  Beijing, China  Geobiology and Business Economics and Management
Wei Zhang*  Sichuan, China  Chemistry
Zhipeng Zhang*  Jilin City, China  Physics and Economics
Kai Zhu  Houston, Texas  Physics
Kristen Kay Zortman  Stevens Point, Wisconsin  Engineering and Applied Science (Aeronautics)
Master of Science

Panagiotis Dimitri Aliferis (Physics) Diploma, National University of Athens 2000; M.S., University of Michigan 2002.
Behnam Analui (Electrical Engineering) B.S., Sharif University of Technology 1998; M.S., 2000.
Aydin Babakhani (Electrical Engineering) B.S., Sharif University of Technology 2003.
Andrew Harris Babiskin (Chemical Engineering) B.S., University of Maryland 2003.
Derek William Bartlett (Chemical Engineering) B.S., Stanford University 2003.
Sharlotte Lorraine Bolyard (Aeronautics) B.S. University of Virginia 2004.
Julia Marie Badger Braman (Mechanical Engineering) B.S., Purdue University 2003.
Katherine Scott Brantley (Geology) B.S., California Institute of Technology 2003.
Alexander Lindale Brown (Social Science) B.S. (Actuarial Science), B.S. (Economics), Ohio State University 2003.
Yuan-Heng Chao (Electrical Engineering) B.S., California Institute of Technology 2004.
Jae-Woo Choi (Electrical Engineering) B.S., California Institute of Technology 2004.
Stephanie June Culler (Chemical Engineering) B.S., University of California, San Diego 2003.
Erin Julia Daida (Chemistry) S.B., Massachusetts Institute of Technology 2003.
Michael John deLorimier (Computer Science) B.S., University of California, Berkeley 2002.
Sharif Mohamed Elcott (Computer Science) B.S., University of California, Los Angeles 2003.
Alan Oi Lun Fung (Bioengineering) B.S., Purdue University 1998; M.S., University of Michigan 2002.
Harmony Belinda Gates (Chemical Engineering) B.S., University of California, Irvine 2002.
Kok Win Goh (Physics) B.A., Wesleyan University 1999.
Noah MacLeod Burnham Gourlie (Biochemistry and Molecular Biophysics) B.S., Yale University 2003.
Nathaniel Asoka Gray (Computer Science) B.S., University of California, Los Angeles 1996.
Kristjan Gudmundsson (Mechanical Engineering) B.S., University of Iceland 2003.
Benjamin Lee Hansen (Materials Science) B.S., Brigham Young University 2002.
Adam Jacob Hartwick (Chemical Engineering) B.S., University of California, Santa Barbara 2001.
Kristy Michelle Hawkins (Chemical Engineering) B.S., Texas A&M University 2002.
Mark Hesselin (Aeronautics) B.S., University of Twente 2001; M.S., 2004.
Glenn Evans Jones (Electrical Engineering) B.S., California Institute of Technology 2003.
Heidi Joy Kamp (Social Science) B.S. (Mathematics), B.S., (Economics), University of Minnesota 2003.
Yoshihiro Kaneko (Geophysics) B.S., University of California, Los Angeles 2003.
Amit Prakash Kenjale (Electrical Engineering) B.S., California Institute of Technology 2002.
Dmitriy Leonidovich Kogan (Control and Dynamical Systems) B.S., Harvey Mudd College 2003.
Robert Evans Kopp III (Geobiology) S.B., University of Chicago 2002.
Jeffrey J. Krimmel (Mechanical Engineering) B.S., University of Texas at Austin 2003.
Brian Joseph Kwan (Chemistry) B.S., Stanford University 2000.
Paul Edward Laufer (Electrical Engineering) B.S., California State Polytechnic University, Pomona 2002.
Elizabeth Danette Lester (Bioengineering) B.S., Baylor University 2003.
Claire Isabelle Levaillant (Mathematics) Ingénieur, Ecole Normale Supérieure de Cachan 2002.
Wei Yi Li (Electrical Engineering) B.S., California Institute of Technology 2004.
Hsuan-Tien Lin (Computer Science) B.S., National Taiwan University 2001.
Lilyn Liu (Biology) B.S., Stanford University 2002.
Xerxes Felipe López-Yglesias (Physics) B.S., University of California, Santa Barbara 2002.
Jeremy Chee-Ming Ma (Mechanical Engineering) B.S., University of California, Los Angeles 2004.
Jason Robert Joseph Martineau (Biochemistry and Molecular Biophysics) B.S., University of Maryland, College Park 2003.
Laurent Alexandre Mathevet (Social Science) Licence, University of Saint-Etienne 2002; Maîtrise 2003.
Kyle Alan Mattes (Social Science) B.A., Northwestern University 1997.
Jennifer Mederos (Chemical Engineering) B.S., University of California, Riverside 1997.
Alisa Caroline Miller (Geophysics) B.S., University of Arizona 2001.
Sarah Ellen Minson (Geophysics) B.A., University of California, Berkeley 2003.
Carlos Mochon (Physics) S.B., Massachusetts Institute of Technology 1999.
Sally Page Moffett (Aeronautics) B.S., University of Virginia 2004.
Helia Naemi (Computer Science) B.S., Sharif University of Technology 2002.
Laura Elizabeth Panattoni (Social Science) B.S., Duke University 2000.
Ryan Petterson (Geology) B.A., University of California, Berkeley 2000.
Poh Chieh Benny Poon (Aeronautics) A.B., B.S., University of Illinois at Urbana-Champaign 2004.
Piyush Prakash (Computer Science) B.S., California Institute of Technology 2002.
Brenda Jeannette Ramirez (Mechanical Engineering) B.S., California State Polytechnic University, Pomona 2002.
Julian Darius Revie (Biochemistry and Molecular Biophysics) B.S., Yale University 2002.
Troy Dean Rockwood (Electrical Engineering) B.S., Brigham Young University 1998.
Santiago De Jesus Solares  *(Chemical Engineering)*  B.S., University del Valle 1994; Licenciado, 1995; M.S., University of Miami 1996.
Armin Sorooshian  *(Chemical Engineering)*  B.S., University of Arizona 2003.
Ramesh Srinivasan  *(Chemical Engineering)*  B.ChE., University of Mumbai 1995.
Gunjan Sukul  *(Materials Science)*  B.Tech., Institute of Technology, Banaras Hindu University 2003; M.S., Royal Institute of Technology 2003.
Daniel Sutoyo  *(Civil Engineering)*  B.S., Harvey Mudd College 2004.
Mark Alan Szwast  *(Chemical Engineering)*  B.S.E., Arizona State University 2003.
Nathalie Maria Vriend  *(Aeronautics)*  B.S., University of Twente 2001; M.S., 2004.
Min Yang  *(Physics)*  B.S., Beijing University 1998.
Zhonghua Yang  *(Geochemistry)*  B.S., University of Science and Technology of China 2000.
David Thomas Young  *(Social Science)*  B.Sc., University of Canterbury 2001.
Libin Zhang  *(Geobiology)*  B.S., California Institute of Technology 2005.

