119th Annual Commencement
CALIFORNIA INSTITUTE OF TECHNOLOGY
June 14, 2013
119th Annual Commencement
CALIFORNIA INSTITUTE OF TECHNOLOGY

Friday, June 14, 2013
10:00 a.m.
“In life, leadership and learning are inextricably linked, and without advancements in both, a community and society cannot flourish.”

—Jean-Lou Chameau, Caltech President
LETTER FROM THE CHAIR AND THE PRESIDENT

Graduates, welcome to our celebration of you—the Caltech Class of 2013!

It is an honor and a privilege to join you and your family and friends as you commemorate the significant accomplishment your graduation represents. Your academic journey has undoubtedly been filled not only with lessons and challenges, but with growth and achievements. Today marks the beginning of a new journey—one in which you’ll apply the knowledge and experience you’ve gained at Caltech to make a difference in academia, business, industry, government, and society as a whole.

You are among the world’s most promising scientists, engineers, mathematicians, entrepreneurs, innovators, scholars, and leaders. You arrived at Caltech with big ideas and even bigger passions and goals. We hope that your time here has sharpened those ideas, nurtured those passions, and helped you achieve those goals. We also hope that you have built friendships, explored opportunities on campus and at the Jet Propulsion Laboratory, and embraced the lesson that innovation requires taking risks.

But even as you move on, we hope you will stay connected to Caltech. We encourage you to return often to campus or to become engaged in a local alumni chapter, so that Caltech students continue to benefit from all you have to share, just as you benefited from those who came before you. And, of course, we hope you will be a Caltech ambassador to further elevate the Institute’s prominence in the world.

We join you in applauding your family members, your professors, the Caltech staff, your friends, and all the other generous champions—trustees, alumni, donors, Caltech Associates—who have supported your journey at Caltech. These are the people who have prepared you to carry the spirit of discovery and lifelong curiosity into the world, and they are no doubt as proud of you today as we are.

Congratulations, Class of 2013!

David Lee
Chair, Board of Trustees

Jean-Lou Chameau
President
More than a century ago, in November 1891, Throop University opened its doors to six faculty members and 31 students. Within a few years, astronomer George Ellery Hale, chemist Arthur Amos Noyes, and physicist Robert Andrews Millikan had come together to transform Throop into a world-class science and engineering research and education institution.

Since then, Caltech has grown to nearly 300 professorial faculty, more than 600 research scholars, over 1,200 graduate students, and almost 1,000 undergraduates—all of whom expand human knowledge and advance society through bold, collaborative explorations and creative, intensive scholarship in fundamental and applied sciences and engineering. Caltech scholars have accelerated life-changing discoveries and transformed the fields of energy, medicine, geoscience, and astrophysics. They have earned 32 Nobel Prizes, seven Crafoord Prizes, 13 National Medals of Technology, and 57 National Medals of Science.

The Institute operates internationally recognized facilities for advanced research on its campus and oversees a seismological laboratory, NASA's Jet Propulsion Laboratory, and an unparalleled network of astronomical observatories.

At Caltech, Theodore von Kármán developed principles that influenced modern jet flight, and played a key role in the founding of JPL; today, Caltech and JPL scientists such as John Grotzinger and Bethany Ehlmann are exploring Mars after successfully landing the newest rover, Curiosity, on the Red Planet.

Charles Richter created the first logarithmic scale for measuring the magnitude of earthquakes; Thomas Hanks and Hiroo Kanamori reinvented the scale to provide more accurate readings of large quakes, from a greater distance; and, today, K. Mani Chandy and R. Andreas Krause are working to adapt cell phones for use in earthquake forewarnings and detection.
Maarten Schmidt determined the nature of quasars; Mike Brown has discovered an object larger than Pluto beyond the outer solar system, demoting Pluto to dwarf-planet status.

Clair Patterson's research on lead pollution prompted controls in the automobile industry; today, faculty such as John Seinfeld, John Dabiri, Frances Arnold, and Sossina Haile are pioneering research into air quality and clean energy.

Linus Pauling determined the nature of the chemical bond; Max Delbrück helped inspire the creation of molecular genetics; and, today, David Baltimore is using gene therapy to aid in the fight against human HIV infections.

Caltech is a place where bold discoveries are possible—where visionary scholars advance the boundaries of knowledge. We celebrate today the 588 graduates who will receive 256 bachelor's degrees, 96 master's degrees, two engineer's degrees, and 236 Ph.D. degrees, and who will contribute to Caltech's impressive legacy and record of achievement around the world.
ACADEMIC PROCESSION

Chief Marshal
Konstantinos P. Giapis, Ph.D.

Marshals
Geoffrey A. Blake, Ph.D.
John F. Brady, Ph.D.
Rod Kiewiet, Ph.D.
Richard M. Murray, Ph.D.
Joseph E. Shepherd, Ph.D.
David A. Tirrell, Ph.D.

Faculty Officers
John O. Dabiri, Ph.D.
Kristine L. Haugen, 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 and Vice Provosts
The Vice Presidents
The Trustees
The Commencement Speaker
The President
The Chair of the Board of Trustees
PROGRAM

ORGAN PRELUDE
Leslie J. Deutsch, Ph.D.

PROCессIONAL
The Caltech Convocation Brass and Percussion Ensemble
William W. Bing, M.M., Conductor

PRESIDING
David L. Lee, Ph.D.
Chair of the Board of Trustees
California Institute of Technology

COMMENCEMENT SPEAKER
Mary Sue Coleman
President, University of Michigan

CHORAL SELECTION
“The Ode to Joy” excerpts from
Symphony No. 9
by Ludwig van Beethoven;
Arranged by Dr. Deutsch
(Translation on page 58)

Nancy Sulahian, M.M., Conductor

CONFERRING OF DEGREES
Jean-Lou Chameau, Ph.D.
President
California Institute of Technology

PRESENTATION OF CANDIDATES FOR DEGREES
For the Degree of Bachelor of Science
D. Roderick Kiewiet, Ph.D.
Dean of Undergraduate Students

For the Degree of Master of Science
Joseph E. Shepherd, Ph.D.
Dean of Graduate Studies

For the Degree of Engineer
Joseph E. Shepherd, Ph.D.
Dean of Graduate Studies
For the Degree of Doctor of Philosophy

Biology Raymond J. Deshaies  
Professor of Biology

Chemistry and Chemical Engineering Jacqueline K. Barton, Ph.D.  
Division Chair

Engineering and Applied Science Ares J. Rosakis, Ph.D.  
Division Chair

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

Humanities and Social Sciences Jonathan N. Katz, Ph.D.  
Division Chair

Physics, Mathematics and Astronomy B. Thomas Soifer, Ph.D.  
Division Chair

ANNOUNCEMENT OF AWARDS AND CONCLUDING REMARKS President Chameau

ALMA MATER  
“Hail CIT” by Manton Barnes, B.S. ’21  
(The audience may join in; lyrics are on page 63) The Caltech Glee Club, the Caltech Convocation Brass and Percussion Ensemble, and Organ

RECESSIONAL The Caltech Convocation Brass and Percussion Ensemble

ORGAN POSTLUDE Dr. Deutsch  
“The Throop Institute March,” composed by E. C. Kamermeyer in 1900 for the Throop Institute Guitar and Mandolin Society

Live streaming of Caltech’s 2013 commencement ceremony will begin shortly before 10 a.m. on Friday, June 14, at www.caltech.edu.
ABOUT THE SPEAKER

Mary Sue Coleman has served as the president of the University of Michigan (U-M) since August 2002. She is also a professor of biological chemistry in the Medical School and a professor of chemistry in the College of Literature, Science, and the Arts.