**Degree of Engineer**

Michael Bernard Johnson  *(Aeronautics)*  B.Sc., Queen’s University 1999; M.S., California Institute of Technology 2000.
DIVISION OF BIOLOGY

Xavier Ignacio Ambroggio (Biology) B.S., George Mason University 1999.
Thesis: Structural and Functional Studies of Jamm Domain Proteins and Their Role in the Ubiquitin System.

Magdalena Bak-Maier (Cellular and Molecular Neurobiology) B.S., New York University 1999.
Thesis: Commissural Axon Kinetics and the Role of Netrin in Early Brain Circuitry Development.


Sujata Bhattacharyya (Biology) B.Sc., Saint Xavier’s College 1996; M.Sc., Institute of Science, University of Bombay 1998.

Gloria Bohyun Choi (Biology) B.A., University of California, Berkeley 1999.
Thesis: Characterization of the Circuitries Mediating Innate Reproductive and Defensive Behaviors from the Amygdala to the Hypothalamus.

Jeffrey Michael Copeland (Biology) B.A., University of Virginia 1996.

Laura Rosemary Croal (Biology and Geobiology) B.S., University of Wisconsin-Madison 1999.

Shabnam Sarah Farivar (Biology) B.A., University of California, Berkeley 1998.

Christopher Edward Hart (Biology) B.S., Siena College 1998.

Geoffrey Kai Tong Hom (Biochemistry and Molecular Biophysics) B.A., University of California, Berkeley 1999.

Thesis: To Die or to Differentiate: Apoptotic and Non-apoptotic Roles of Death Molecules in Drosophila melanogaster.

Thomas Hin-Chai Leung (Biology) B.S., Stanford University 1998.
Thesis: Specificity of Transcription Activation by NF-kB Subunits.

Angie Siu Yee Mah (Biochemistry and Molecular Biophysics) B.Sc., McGill University 1999.
Thesis: Regulation of Protein Kinase Dbf2 in Mitotic Exit.

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

Thesis: Neural Dynamics and Population Coding in the Insect Brain.

Joyce Yaochun Peng (Biology) B.S., National Tsing Hua University 1996; M.S.,
California Institute of Technology 1998.
Thesis: Structure and Function Prediction of Human Muscarinic Acetylcholine
Receptor 1, Cation-π Studies, and Protein Design.

Thesis: Attention and the Processing of Natural Stimuli: Psychophysics, IMRI and
Single Unit Recordings in the Human Brain.

Premal S. Shah (Biochemistry and Molecular Biophysics) B.S., University of Maryland 1998.
Thesis: Advances in Force Field Development and Sequence Optimization Methods
for Computational Protein Design.

Donghun Shin (Biology) B.S., Seoul National University 1995; M.S., 1997.

Claudiu Simion (Biology) B.S., California Institute of Technology 1999.
Emotional Decision Making.

Hui Yu (Biology) B.S., Fudan University 1990.
Thesis: C. elegans Male Tail Development.

DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING

Darren Lee Beene (Chemistry) B.A., Portland State University 1991; B.S., University of
Thesis: Chemical Scale Investigations of Ligand-Gated Ion Channels Using Unnatural
Amino Acids.

Diego Benitez (Chemistry) B.S., Universidad Nacional Autonoma de Mexico 2001.
Thesis: Theoretical Study of the Mechanism of Olefin Metathesis and Synthesis of
Cyclic Polymers.

Timothy Patrick Best (Chemistry) B.S., Butler University 1999.

Theodore Alexander Betley (Chemistry) B.S.E., University of Michigan 1999.
Thesis: Coordination Chemistry from Trigonal Coordinated Iron Platforms:
Chemistry Relevant to Dinitrogen Reduction.


Christopher J. Borths (Chemistry) B.S., University of Kentucky 1998; M.S., University
of California, Berkeley 2000.
Asymmetric Organocatalytic Reactions.
Elizabeth Loraine Borths (Biochemistry and Molecular Biophysics) B.S., University of Kentucky 1998.
   Thesis: Structural and Biochemical Characterization of the Vitamin B$_{12}$ ABC Transporter, BtuCD-F.

Sean Pomeroy Brown (Chemistry) B.S., University of California, Davis 1998.

Steven Douglas Brown (Chemistry) B.S., University of Utah 2000.

Ileana Cristina Carpen (Chemical Engineering) B.S., Stanford University 1999; M.S., California Institute of Technology 2002.

Serena Hsin-Yi Chung (Chemical Engineering) B.S., University of Illinois at Urbana-Champaign 1995; M.S., California Institute of Technology 2001.

Andrei Deev (Chemistry) B.S., Moscow Institute of Physics and Technology 1997; M.S., 1998.


   Thesis: Nuclear Localization of Polyamide-Fluorescein Conjugates in Cell Culture.

   Thesis: Theoretical and Experimental Investigations in MEMS-Based Force-Detected NMR.

Eric James Fechter (Chemistry) B.S., California State Polytechnic University, San Luis Obispo 2000.
   Thesis: Design of Sequence-Specific DNA Intercalators.

Eric Matthew Ferreira (Chemistry) S.B., Massachusetts Institute of Technology 2000.

Jonathan Michael Galownia (Chemical Engineering and Chemistry) B.S., University of Illinois at Urbana-Champaign 2000; M.S., California Institute of Technology 2003.
Doctor of Philosophy continued

Thesis: The Total Synthesis of Dragmacidins D and F.

Spencer Eugene Hall (Chemistry) B.S., Brigham Young University 1997; M.S., 2000.

Jeremy David Heidel (Chemical Engineering and Biology) S.B. (Biology), S.B. (Chemical Engineering), Massachusetts Institute of Technology 1999; M.S., California Institute of Technology 2001.

William W. Ja (Chemistry) B.S., University of California, Berkeley 1998.
Thesis: Peptide Modulators of G Protein Signaling.

Thesis: Low Spin Pseudotetrahedral Cobalt Tris(phosphino)borate Complexes.

Elizabeth Anne Vincent Jones (Chemical Engineering and Biology) B.A.Sc., University of Waterloo 1999; M.S., California Institute of Technology 2002.

Vadym A. Kapinus (Chemistry) B.S., Moscow Institute of Physics and Technology 1995; M.S., 1997.

Sara Bernadine Klamo (Chemistry) B.S., Wayne State University 1999.
Thesis: Direct Examination of Initiation and Propagation Kinetics of Zirconocene-Catalyzed Alkene Polymerization.

Bruce Michael Lambert (Chemistry and Physics) B.S., Bates College 1997.

Hyunjoo Lee (Chemical Engineering and Chemistry) B.S., Seoul National University 1998; M.S., 2000; M.S., California Institute of Technology 2003.

Youyong Li (Chemistry) B.S., Peking University 1997; M.S., 2000.

Michael A. Marques (Chemistry) B.S., Santa Clara University 2000.

Peter Meinhold (Biochemistry and Molecular Biophysics)

John Frank Murphy (Chemical Engineering) B.S., Cornell University 1999; M.S., California Institute of Technology 2001.