As president, Coleman has launched several major initiatives at U-M that are designed to have a positive impact on future generations of students, the intellectual life of the campus, and society at large. These include expanded academic partnerships with universities in China, Ghana, South Africa, and Brazil, and a groundbreaking collaboration between the university and Google that will enable the public to search the text of the university’s 7-million-volume library, and will pave the way to universal access to and the preservation of recorded human knowledge.

She was one of six university presidents selected by President Obama to help launch the Advanced Manufacturing Partnership, a national effort bringing together industry, universities, and the federal government to revitalize American manufacturing through investment in and development of emerging technologies. In 2010, then U.S. commerce secretary Gary Locke named her cochair of the National Advisory Council on Innovation and Entrepreneurship. Coleman is regarded as a national spokesperson on the educational value of diverse perspectives in the classroom, and her extensive leadership positions in higher education have included membership on the National Collegiate Athletic Association Board of Directors and the Knight Commission on Intercollegiate Athletics.

As a biochemist, Coleman has built a distinguished career through her research on the immune system and malignancies. She is a member of the Institute of Medicine, and a Fellow of the American Association for the Advancement of Science and of the American Academy of Arts and Sciences. Coleman is also a nationally recognized expert on the consequences of being uninsured, both for individuals and society as a whole.
CANDIDATES FOR DEGREES

Bachelor of Science

Anish Agarwal* Republic of Singapore Mechanical Engineering and Economics and Computer Science (Minor)


Lucia Minjung Ahn Ithaca, New York Computer Science

Avin Daniel Andrade* Pleasanton, California Chemical Engineering (Environmental)

Mitchel Chinedu Arene* Jos Plateau, Nigeria Electrical Engineering

Sarun Atiganyanun* Bangkok, Thailand Applied Physics

Dori Bejleri* Wolcott, Connecticut Mathematics

John Cain Blackwood* Rancho Palos Verdes, California Chemical Engineering (Materials) and Business Economics and Management

Daniel Christopher Elevado Blado* Richmond, Texas Applied and Computational Mathematics

Michelle Esther Bobrow* Great Neck, New York Biology

Carly Mariah Bond Anchorage, Alaska Chemical Engineering (Materials)

Ethan Rain Boroson* Tucson, Arizona Mechanical Engineering

Reuben Joseph Britto* Redding, California Chemical Engineering (Materials)

Nicholas Salpeter Buckley Woodside, California Engineering and Applied Science (Computation and Neural Systems)

Nina Budaeva* El Cerrito, California Physics

Yi Elise Cai* Albany, California Biology

Juan Diego Caporale Chino, California Mechanical Engineering

Juan Pablo Cardenas Miami, Florida Mechanical Engineering

Arjun Subramani Chandar* North Miami, Florida Mechanical Engineering and Business Economics and Management

Sandhya Chandrasekaran* Fremont, California Biology and Chemistry

Christine Haejung Chang* Pleasanton, California Chemistry

Saptarshi Chaudhuri* Columbus, Ohio Physics

Sinthunon Chavanaves* Bangkok, Thailand 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 at the end of the academic year in which all graduation requirements are met.
Bachelor of Science continued

Clare Chen* Pasadena, California Mechanical Engineering
Daniel Young Chen* Austin, Texas Computer Science and Business Economics and Management
Tao Tao Chen Cupertino, California Mathematics
Victor Eric Chen* San Jose, California Biology
Benjamin J. Cherian San Jose, California Applied Physics
Annie Fong Yu Chin* San Jose, California Computer Science
Sung Bong Chun* Songnam, Republic of Korea Physics and Mathematics
Yeojun Caleb Chun Toledo, Ohio Applied and Computational Mathematics
Brandon Robert Comella† Whitehouse Station, New Jersey Physics
Nadine Peyton Currie DeLand, Florida Chemistry
Megan Rose Cutrofello* Evanston, Illinois Mathematics and Economics
Colleen Rebecca Delaney* Benicia, California Physics and History (Minor)
Breanna Denicola Los Gatos, California History
Matthew Ross Diamond Temecula, California Geochemistry
Race Everest Rial DiLoreto University Place, Washington Biology
Gabriella Lora Dodd Dallas, Texas Mechanical Engineering
Hanna Marie Dodd* Pasadena, California Mechanical Engineering
Jacinto Dominguez III Vista, California Mechanical Engineering
Yishun Dong* Shanghai, People's Republic of China Electrical Engineering and Applied and Computational Mathematics
Shayan Doroudi* Mission Viejo, California Computer Science
Karen Marie Dowling* Ann Arbor, Michigan Electrical Engineering
Christopher Robert Dudiak* Atlanta, Georgia Computer Science
Mihail Eugen Dumitrescu Bucharest, Romania Computer Science
Michael Wayne Edwards Canyon Country, California Computer Science
Joshua Alexander Escribano-Fontanet* Apopka, Florida Physics
Steven Evergreen* Downey, California Electrical Engineering
Kelvin Fang* San Jose, California Electrical Engineering
Suzannah Alcyone Fraker* Washington, District of Columbia Computer Science
Mason Cecil Freedman Falls Church, Virginia Mechanical Engineering
Matthew Kuenzli Fu* Herndon, Virginia Mechanical Engineering
Kimberly Keiko Furuya Bloomington, Illinois Engineering and Applied Science (Computation and Neural Systems)
Prakriti Gaba* Las Vegas, Nevada Biology and Business Economics and Management
Meng Ge* Beijing, People's Republic of China Applied and Computational Mathematics and Economics
Bachelor of Science continued

Marvin Ho-Yan Gee*  Frederick, Maryland  Biology
Alexandra Todorova Georgieva  Sophia, Bulgaria  Physics
Vaishnavi Giridaran*  Champaign, Illinois  Engineering and Applied Science (Computation and Neural Systems) and Bioengineering,
Brent Justin Goldman  San Francisco, California  Computer Science and Business Economics and Management
Eduardo Martín González†  Virginia Beach, Virginia  Computer Science
Kevin Li Gu*  Fresno, California  Chemical Engineering (Process Systems)
Yuzhou Conan Gu*  Changzhou, People’s Republic of China  Applied and Computational Mathematics
Kelly Mengyu Guan*  Arcadia, California  Chemical Engineering (Materials)
Matthew Patrick Harrigan*  Essex, Connecticut  Chemistry
Ying Qiao Hee*  Republic of Singapore  Chemical Engineering (Process Systems) and Business Economics and Management
Matthew Thomas Edwin Heydeman*  Monterey, California  Physics
Daniel William Hogan*  Salt Lake City, Utah  Physics
Nerissa Emmy Graetz Hoglen*  Kalaheo, Hawaii  Engineering and Applied Science (Computation and Neural Systems) and English
Kristen Marie Holtz*  Tracy, California  Mechanical Engineering and Control and Dynamical Systems (Minor)
Katherine Hooper†  Sunnyvale, California  Engineering and Applied Science (Computation and Neural Systems)
Gladia Chork Hotan*  Republic of Singapore  Physics
Yang Hu*  Richland, Washington  Biology
Yifei Huang*  Naperville, Illinois  Mechanical Engineering and Computer Science (Minor)
Supriya Iyer  San Jose, California  Mechanical Engineering and Geological and Planetary Science (Minor)
Megan Nora Jackson*  Moraga, California  Chemistry
Bryan Paul Jadot*  Chapel Hill, North Carolina  Computer Science
Anum Jang Sher  Islamabad, Pakistan  Mechanical Engineering and Business Economics and Management
Ayooluwakunni Oluwafemi Jeje*  Ibadan, Nigeria  Mechanical Engineering
Xinyao Ji*  Jiangsu, People’s Republic of China  Mathematics
Zhengyang Jiang*  Chengdu, People’s Republic of China  Mathematics and Business and Economics and Management
Raymond Christian Jimenez*  Duarte, California  Electrical Engineering
Bachelor of Science continued