Thesis: Design and Development of New Enantioselective Organocatalytic Transformations, a Two-Step Synthesis of Carbohydrates, and Progress toward the Total Synthesis of Callipeltoside C.

Thesis: A Study of Ligand Substitution and Its Importance in the C-H Activation of Methane and Methanol.


Thesis: Development of a Nanoparticle-Based Model Delivery System to Guide the Rational Design of Gene Delivery to the Liver.


Xin Qi (Chemistry) B.S., Peking University 1991.  
Thesis: Unnatural Amino Acid Incorporation to Rewrite the Genetic Code and RNA-peptide Interactions.

Isaac Michael Rutenberg (Chemistry) B.S., Colorado School of Mines 2000.  
Thesis: Functionalized Polymers and Surfaces via Ring-Opening Metathesis Polymerization.

Daniel Paul Sanders (Chemistry) B.S., Case Western Reserve University 1996; M.S. 1999.  

Catherine Ann Sarisky (Chemistry) B.A., New College of the University of South Florida 1995.  

Shantanu Sharma (Chemistry) B.S., California State University, Los Angeles 2001.  

Wei Shen (Chemical Engineering and Biology) B.S., East China University of Science and Technology 1992; M.S., 1995; M.S., California Institute of Technology 2001.  

Brian Christopher Sisk (Chemistry) B.S., Western Kentucky University 1999; M.S., 2000.  
Thesis: Computational Optimization of Chemical Vapor Detector Arrays.
Andrew J. Spakowitz (Chemical Engineering) B.S., University of Wisconsin–Madison 1999; M.S., California Institute of Technology 2001.
Ramesh Srinivasan (Chemical Engineering and Chemistry) B.ChE., University of Mumbai 1995.
    Thesis: Structural Dynamics of Complex Molecules by Ultrafast Electron Diffraction:
    Concepts, Methodology and Applications.
    Thesis: Gas Phase Reaction Dynamics and Design of Molecular Clusters and Bioconjugates.
Terry Torao Takahashi (Biochemistry and Molecular Biophysics) B.S., Claremont McKenna College 1998; M.S., California Institute of Technology 2004.
    Thesis: In Vitro Selection of RNA Binding Peptides.
Andrew K. Udit (Chemistry) B.Sc., University of Toronto 2000.
    Thesis: P450 BM3 Electrochemistry and Electrocatalysis.
    Thesis: Corroles.
    Thesis: Rotational Spectroscopy and Observational Astronomy of Prebiotic Molecules.
    Thesis: Chemical Characterization and Charge Carrier Dynamics of Crystalline
    Silicon(III) Surfaces Modified with Surface-Bound Organic Functional Groups.

DIVISION OF ENGINEERING AND APPLIED SCIENCES

Gabriel Alejandro Acevedo Bolton (Bioengineering) B.S., University of California, Berkeley 1998; M.S., California Institute of Technology 1999.
    Thesis: Blood Flow Effects on Heart Development and a Minimally Invasive Technique
    for in vivo Flow Alterations.
Steven Wayne Alves (Civil Engineering) B.S., Harvey Mudd College 2000; M.S.,
    Thesis: Nonlinear Analysis of Pacoima Dam with Spatially Nonuniform Ground
    Motion.
Deniz Karapetian Armani (Electrical Engineering) B.S., University of Illinois at Urbana-
    Champaign 2000; M.S., California Institute of Technology 2003.
Roya Bahreini (Environmental Science and Engineering) B.S., University of Maryland 1999;
    M.S., California Institute of Technology 2003.
Jeffrey Myles Bergthorson  (Aeronautics and Chemistry)  B.Sc., University of Manitoba 1999; M.S., California Institute of Technology 2000.  


Justin Scott Boland  (Electrical Engineering)  B.S., University of Texas at Dallas 2000; M.S., California Institute of Technology 2001.  

Stacey Walker Boland  (Mechanical Engineering)  B.S., University of Texas at Dallas 2000; M.S., California Institute of Technology 2001.  

Christopher Shawn Boxe  (Environmental Science and Engineering and Geology)  B.S., Morehouse College 1999; M.S. (Planetary Science), California Institute of Technology 2001; M.S. (Environmental Science and Engineering), 2002.  


Stephanie Sienyee Chow  (Computation and Neural Systems)  B.Sc., University of Toronto 1995; M.A., Queen’s University 1998.  

Matthew M. Cook  (Computation and Neural Systems)  Thesis: Networks of Relations.

Georgia B. Cua  (Civil Engineering and Geophysics)  B.S., Harvey Mudd College 1998; M.S., California Institute of Technology 2000.  
Thesis: Creating the Virtual Seismologist: Developments in Ground Motion Characterization and Seismic Early Warning.

Thesis: Linearized and High Frequency Electrooptic Modulators.

John Oluseun Dabiri  (Bioengineering and Aeronautics)  B.S.E. ( Mechanical Engineering and Aeronautics), Princeton University 2001; M.S., California Institute of Technology 2003.  

Domitilla Del Vecchio  (Control and Dynamical Systems)  Diploma, Università degli Studi di Roma “Tor Vergata” 1999.  


Hung-Teh Hsieh (Electrical Engineering) B.S., National Taiwan University 1998; M.S., California Institute of Technology 2002.
Thesis: Operation of Holographic Elements with Broadband Light Sources.

James Sean Humbert (Mechanical Engineering) B.S., University of California, Davis 1997; M.S., California Institute of Technology 1999.

Thesis: Gaseous Detonation Initiation via Wave Implosion.

Yindi Jing (Electrical Engineering) B.E., University of Science and Technology of China 1996; M.E., 1999; M.S., California Institute of Technology 2000.


Seung-Yub Lee (Materials Science) B.S., Yonsei University 1997; M.S., University of California, Los Angeles 2000; M.S., California Institute of Technology 2002.

Fei Fei Li (Electrical Engineering) B.A., Princeton University 1999; M.S., California Institute of Technology 2002.

Nathan Jacob Litke (Computer Science) B.A., University of Waterloo 1998; M.S., California Institute of Technology 2001.

Miao-Ling Lu (Environmental Science and Engineering) B.S., National Taiwan University 1996; M.S., 1998; M.S., California Institute of Technology 2000.

Thesis: Cognitive Neural Prosthetics.


Antonis Papachristodoulou *Control and Dynamical Systems and Aeronautics* B.A., M.E.,
Cambridge University 2000.

Thesis: Detonation Diffraction in Mixtures with Various Degrees of Instability.

Nicolas Frédéric Ponchaut *Aeronautics and Mechanical Engineering* Candidate Ingénieur,
Université De Liège 1997; Ingénieur Aerospatiale 2000; M.S., California Institute of
Thesis: Part I: 3DPTV Advances and Error Analysis. Part II: Extension of Guderley’s
Solution for Converging Shock Waves.

Stephen Prajna *Control and Dynamical Systems* S.T., Institut Teknologi Bandung 1998;
M.Sc., University of Twente 2000.

Carlos Alejandro Romero Talamás *Mechanical Engineering and Applied Physics*
Industrial Physics Engineering, Instituto Tecnologico y de Estudios Superiores de Monterrey
1995; M.S., International Space University 1998; M.S., California Institute of
Technology 2000.
Thesis: Investigations of Spheromak Plasma Dynamics: High-Speed Imaging at the
Sustained Spheromak Physics Experiment and Magnetic Diagnostics at the Caltech
Spheromak Experiment.

Silvio Savarese *Electrical Engineering* Laurea, Università degli Studi di Napoli -
Thesis: Shape Reconstruction from Shadows and Reflections.

Geoffrey D. Staneff *Materials Science* B.S., University of Washington 1998; M.S.,
California Institute of Technology 2003.

Valentin Gabriel Stredie *Applied and Computational Mathematics* B.S., California
Institute of Technology 1999.
Thesis: Mathematical Modeling and Simulation of Aquatic and Aerial Animal
Locomotion.

Jeremy Christopher Thorpe *Electrical Engineering* B.S., University of California,
Thesis: Analysis and Design of Protograph Based LDPC Codes and Ensembles.

Daniel Pierre Thunnissen *Mechanical Engineering* B.S.E., University of Michigan 1995;
M.S., University of Illinois at Urbana-Champaign 1996.
Thesis: Propagating and Mitigating Uncertainty in the Design of Complex
Multidisciplinary Systems.

Andrew Neil Westhead *Applied and Computational Mathematics* B.S., M.S., Imperial
College London 1998.

Christopher John White  (Electrical Engineering)  B.S., University of Illinois at Urbana-Champaign 1999; M.S., California Institute of Technology 2001.

Thesis: Discharge Plasma Processes of Ring-Cusp Ion Thrusters.

Thesis: Dispersion in Photonic Crystals.

Jian Wu  (Materials Science)  B.S., Tsinghua University 1999; M.S., California Institute of Technology 2001.
Thesis: Defect Chemistry and Proton Conductivity in Ba-based Perovskites.

Kaiwen Xia  (Mechanical Engineering and Geophysics)  B.S., University of Science and Technology of China 1995; M.S., 1998; M.S., California Institute of Technology 2000.
Thesis: Laboratory Investigations of Earthquake Dynamics.

Yu Xiao  (Mechanical Engineering and Materials Science)  B.S., University of Science and Technology of China 1995; M.S., 1998.
Thesis: The Influence of Oxygen Vacancies on Domain Patterns in Ferroelectric Perovskites.