Timothy Underwood Johnson  Torrance, California  Mathematics
Samuel Stephen Jones  Rocky Mount, Virginia  Electrical Engineering
Karolina Z. Kalbarczyk  Urbana, Illinois  Chemical Engineering (Biomolecular)
Amol Deepak Kamat*  Northville, Michigan  Biology
Aroutin Khachaturian*  Glendale, California  Electrical Engineering
Rishi Das Khanna  Millwood, New York  Electrical Engineering
Brian T. Kim*  Northridge, California  Chemical Engineering (Biomolecular) and Political Science
Caroline Haejin Kim†  Seongnam, Republic of Korea  Electrical Engineering
Chang Sub Kim*  Seoul, Republic of Korea  Physics
Laura Kim*  Atlanta, Georgia  Chemical Engineering (Materials)
Seohyun Kim*  Seoul, Republic of Korea  Chemistry
Stacy Yeonchi Kim  Avondale, Arizona  Physics
Roy Jeffrey Koczela  Shorewood, Wisconsin  Engineering and Applied Science
Christopher Forrest Kolner*  Moraga, California  Electrical Engineering
Swadhruth Komanduri  Okemos, Michigan  Engineering and Applied Science (Computation and Neural Systems) and Business Economics and Management
Philip L. Kong*  Los Angeles, California  Biology
Timea Kosztin*  Columbia, Missouri  Mechanical Engineering and Business Economics and Management
Jeffrey Adam Kowalski*  Ewing, New Jersey  Chemical Engineering (Materials)
Stephanie Ya-Wen Kwan  Rancho Palos Verdes, California  Biology and English (Minor)
Sung Min Kwon†  Seoul, Republic of Korea  Chemical Engineering (Materials)
Thomas Ginhay Kwong*  Irvine, California  Mechanical Engineering
Paweł Michal Latawiec*  Cary, Illinois  Physics
Kimberly Lutek Law*  San Diego, California  Bioengineering
Rebecca Jean Lawler*  Portland, Oregon  Computer Science
Tuan Anh Le*  Warsaw, Poland  Computer Science
Christina Colleen Lee†  Vancouver, Washington  Physics
Eun Jee Lee*  Seoul, Republic of Korea  Electrical Engineering
Seoung Jun (Elijah) Lee*  Incheon, Republic of Korea  Mechanical Engineering and Structural Mechanics (Minor)
Jomya C. Lei*  Brentwood, Tennessee  Electrical Engineering and Chemistry
Cheng Ran Mathilda Li†  Wuhan, People's Republic of China  Computer Science
Henry Li*  San Jose, California  Computer Science and Business Economics and Management
Nannan Li*  Hefei, People's Republic of China  Chemical Engineering (Materials)
Shuaili (Cici) Li*  Fremont, California  Chemical Engineering (Materials)
Bachelor of Science continued

Susan Elizabeth Liao  Princeton, New Jersey  Biology
Ee Jane Lim  Kota Bharu, Malaysia  Chemical Engineering (Materials)
Eric Liu  Warren, New Jersey  Chemical Engineering (Materials)
Erik Jerry Liu  State College, Pennsylvania  Chemical Engineering (Biomolecular)
Shiyi Liu  Guangdong, People's Republic of China  Physics
Yuan Liu*  Beijing, People's Republic of China  Applied and Computational Mathematics and Business Economics and Management
Kevin Lo*  San Diego, California  Computer Science
Megan Lo*  Austin, Texas  Chemical Engineering (Biomolecular)
Cassandra Derrick Lochhaas*  Newburyport, Massachusetts  Physics
Tong Lu  San Ramon, California  Economics and Engineering and Applied Science  (Computation and Neural Systems)
Tsung-Ju Jeff Lu*  San Jose, California  Electrical Engineering
Marcus Aaron Lucas  Olympia, Washington  Mechanical Engineering
Tuling Ma*  East Brunswick, New Jersey  Computer Science
Xiaoaya Ma*  Fayetteville, New York  Chemical Engineering (Materials)
Timothy David MacDonald*  Turlock, California  Mechanical Engineering and Aerospace Engineering (Minor)
Vishnu Manoranjan*  Pullman, Washington  Biology and Philosophy (Minor)
Anastasiya Vadimovna Markovtsova  Foster City, California  Bioengineering
Blaine Roger Matulevich*  Kalispell, Montana  Mechanical Engineering and History
Matthew Zoccoli Mayers*  Franklin Lakes, New Jersey  Mathematics and Chemistry
Naomi Aubrey McArthur  Omaha, Nebraska  Engineering and Applied Science  (Computation and Neural Systems)
Carson Kent McNeil  Salt Lake City, Utah  Engineering and Applied Science  (Computation and Neural Systems) and Computer Science (Minor)
Alan Joseph Menezes*  Saratoga, California  Electrical Engineering
Andrew Chengsi Meng*  Baton Rouge, Louisiana  Physics and Chemistry
Rocio Mercado  Wilmington, California  Chemistry
Brian Merlob  Coral Springs, Florida  Political Science and Computer Science
Timothy Meyer  Honolulu, Hawaii  Computer Science and Business Economics and Management
Zeke Millikan*  Minneapolis, Minnesota  Mechanical Engineering
Jama Abdullahi Mohamed  Springfield, Virginia  Electrical Engineering
Mahati Mokkarala*  Budd Lake, New Jersey  Biology
Rachel Stockton Moore  Aiken, South Carolina  Chemical Engineering (Materials)
Melody Ann Morris*  Bedford, Massachusetts  Chemical Engineering (Materials)
Bachelor of Science continued