Donghua Xu  (Materials Science)  B.E., Jilin University 1998; M.S., 2001; M.S., California Institute of Technology 2002.

Thesis: Fabrication and Characterization of Microlasers by the Sol-Gel Method.


Qingsong Zhang  (Materials Science)  B.E., Tsinghua University 1996; M.S., California Institute of Technology 2000.
Thesis: Atomistic Simulation of Barium Titanate.

Jijie Zhou  (Bioengineering)  B.S., Peking University 1997; M.S., 2000.
DIVISION OF GEOLOGICAL AND PLANETARY SCIENCES
Tanja Bosak (Geobiology) B.Sc., University of Zagreb 1998.
   Thesis: Laboratory Models of Microbial Biosignatures in Carbonate Rocks.
Jane Ellen Dmochowski (Geophysics) B.S., University of California, Santa Barbara 1995;
   M.S., California Institute of Technology 1997.
   Thesis: Application of MODIS-ASTER (Master) Simulator Data to Geological Mapping
   of Young Volcanic Regions in Baja California, Mexico.
William R. Keller (Geophysics) B.S., University of Arizona 1996.
   Thesis: Cenozoic Plate Tectonic Reconstructions and Plate Boundary Processes in the
   Southwest Pacific.
David Lawrence Shuster (Geochemistry) B.A., University of California, Berkeley 1996;
   M.S., California Institute of Technology 2003.
   Thesis: Application of Spallogenic Noble Gases Induced by Energetic Proton
   Irradiation to Problems in Geochemistry and Thermochronometry.
Zhengrong Wang (Geochemistry) B.S., University of Science and Technology of China
   1996; M.S., 1999; M.S., California Institute of Technology 2002.
   Thesis: Oxygen Isotope Studies of the Petrogenesis of Hawaiian Lavas and a Theoretical
   Study on Equilibrium Thermodynamics of Multiply-Substituted Isotopologues.

DIVISION OF HUMANITIES AND SOCIAL SCIENCES
Paul Jay Healy (Social Science) B.S., Purdue University 2000; M.S., California Institute of
   Technology 2003.
   Thesis: Institutions, Incentives and Behavior: Essays in Public Economics and
   Mechanism Design.
Kevin A. Roust (Social Science) B.S., California Institute of Technology 1997; M.S., 2003.
   Thesis: Minority Rights in Majoritarian Institutions.

DIVISION OF PHYSICS, MATHEMATICS AND ASTRONOMY
Sever Achimescu (Mathematics) B.Sc., M.Sc., West University of Timisoara 1995; M.Sc.,
   University of South Alabama 1998.
   Thesis: Hilbert Modular Forms of Weight 1/2.
Kevin Michael Birnbaum (Physics) B.S., Stanford University 1999.
   Thesis: Cavity QED with Multilevel Atoms.
   Thesis: Experiments in Cavity QED: Exploring the Interaction of Quantized Light
   with a Single Trapped Atom.
Allen David Boozer (Physics) B.S., University of Virginia 1996.
   Thesis: Raman Transitions in Cavity QED.
Kaihua Cai (Mathematics) B.S., University of Science and Technology of China 2000.
Martin Centurion Mac Lean (Physics) B.S., University of Michigan 2000.
Silviu Doru Covrig (Physics) B.Sc., University of Bucharest 1995; M.Sc., 1996.
Thesis: A Measurement of Parity-Violating Asymmetries in the G0 Experiment in Forward Mode.
Thesis: Applications of Effective Field Theory to Electron Scattering.
Stephan Ichiriu (Physics) B.S. (Physics and Mathematics), Indiana University 1999.
Thesis: Recycled Pulsars.
Jennifer Michelle Johnson (Mathematics and Chemistry) B.S., College of William and Mary 1998.
Thesis: A Measurement of the Temperature and Polarization Anisotropies in the Cosmic Microwave Background Radiation.
Melinda Jane Kellogg (Physics) B.S., University of California, Santa Barbara 1993; M.S., California Institute of Technology 1999.
Thesis: To the Horizon and Beyond: Weak Lensing of the CMB and Binary Inspirals into Horizonless Objects.
Christopher Lee (Physics) B.A., Reed College 1999.
Hok Kong Lee (Physics) M.S., Oxford University 1999.
Yi Li (Physics) B.S., California Institute of Technology 1998; M.S., 2000.
Benjamin A. Mazin (Astronomy) B.S., Yale University 1997.
  Thesis: Microwave Kinetic Inductance Detectors.
  Thesis: The Near-Penrose Limit of AdS/CFT.
Carlos Mochon (Physics) S.B., Massachusetts Institute of Technology 1999.
  Thesis: From Non-Abelian Anyons to Quantum Computation to Coin-Flipping by Telephone.
Irina Nenciu (Mathematics) B.S., University of Bucharest 2001.
Takuya Okuda (Physics) B.S., Kyoto University 2000; M.S., California Institute of Technology 2004.
George G. Shapovalov (Physics) M.Sc., Kiev State Shevchenko University 1996.
  Electrophysiology as a High Resolution Technique of Ion Channel Study.
Kris Raymond Sigurdson (Physics) B.A., Simon Fraser University 2000.
Mihai Valentin Stoiciu (Mathematics) M.A., University of Bucharest 2000.
  Thesis: Zeros of Random Orthogonal Polynomials on the Unit Circle.
Ian Jakov Swanson (Physics) B.S., College of William and Mary 2000.
  Thesis: Superstring Holography and Integrability in $\text{AdS}_3 \times S^5$.
Tzer-jen Wei (Mathematics) B.S., National Taiwan University 1996; M.S., 1998.
  Thesis: I. Ash Injection and Exposure During Radius Expansion Type I X-ray Bursts.
  II. Stellar Dynamics at the Galactic Center. III. Weak Gravitational Lensing by Dark Matter Concentrations.
Margaret Ellen Wessling (Physics) B.A., Amherst College 1999; M.S., California Institute of Technology 2002.
  Thesis: Heavy Pentaquarks in the Diquark Model and the Large $N_c$ Expansion.
  Thesis: The Twisted Weighted Fundamental Lemma for the Transfer of Automorphic Forms from $\text{GSp}(4)$ to $\text{GL}(4)$.
Paul Alexander Wiggins (Physics) B.S., Cornell University 1999.
Prizes and awards are listed only for those students receiving degrees in 2005, 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.