Judy Mou*  Temple City, California  Computer Science
Alexander Telemachos Mouschovias*  Urbana, Illinois  Applied Physics
Collin Michael Murphy  Wasilla, Alaska  Computer Science and Business Economics and Management
Jaime Rose Nagel*  Neenah, Wisconsin  Mechanical Engineering
Roshan Devan Nanu  Southlake, Texas  Physics
Luis Alexander Navarro*  Miami, Florida  Chemistry
Ilya Nepomnyashchyi*  Carol Stream, Illinois  Computer Science and Mathematics
Joshua Alexander Borwein Nevin  Hong Kong, People’s Republic of China  Mathematics and Philosophy (Minor)
Nina Zhixuan Ng-Quinn  Alta Loma, California  Biology
HongAn Thuy Nguyen*  Wyoming, Michigan  Mechanical Engineering
Lan Huong Nguyen*  Ha Noi, Vietnam  Applied and Computational Mathematics and Economics
Brice Chedjou Nzeukou  Tucson, Arizona  Mechanical Engineering and Business Economics and Management
Richard Hua O’Dowd*  Santa Barbara, California  Computer Science
John Jefferson Odell*  Prince Frederick, Maryland  Mechanical Engineering
Nicholas Charles Ogden  Carterville, Illinois  Electrical Engineering
Steven Yukio Okai  Pearl City, Hawaii  Electrical Engineering
Mia Rose Hubbard Oviatt  Woodinville, Washington  Biology
Geunwook Paek*  Seoul, Republic of Korea  Applied and Computational Mathematics and Economics
Alison Dawn Parisian*  Vacaville, California  Biology
Sung Jin Park*  San Jose, California  Chemical Engineering (Biomolecular)
Priyam Patel  Irvine, California  Applied Physics
Brian Daniel Penserini  Carmichael, California  Geology
Christopher Adam Perez  Chicago, Illinois  Mathematics
Ahalya Prabhakar  Alpharetta, Georgia  Mechanical Engineering
Suyeon Pyo*  Iksan, Republic of Korea  Chemical Engineering (Materials)
Chenxi Qiu*  Temecula, California  Bioengineering
John Steven Rath  Eden Prairie, Minnesota  Mathematics
Srihari V. Ravi*  West Windsor, New Jersey  Computer Science
Benjamin Razon*  Maple Glen, Pennsylvania  Computer Science and Business Economics and Management
Haoyang Ren  Cary, North Carolina  Computer Science
Addison Rice  Sparta, New Jersey  Engineering and Applied Science (Environmental Science and Engineering) and Geological and Planetary Science (Minor)
Bachelor of Science continued

Alexander David Rider* Monrovia, California Physics
Christian Daniel Rivas Claremont, California Business Economics and Management
Joanna Renee Robaszewski Arlington Heights, Illinois Physics
Andrew Carlos Rodriguez Weston, Florida Applied and Computational Mathematics
Sebastián Rojas Mata* Escazú, Costa Rica Mechanical Engineering
Cipriano William Romero* Northbrook, Illinois Electrical Engineering
Errika Celine Romero Houston, Texas Chemical Engineering (Biomolecular)
Tommaso Rosi Firenzeuola d’Arda, Italy Applied and Computational Mathematics
Alexander Manek Karl Runkel* Villingen-Schwenningen, Germany Engineering and Applied Science (Computation and Neural Systems) and Economics
Murtaza Saifee* Tarzana, California Electrical Engineering
Stephanie Rae Parlade Samson* Lomita, California Chemical Engineering (Materials)
Dev V. Sanghani* Rajkot, Gujarat, India Computer Science
Hunter James Sceats* Colorado Springs, Colorado Applied Physics
Stephen Joseph Schwee* Winter Springs, Florida Mechanical Engineering and Business Economics and Management
James Michael Scott* Rockford, Michigan Physics
Kijun Seo* Seoul, Republic of Korea Computer Science
Nihar Sharma Noida, India Computer Science
Hong Sheng* Wuhan, People’s Republic of China Applied and Computational Mathematics
Kevin Shi* Johnston, Iowa Chemical Engineering (Biomolecular)
Dong Woo Shin Los Angeles, California Chemistry and History
Sang Ha Shin* Seoul, Republic of Korea Mechanical Engineering
Juan Pablo Sierra El Segundo, California Electrical Engineering
Gregory Vahagn Simonian* Los Angeles, California Astrophysics
Nikita Sinha* San Ramon, California Biology
Seorim Song† Arlington, Texas Chemical Engineering (Materials)
Daniel Enrique Sotolongo* Miami, Florida Physics
Andrew Chai Stanek Fremont, California Biology
Jessica Tsu-Yun Su* Boca Raton, Florida Computer Science
Sabrina I-Chyi Sun* Arcadia, California Chemical Engineering (Biomolecular)
Dylan Joshua Sures Northridge, California Chemistry
Mikhail Vladimir Sushkov* Cupertino, California Computer Science
Kevin Michael Sutherland* Modesto, California Geology
Wesley Staton Swank Coraopolis, Pennsylvania Mechanical Engineering
Kelly K. Swanson* Naperville, Illinois Physics
Bachelor of Science continued

Alex Atsushi Takeda*  Londrina, Brazil  Physics
Katherine Anne Taylor  Washington, District of Columbia  Mechanical Engineering
Thanchanok Teeraratkul*  Bangkok, Thailand  Electrical Engineering
Ryan Thorngren*  Los Angeles, California  Mathematics
Vicky Yuan Tian  Mukilteo, Washington  Mechanical Engineering and Business Economics and Management and Aerospace Engineering (Minor)
Suk Sien Tie*  Bintulu, Sarawak, Malaysia  Astrophysics
Mohit Tiwari*  Yorktown Heights, New York  Physics and Mathematics
Mariya Ivanova Vasileva  Sofia, Bulgaria  Mechanical Engineering and Business Economics and Management
Saraswathi Joy Venkatesh*  Swarthmore, Pennsylvania  Mathematics
Christine Grace Viveiros  Spokane, Washington  Mechanical Engineering
Alex J-S Wang*  Dallas, Texas  Chemical Engineering (Biomolecular)
Jing Wang*  Clarksville, Maryland  Physics and Computer Science
Pan Qiyu Wang*  Germantown, Maryland  Computer Science
Tong Wang  Shenyang, People’s Republic of China  Physics
Yizhuo Wang*  Kingsport, Tennessee  Computer Science
Alexander Spence Wein*  Palo Alto, California  Computer Science and Mathematics
Jody C. Wen*  Orange, California  Applied and Computational Mathematics
Rebecca Ann Wernis*  Chicago, Illinois  Physics
Reginald George Wilcox III*  Ottawa, Canada  Electrical Engineering and Business Economics and Management
Sarah Marie Wittman  Milwaukee, Wisconsin  Computer Science
Stephen Wayne Worlow  Spring, Texas  Mathematics and Computer Science
Sarah Louise Wright  Strongsville, Ohio  Bioengineering
Alexander Huang Wu*  Yorba Linda, California  Applied and Computational Mathematics and Business Economics and Management
Christine Elizabeth Wu  Pleasanton, California  Chemical Engineering (Biomolecular)
Louie Robert Wu  Gainesville, Florida  Mathematics
Xiaotong (Tony) Wu*  Gainesville, Florida  Mechanical Engineering and Business Economics and Management
Ying Xian*  Fremont, California  Chemistry and English
Catherine Bingchan Xie*  Mountain View, California  Bioengineering and English (Minor)
Yushu Joy Xie*  Troy, Michigan  Chemical Engineering (Biomolecular)
Bachelor of Science  continued

Junxiao Xu*  Troy, Michigan  Computer Science and Business Economics and Management
Melissa Xu  Davis, California  Bioengineering
Sibei Xu  San Diego, California  Bioengineering (Devices)
Irene Chiyun Yang*  Houston, Texas  Electrical Engineering
Mimi Xuan Yang*  Lexington, Kentucky  Electrical Engineering
Ran Yang  Lake Oswego, Oregon  Biology
Scott Michael Yantek*  Olmsted Township, Ohio  Physics
Alex Wayne Yeh  Westlake Village, California  Chemical Engineering (Biomolecular)
Joshua Yoon*  Columbia, Missouri  Physics
Yeoil Yoon  Seoul, Republic of Korea  Mathematics
Chia-Chen Yu*  Kaohsiung, Taiwan (ROC)  Electrical Engineering
Jenny Z. Yung  Ashburn, Virginia  Applied and Computational Mathematics
Alexander Victor Zahn  Orange, California  Physics
Eric B. Zhang*  Sharon, Massachusetts  Applied and Computational Mathematics
Rongxiao Zhang*  Guangdong, People's Republic of China  Mechanical Engineering
Vivian Zhang*  Tucson, Arizona  Mechanical Engineering
Shiyu Zhao*  Zhejiang, People's Republic of China  Computer Science
Zipeng Zhao*  North Potomac, Maryland  Mechanical Engineering and Aerospace Engineering
(Minor)
Jennifer Haijin Zhu  Phoenix, Arizona  Chemical Engineering (Materials)
Mario Victor Zubia*  Guadalupe, California  Biology
Andrew Joseph Zucker*  Greeley, Colorado  Mathematics
Master of Science

Ryo Adachi (Behavioral and Social Neuroscience) B.E., The University of Tokyo 2009; M.S., 2011.
Asma (Electrical Engineering) B.E., NED University of Engineering and Technology 2009.
Rahul Brian Bhui (Behavioral and Social Neuroscience) B.A., The University of British Columbia 2010.
Tobias Bischoff (Environmental Science and Engineering) Vordiplom, Philipps-Universität Marburg 2008; M.S., University of Cambridge 2011.
Brock Douglas Bobbitt (Mechanical Engineering) B.S., University of Illinois at Urbana-Champaign 2011; B.S., Wheaton College 2011.
Kristen Marie Boydstun (Physics) B.Sc., McGill University 2010.
Nicholas James Broten (Social Science) B.A., University of California, Berkeley 2008; M.Sc., London School of Economics 2009.
Wuhan Desmond Cai (Electrical Engineering) B.S., Cornell University 2009.
Kyle Ian Carlson (Behavioral and Social Neuroscience) B.A., The University of Memphis 2006.
David Hamilton Case (Geochemistry) B.A., Washington University in St. Louis 2010.
Matthew C. Chao (Social Science) B.A., Dartmouth College 2006.
Lawrence Yong-uck Chung (Mathematics) B.S., Seoul National University 2008.
Renata Christina Cummins (Geobiology) A.B., Harvard College 2011.
Trevor Justin David (Astrophysics) A.B., Vassar College 2009.
Abel Bermie Roberto Dizon (Civil Engineering) B.S., University of California, Los Angeles 2011.
Katharine Yan Fang (Chemical Engineering) B.A.Sc., The University of Toronto 2010.
Masoud Farivar (Electrical Engineering) B.S., Sharif University of Technology 2009.
Glenn Robert Garrett (Materials Science) B.S., Georgia Institute of Technology 2005.
Paul Robert Gebhart (Physics) B.S., University of California, Irvine 2009.
John Bernard Gorman (Electrical Engineering) B.S., California State University, Long Beach 2004.
Andres Jared Goza (Mechanical Engineering) B.S., Rice University 2011.
Vikash Gunreddy (Electrical Engineering) B.S., Virginia Polytechnic Institute and State University 2012.
David Christopher Hall (Electrical Engineering) B.E., B.S., The University of Melbourne 2010.
Jennifer Leigh Hamon (Geology) S.B., Massachusetts Institute of Technology 2010.
Wentao Huang (Electrical Engineering) B.S., Nanjing University of Posts and Telecommunications 2008; M.S., Shanghai Jiao Tong University 2011.
Master of Science  continued

William Maxwell Jones  (Electrical Engineering) B.S., California Institute of Technology 2010.
Melodie Minyu Kao  (Astrophysics) S.B., Massachusetts Institute of Technology 2011.
Altemurcan Kahraman Kursunlu  (Space Engineering) B.S., Bogazici University 2012.
Carlos Daniel Laguna Juarez  (Space Engineering) B.E., Universidad Panamericana 2012.
Simon Lapointe  (Aeronautics) B.S., Université Laval 2010; M.S., 2012.
Jionghui Li  (Electrical Engineering) B.E., Harbin Institute of Technology 2011.
Zhao Li  (Electrical Engineering) B.S., Beijing University of Posts and Telecommunications 2011.
Rod Seung-Hwan Lim  (Biology) B.S., University of California, San Diego 2008.
Yunung Lin  (Geology) B.A., National Taiwan University 2003; M.S., 2005.
Frank Donald Maselli  (Civil Engineering) B.E., M.E., Stevens Institute of Technology 2010.
Jordan Eliot Maslov  (Electrical Engineering) B.S., California Institute of Technology 2012.
Lucas Rosendo Meza  (Mechanical Engineering) B.S., University of California, Los Angeles 2011.
Sergio Montero  (Social Science) Licenciado en Economia, Centro de Investigación y Docencia Económicas 2011.
Benjamin Tyler Montet  (Astrophysics) B.A., B.S., The University of Illinois at Urbana-Champaign 2011.
Abhiram Moturi  (Electrical Engineering) B.Tech., Indian Institute of Technology, Madras 2012.
Judy Mou  (Computer Science) B.S., California Institute of Technology 2013.
Maxwell Robert Murialdo  (Materials Science) B.S., Stanford University 2011.
Neel Prashant Nadkarni  (Aeronautics) B.Tech., Indian Institute of Technology, Gandhinagar 2012.
Panagiotis Philippos Natsiavas  (Mechanical Engineering) Diploma, Aristotle University of Thessaloniki 2012.
Parham Noorzad  (Electrical Engineering) B.S., University of Tehran 2012.
Xiaoze Ou  (Electrical Engineering) B.S., Zhejiang University 2011.
Akshay Pai  (Electrical Engineering) B.Tech., Indian Institute of Technology, Madras 2012.
Master of Science  continued