2005       Galen Loram

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.

2005       Haluna Gunterman, Andrea Vasconcellos

SIGMA XI AWARD

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

2005       Brant Carlson

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.

2003  Vincent Auyeung

2004  Vincent Auyeung  Jennifer Li  Neil Tiwari
Wein Lien Dang  Binghai Ling  Joseph Wasem
Jenny Fisher  Christopher McClendon  Zhipeng Zhang
Yiyang Gong  Clare Moynihan
Judith Hubbard  Yan Qi

2005  Vincent Auyeung  Matthew Johnston  Weronika Patena
Arjun Bansal  Tony Lee  Xiao Peng
Brant Carlson  Jennifer Li  Yan Qi
Wei Lien Dang  Binghai Ling  Joan Sum Ping
Jenny Fisher  EthelMae Loewer  Neil Tiwari
Christopher Franco  Galen Loram  Brian Underwood
Lisa Fukui  Marin Markov  Joseph Wasem
Yiyang Gong  Christopher McClendon  Bin Wu
Viviana Gradinaru  Clare Moynihan  Jing Xiong
ChongQin Guo  Karin Öberg  Mehmet Yenmez
Judith Hubbard  Ryan Olf
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.

2000  David Zhang

2002  Vincent Auyeung  Shannon Lewis  Xiao Peng  
       Richard Eager  Jennifer Li  David Zhang  
       David Kurtz  Binghai Ling

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.

2002  Michael Johnson  
2003  Jeffrey Bergthorson

WILLIAM F. BALLHAUS PRIZE

Awarded to aeronautics students for outstanding doctoral dissertations.

2005  Jeffrey Bergthorson, Kaiwen Xia

BECKMAN SCHOLARS

Awarded to two sophomore students in the divisions of biology and chemistry and chemical engineering on the basis of academic achievement and research potential. Award winners collaborate with a faculty mentor during two summers and the intervening academic year.

2003  Vincent Auyeung, Neil Tiwari
BHANSALI PRIZE IN COMPUTER SCIENCE

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

2005  Shaun Lee

ROLF D. BUHLER MEMORIAL AWARD IN AERONAUTICS

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

2005  Richard Kramer, Andrew Tchieu

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.

2004  Jenny Fisher

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.

2005  Xinwei Yu

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.

2001  Katherine Stoy
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.

2005    Vincent Wheatley

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.

2004    Haluna Gunterman, Lisa Fukui

THE DONALD COLES PRIZE IN AERONAUTICS

Awarded to the graduating Ph.D. student in aeronautics whose thesis displays the best design of an experiment or the best design for a piece of experimental equipment.

2005    John Dabiri

DEANS’ CUP AND CAMPUS LIFE AND MASTER’S AWARD

Two or more awards, selected by the deans, the assistant vice president for campus life, and the master of student houses, respectively, and 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.