Shuo Pang  (Electrical Engineering)  B.S., Tsinghua University 2006; M.S., Texas A&M University 2008.
Qiuyu Peng  (Electrical Engineering)  B.E., Shanghai Jiaotong University 2011.
Nakul E. Reddy  (Bioengineering)  B.S., Georgia Institute of Technology 2006.
Joseph Holda Rheinhardt  (Chemistry)  B.S., Indiana University 2010.
Carolyn Mary Richmonds  (Chemical Engineering)  B.S., Case Western Reserve University 2010.
Chris Roh  (Aeronautics)  B.S., Cornell University 2012.
Kevin Thomas Rosenberg  (Space Engineering)  B.S. (Aerospace Engineering), B.S. (Mechanical Engineering), University of Florida 2012.
Theresa Ann Saxton-Fox  (Mechanical Engineering)  S.B., Massachusetts Institute of Technology 2012.
Marc Serra Garcia  (Aeronautics)  B.Sc., M.Sc., Universitat Autònoma de Barcelona 2010.
Matthew Reed Shaner  (Chemical Engineering)  B.S., University of California, Santa Barbara 2010.
Amanda M. Shing  (Materials Science)  S.B., Massachusetts Institute of Technology 2008.
Va Cheung Si  (Biology)  B.S., University of California, Los Angeles 2007.
Kevin Michael Sutherland  (Geochemistry)  B.S., California Institute of Technology 2013.
Sean Pearson Symon  (Aeronautics)  B.A., B.S., University of Maryland, College Park 2012.
Albert Z. Tan  (Electrical Engineering)  B.S. (Electrical Engineering), B.S. (Political Science), California Institute of Technology 2012.
Zhihong Tan  (Environmental Science and Engineering)  B.S., Peking University 2009.
Zachary James Tobin  (Applied Physics)  B.S.E., Case Western Reserve University 2009.
Elizabeth Trembath-Reichert  (Geobiology)  B.A., Barnard College 2008.
Gerelt Tserejigmid  (Social Science)  B.A., The University of Tokyo 2011.
Jacqueline Rose Villadsen  (Astrophysics)  S.B., Massachusetts Institute of Technology 2009.
Robert Christopher Wills  (Environmental Science and Engineering)  B.S., University of California, Berkeley 2011.
Charlotte Ling Yang  (Computation and Neural Systems)  S.B., Massachusetts Institute of Technology 2011.
Hang Yu  (Environmental Science and Engineering)  B.Sc., The University of British Columbia 2010.
Hao Zhang  (Environmental Science and Engineering)  B.S., Nankai University 2011.
Qiaoxi Zhang  (Social Science)  B.S., University of Hong Kong 2011.
Xiaoxiao Zhang  (Electrical Engineering)  B.S., Texas A&M University 2010.
Engineer


Rebecca Lynn Rought  (*Aeronautics*)  B.S., Syracuse University 2008; M.S., California Institute of Technology 2009.
DIVISION OF BIOLOGY

Maja Bialecka-Fornal (Biochemistry and Molecular Biophysics) M.S., Jagiellonian University 2008.
Thesis: Single-Cell Analysis of the Physiology of Mechanoception in Bacteria.

Thesis: Chemical and Neural Regulation of Embryonic Branching Morphogenesis.


Marissa Morales Del Real (Biology) B.A., College of Notre Dame of Marylan 2006.
Analysis of a Transcriptional Network Involving PU.1, Notch, and Gata3 in the Lymphomyeloid Lineage Decision during Early T-cell Development.

Adler R. Dillman (Biology) B.S., Brigham Young University 2006.


Elaine Yih-Nien Hsiao (Biology) B.S., University of California, Los Angeles 2007.

Na Hu (Biology) B.A., University of California, Berkeley 2008.
Thesis: Epigenetic Regulation in Neural Crest Development: Role of DNA Methyltransferases 3A and 3B.

Natalie J. Kolawa (Biology) B.A., University of California, Berkeley 2007.
Thesis: Proteomic Analysis of the Cdc48/Ubx Network Identifies a Role for Ubx2 in the Regulation of Lipid Biosynthesis.

Sung-Eun Melanie Lee (Biology) B.S., Harvey Mudd College 2004.
Thesis: Mechanism of Intestinal Colonization by Symbiotic Bacteria.


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

Anh H. Pham (Biology) B.S., University of California, Berkeley 2004; M.D., University of Southern California 2007.

Abigail Green Saxena (Biology) B.S., University of Texas 2002.

Maayan Schwarzkopf (Biology) B.S., Tel Aviv University 2004; M.S., 2006.

Anna Shemorry (Biology) B.S., University of California, San Diego 2007.

Nicole Anne Tetreault (Biology) B.S., University of California, Davis 2002; M.S., University of California, Los Angeles 2006.
Thesis: Microglia in the Cerebral and Cerebellar Cortices in Individuals with Autism.

Ophelia S. Venturelli (Biochemistry and Molecular Biophysics) B.S., M.S., Stanford University 2007.
Thesis: Role of Feedback and Dynamics of a Gene Regulatory Network.

DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING

David Gregory Abrecht (Chemical Engineering and Materials Science) B.S. (Chemical Engineering), B.S. (Paper Science and Engineering), North Carolina State University 2007; M.S., California Institute of Technology 2011.

Nathan Bruce Bennett (Chemistry) B.S., Brigham Young University 2008.

Yashodhan Bhawe (Chemical Engineering and Chemistry) B.S., University of California at Berkeley 2008; M.S., California Institute of Technology 2010.
Doctor of Philosophy  continued

Nicholas Boekelheide  (Chemistry)  B.S., Carleton College 2004.
Justin William Chartron  (Biochemistry and Molecular Biophysics)  B.S., University of California, San Diego 2006.
   Thesis: The Structure of a Transmembrane Protein Sorting Complex.
Jill Suzanne Craven  (Chemical Engineering)  B.S., University of Arizona 2007; M.S., California Institute of Technology 2010.
Christopher Scot Daeffler  (Chemistry)  B.S., Cornell University 2006.
Leopold Daniel d’Espaux  (Chemical Engineering and Biology)  B.S. Cornell University 2005; M.S., California Institute of Technology 2007.
   Thesis: Synthetic Regulation of Eukaryotic Gene Expression by Noncoding RNA.
Nicole Danielle Bouley Ford  (Chemistry)  B.S., Trinity University 2007.
   Thesis: Capturing Protein Dynamics with Time-resolved Luminescence Spectroscopy.
Alexander F. G. Goldberg  (Chemistry)  B.Sc., Queen’s University 2008.
Han Han  (Chemical Engineering and Chemistry)  B.S., The University of Melbourne 2007.
   Thesis: Development of Targeted, Polymeric Delivery Vehicles for Camptothesin and siRNA via Boronic Acid-Diol Complexation.
Lisa Marie Hochrein  (Chemical Engineering and Biology)  B.S., University of California, Berkeley 2004; M.S., California Institute of Technology 2009.
   Thesis: Towards Conditional RNAi: Shape and Sequence Transduction with Small Conditional RNAs.
Nicholas Jeffrey Hoh  (Chemical Engineering)  B.S., Cornell University 2008.
   Thesis: Effects of Particle Size Ratio on Single Particle Motion in Colloidal Dispersions.
Allen Yu Hong  (Chemistry)  B.S., University of California, Berkeley 2006.
   Thesis: Development of a Novel Ring Contraction Strategy and Application to the Total Synthesis of Presilphiperfolanol Natural Products.
Doctor of Philosophy   continued

Kiwook Hwang  (Chemistry)  B.S., Seoul National University 2007.

Benjamin Keith Keitz  (Chemistry)  B.S., The University of Texas at Austin 2007.

Gretchen Eva Keller  (Chemistry)  A.A., Santa Barbara City College 2002; B.S., University of California, Santa Barbara 2005.
   Thesis: Phototriggering Nitric Oxide Synthase from Geobacillus stearothermophilus.

Matthew James Kelley  (Chemistry)  B.S., John Carroll University 2004.

Chithra Krishnamurthy  (Chemistry)  B.S., University of California, Berkeley 2006.
   Thesis: Developing Chemical Probes to Study Fucosylated Glycans.

Chethana Kulkarni  (Chemistry)  B.S., Stanford University 2006.
   Thesis: Selective Functionalization of the Protein N-Terminus with N-Myristoyl Transferase in Bacteria.


Benjamin Chun Yeung Li  (Chemistry)  B.A., Columbia University 2007.
   Thesis: Synthesis and Biological Studies of DNA-binding Cyclic Py-Im Polyamides.


Christine Lauren Loza  (Chemical Engineering and Environmental Science and Engineering)  B.S., University of Notre Dame 2008; M.S., California Institute of Technology 2010.

Heather Catherine McCaig  (Chemistry)  B.S., Oregon State University 2004; M.S., California Institute of Technology 2007.
   Thesis: Resonant Nanocantilever Chemical Vapor Sensors.

James Robert McKone  (Chemistry)  B.A., Saint Olaf College 2008.

David Church Montgomery  (Chemistry)  B.S., University of California, Berkeley 2007.
   Thesis: Improving the Biological Activity of Pyrrole-Imidazole Polyamides.

Matthew Michaels Moore  (Biochemistry and Molecular Biophysics)  B.S., University of California, San Diego 2006.
   Thesis: Applications of Computational Protein Design to Red Fluorescent Proteins.
Doctor of Philosophy  continued

Natalie Bloom Muren  (Chemistry) B.A., Willamette University 2006.
  Thesis: DNA-mediated Charge Transport for Long-range Sensing and Protein Detection.
Arundhati Nag  (Chemistry) B.S., University of Calcutta 2004; M.S., Indian Institute of Technology, Kanpur 2006.
  Thesis: Developing Peptide Based Capture Agents for Diagnostics and Therapeutics.
Roger Rauhauser Nani  (Chemistry) B.S., Boston College 2006.
  Thesis: The Intramolecular Buchner Reaction of α-Diazo-β-Ketonitriles: Development and Application to the Total Synthesis of (+)-Salvileucalin B.
Hosea Martin Nelson  (Chemistry) B.S., City College of San Francisco 2004.
  Thesis: A Unified Synthetic Approach to the Transtaganolide and Basiliolide Natural Products.
Thang Xuan Nguyen  (Chemistry) B.S., University of California, Irvine 2007.
  Thesis: A Study of Protein Targeting Reveals Insights into Mitigating Protein Aggregation.
Young In Oh  (Chemistry) B.S., The University of Chicago 2006.
  Thesis: Synthesis and Biological Activity of Anticoagulant Heparan Sulfate Glycopolymers.
Claude Joseph Rogers  (Chemistry) B.S., University of California, Davis 2003.
  Thesis: Discovery of New Roles for Chondroitin Sulfate in Neurotrophin Signaling and Retinotopic Development.
Elizabeth Anne Santori  (Chemistry) B.S., The University of Chicago 2007.
Kuang Shen  (Chemistry) B.S., University of Science and Technology of China 2007.
  Thesis: Reactions of Small Molecules Facilitated by Metal-Acceptor Interactions.
Christina Lei Ting  (Biochemistry and Molecular Biophysics) B.S., The University of Texas at Austin 2007.
Frank Truong  (Chemical Engineering) B.S., University of Houston 2006; M.S., California Institute of Technology 2008.
  Thesis: Expanding Protein Sequence Space through Incorporation of Non-Canonical Amino Acids.
Matthew Martin Van Wingerden  (Chemistry) B.S., University of Washington 2007.
  Thesis: Improving the Efficiency of Ruthenium-Catalyzed Olefin Metathesis with Solid-Supported Catalysts, Microfluidic Reactors, and Novel X-type Ligands.
Doctor of Philosophy  continued

Emily Lowell Warren  (Chemical Engineering)  B.S., Cornell University 2005; M.Phil., University of Cambridge 2006; M.S., California Institute of Technology 2009.
Thesis: Silicon Microwire Arrays for Photoelectrochemical and Photovoltaic Applications.
Arif Wibowo  (Chemistry)  B.S., University of California, Berkeley 2006.
Devin Thomas Wiley  (Chemical Engineering)  B.S., University of Arizona 2007; M.S., California Institute of Technology 2011.
Thesis: Design of Nanoparticles that Cross the Blood-Brain Barrier by Receptor Mediated Transcytosis.
Heather R. Williamson  (Chemistry)  B.S., University of Alabama 2006.
Thesis: Chemistry of PNP Bis(phosphide) Pincer Ligands -and- Palladium(II) Dimers as Robust, Versatile Precatalysts for Olefin Isomerization, Oligomerization, and Oxidation.
Bin Zhang  (Chemistry)  B.S., University of Science and Technology of China 2007.
Thesis: Sec-facilitated Protein Translocation and Membrane Integration.

DIVISION OF ENGINEERING AND APPLIED SCIENCES

Ahmed Halid Akgiray  (Electrical Engineering)  B.S., Cornell University 2005; M.S., University of Illinois at Urbana-Champaign 2007.
Adrianus Indrat Aria  (Aeronautics)  B.S., Bandung Institute of Technology 2006; M.S., California Institute of Technology 2008.
Hesham Azizgolshani  (Bioengineering)  B.S., University of California, Los Angeles 2006.
Doctor of Philosophy  continued


Fiona Adriani Chandra (Bioengineering) B.S., University of California, Los Angeles 2005.
Thesis: Limits and Tradeoffs in the Control of Autocatalytic Systems.


Keenan Michael Crane (Computer Science) B.S., University of Illinois at Urbana-Champaign 2006; M.S., California Institute of Technology 2010.

Thesis: Synthetic Molecular Machines for Active Self-Assembly: Prototype Algorithms, Designs, and Experimental Study.


Davis Solomon Darvish (Materials Science) B.S., University of California, Berkeley 2006; M.S., California Institute of Technology 2008.
Thesis: Cu2O Substrates and Epitaxial Cu2O/ZnO Thin Film Heterostructures for Solar Energy Conversion.

Doctor of Philosophy  continued

Michael deLorimier (Computer Science) B.S., University of California, Berkeley 2002; M.S., California Institute of Technology 2005.

Theodoros Dikaliotis (Electrical Engineering) B.S., National Technical University of Athens 2004; M.S., California Institute of Technology 2006.

Julien Dubois (Computation and Neural Systems) M.S., Université Pierre et Marie Curie 2005.


Glenn Robert Garrett (Materials Science) B.S., Georgia Institute of Technology 2005; M.S., California Institute of Technology 2013.

Eleftherios E. Gdoutos (Aeronautics) B.S. (Computer Science), B.S. (Mechanical Engineering), Northwestern University 2009; M.S., California Institute of Technology 2010.

Ha Thanh Giang (Mechanical Engineering) B.S., Vietnam National University 2004; M.S., California Institute of Technology 2007.

Alex Gittens (Applied and Computational Mathematics) B.S., University of Houston 2006.
Thesis: Topics in Randomized Numerical Linear Algebra.