2004    Derrick Yuan Sun, Campus Life
         Galen Loram, Dean’s Cup

2005    Jason Quimby, Neil Tiwari, Chuck-Hou Yee, Campus Life
         Jenny Fisher, Dean’s Cup
DEMETRIADES-TSAFKA PRIZE IN BIOENGINEERING OR RELATED FIELDS

Awarded annually to a Ph.D. candidate for the best thesis, publication, or discovery in bioengineering or related fields during the past year.

2005    Jeffrey Endelman

CONSTANTIN G. ECONOMOU MEMORIAL PRIZE

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

2001    Ileana Carpen, Andrew Spakowitz, Hyunjoo Lee

EVERHART DISTINGUISHED GRADUATE STUDENT LECTURER AWARD

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

2002    Ramesh Srinivasan

2003    Ian Swanson

2004    Melinda Kellogg

2005    Tanja Bosak

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.

2005    Gloria Choi
HAREN LEE FISHER MEMORIAL AWARD IN JUNIOR PHYSICS

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

2004 Tony Lee

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.

2004 Bin Wu

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.

2004 Wei Lien Stephen Dang

GRADUATE DEANS’ AWARD FOR OUTSTANDING COMMUNITY SERVICE

Awarded to Ph.D. candidates who, throughout their graduate years at the Institute, have made great contributions to graduate life and whose qualities of leadership and responsibility have been outstanding.

2005 Deniz Armani, Lauren Webb

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.

2004 Yan Qi
ALEXANDER P. AND ADELAIDE F. HIXON PRIZE FOR WRITING

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

2002 Katherine Anne Richardson, Tomonari Scott Miyashita

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.

2001 Daniel Katz, Mihai Stoiciu
2002 Irina Nenciu
2003 Daniel Katz, Mihai Stoiciu
2004 Irina Nenciu, David Whitehouse

SCOTT RUSSELL JOHNSON GRADUATE DISSERTATION PRIZE IN MATHEMATICS

Awarded for the best graduate dissertation in mathematics.

2005 Irina Nenciu

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.

2005 Nicholas Rupprecht
D. S. KOTHARI PRIZE IN PHYSICS

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

2005     Brant Carlson

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.

2002     David Kurtz

THE HERBERT NEWBY McCOY AWARD

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


MARY A. EARL McKinney PRIZE IN LITERATURE

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

2002     Kyle Bradley

2003     Juan Ramon Garcia

2005     Christopher Meagher
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.

2005  Elizabeth Rego, Tammy Ma, Jonathan So, Philip Wong

RODMAN W. PAUL HISTORY PRIZE

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

2005  Karin Öberg

PRESIDENT’S SCHOLARS

Awarded to selected freshmen to promote the breadth and diversity of the Caltech undergraduate student body.

2001  Juan Ramon Garcia

2002  Kamalah Chang  Lionel Jingles  Sarah Wilhoit
       Julian Greene  Ryan Samson  Terry Anne Yen
       Christian Gutierrez  Claire Walton

HERBERT J. RYSER MEMORIAL SCHOLARSHIPS

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

2004  Mehmet Yenmez
ELEANOR SEARLE PRIZE IN LAW, POLITICS, AND INSTITUTIONS

Awarded annually to an undergraduate or graduate student whose work in history or the social sciences exemplifies Eleanor Searle’s interests in the use of power, government, and law.

2005  Joseph Wasem

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.

2002  Candace Seu, Shaun Lee, Kristen Zortman
2004  Henry Barnor, Alice Lin, Marin Markov, William Van de Water

HALLETT SMITH PRIZE

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

2004  Christopher Meagher, Nicholas Rupprecht
2005  Shannon Lewis, Aaron Wiest

JOHN STAGER STEMPLE MEMORIAL PRIZE IN PHYSICS

Awarded to a graduate student in physics for outstanding progress in research as demonstrated by an excellent performance on the oral Ph.D. candidacy examination.

2002  Melinda Kellogg
2004  Kris Sigurdson
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.

2004    Libin Zhang

MORGAN WARD PRIZE

Awarded for the best problems and solutions in mathematics submitted by a freshman or sophomore.

2002    Richard Eager

CHARLES WILTS PRIZE

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

2005    Deniz Armani

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.

2003    Mehmet Yenmez
Hail CIT
(Caltech Alma Mater)

by Manton Barnes, BS ’21 EE

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

- PUBLIC TELEPHONES are available in Baxter Hall and Beckman Auditorium.
- RESTROOMS are available in Baxter Hall, Beckman Labs, Dabney Hall, Parsons-Gates Hall of Administration, and Beckman Auditorium.
- Information about the nearest location for FIRST AID SERVICES is available at the Information Center.
- LOST AND FOUND items may be reported and/or claimed at the Information Center.
- Complimentary COFFEE and PUNCH (beginning at 8:30 a.m.)
- 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.