Ragavendran Gopalakrishnan (Computer Science) B.Tech., Indian Institute of Technology, Madras 2008; M.S., California Institute of Technology 2010.


Paul Hebert (Mechanical Engineering) B.E., McGill University 2006; M.S., California Institute of Technology 2007.
Jeffrey Thomas Hill (Applied Physics) B.A.Sc., University of Waterloo 2006; M.S., California Institute of Technology 2012.
Thesis: Nonlinear Optics and Wavelength Translation via Cavity-Optomechanics.

Meisam Honarvar Nazari (Electrical Engineering) B.Sc., University of Tehran 2006; M.S., M.A.Sc., University of Toronto 2008; M.S., California Institute of Technology 2009.
Thesis: Electrical and Optical Interconnects for High-Performance Computing.


Ian Jacobi (Aeronautics) S.B., Massachusetts Institute of Technology 2006; M.S., California Institute of Technology 2008.
Thesis: Structure of the Turbulent Boundary Layer under Static and Dynamic Impulsive Roughness Perturbation.


Gwendolyn Brook Johnson (Aeronautics) S.B., Massachusetts Institute of Technology 2008; M.S., California Institute of Technology 2009.

Justin Young-Hyun Kim (Electrical Engineering) B.S., Korea University 1999; M.S., 2001; M.S., California Institute of Technology 2007.

Ka Wai Kwok (Aeronautics) B.S., Lehigh University 2007; M.S., California Institute of Technology 2009.


Thesis: On Erasure Coding for Distributed Storage and Streaming Communications.

Jiang Li  (Applied Physics)  B.S., Peking University 2007; M.S., California Institute of Technology 2012.

Na (Lina) Li  (Control and Dynamical Systems)  B.S., Zhejiang University 2007.

Minghong Lin  (Computer Science)  B.E., University of Science and Technology of China 2006; M.Phil., The Chinese University of Hong Kong 2008; M.S., California Institute of Technology 2011.
Thesis: Algorithmic Challenges in Green Data Centers.

Annie Hsin-Wen Liu  (Computer Science)  B.E., University of Washington 2007; M.S., California Institute of Technology 2010.

Chih-Hao Liu  (Electrical Engineering)  B.S., National Tsing Hua University 2003; M.S., National Taiwan University 2005; M.S., California Institute of Technology 2011.

Loh Rui Yan, Matthew  (Electrical Engineering)  B.S., Lafayette College 2004; M.S., California Institute of Technology 2009.

Alejandro Lopez Ortega  (Aeronautics)  Ingeniero Aeronáutico, Universidad de Sevilla 2008; M.S., California Institute of Technology 2009.


Doctor of Philosophy continued


Jonathan Michael Mihaly (Aeronautics) B.S., Syracuse University 2007; M.S., California Institute of Technology 2008.

Himanshu Mishra (Materials Science) B.Eng., Panjab University 2005; M.S., Purdue University 2007; M.S., California Institute of Technology 2010.
Thesis: Proton Transfers at the Air-Water Interface.

Robert Carlos Moeller (Mechanical Engineering) B.S., University of Southern California 1999; M.S., California Institute of Technology 2001.


Jacob K. Notbohm (Mechanical Engineering) B.S., University of Wisconsin-Madison 2007; M.S., California Institute of Technology 2009.

Clara O’Farrell (Control and Dynamical Systems and Aeronautics) B.E., Princeton University 2008.

Tae-Sik Oh (Materials Science) B.S., Seoul National University 2004; M.S., 2006; M.S., California Institute of Technology 2008.

Niema Mohammed Pahlevan (Bioengineering) B.S., University of Tehran 2001; M.S., California State University, Northridge 2007.
Thesis: A Systems Approach to Cardiovascular Health and Disease with a Focus on Aortic Wave Dynamics.

Doctor of Philosophy  continued

Shuo Pang  (Electrical Engineering)  B.S., Tsinghua University 2006; M.S., Texas A&M University 2008; M.S., California Institute of Technology 2013.
Thesis: Fluorescence Optofluidic Microscopy and Fluorescence Microscopy Based on the Talbot Effect.

Chatr Panithipongwut  (Materials Science)  B.S., Chulalongkorn University 2006; M.S., California Institute of Technology 2009.


Gregory Schoelerman Pomrehn  (Materials Science)  B.S., Harvey Mudd College 2004; M.S., California Institute of Technology 2010.
Thesis: Phase Stability and Defect Behavior in Complex Thermoelectric Zinc-Antimonides.

Jian Ren  (Electrical Engineering)  B.E., Tsinghua University 2001.


Damon Stuart Russell  (Electrical Engineering)  B.S., University of California, Santa Barbara 1995.

Thesis: Quantum Optomechanics with Silicon Nanostructures.


Thesis: Stochastic Simulation of the Kinetics of Multiple Interacting DNA Strands.

Jacob Benjamin Sendowski  (Electrical Engineering)  B.S., University of California, San Diego 2007; M.S., California Institute of Technology 2009.
Doctor of Philosophy  continued

Wendian Shi  (Electrical Engineering)  B.S., Peking University 2004; M.S., 2007; M.S., California Institute of Technology 2008.

Matthew Alexander Smith  (Bioengineering)  B.S., Oxford University 2008.
Thesis: Non-Contiguous Protein Recombination.

Somayeh Sojoudi  (Control and Dynamical Systems)  B.S., Shahed University 2005; M.S., Concordia University 2008.
Thesis: Mathematical Study of Complex Networks: Brain, Internet, and Power Grid.

Surendra Nadh Somala  (Civil Engineering)  B.Tech., Indian Institute of Technology, Guwahati 2008; M.S., California Institute of Technology 2009.
Thesis: Source Imaging with Dense Sensor Networks: Inversions Based on Adjoint Methods.

Nicholas P. Stadie  (Materials Science)  B.S., Arizona State University 2007; M.S., California Institute of Technology 2008.

Jonathan Ben-Zion Sternberg  (Bioengineering)  B.S., University of California, Berkeley 2006.
Thesis: Signal Transduction with Hybridization Chain Reactions.

Peter Stobbe  (Applied and Computational Mathematics)  B.S., California Institute of Technology 1999.
Thesis: Convex Analysis for Minimizing and Learning Submodular Set Functions.


Peter Trautman  (Control and Dynamical Systems)  B.S., Baylor University 2000.

Thesis: Wire Array Photovoltaics.

Aron Varga  (Materials Science)  M.S., University of Cambridge 2007; M.S., California Institute of Technology 2009.
Doctor of Philosophy  continued

    Thesis: The Optoelectronic Swept-Frequency Laser and Its Application in Ranging, Three-
dimensional Imaging, and Coherent Beam Combining of Chirped-seed Amplifiers.

Ying Min Wang  (Bioengineering)  B.S.E., Duke University 2006.

Zhiying Wang  (Electrical Engineering)  B.E., Tsinghua University 2007; M.S., California Institute of
Technology 2009.
    Thesis: Coding for Information Storage.

Peter Thomas Weir  (Computation and Neural Systems)  B.A., University of California, Berkeley
2004.

Robert Wells Whittlesey  (Aeronautics)  B.S.  (Aeronautical Engineering), B.S.  (Mechanical
Engineering), Illinois Institute of Technology 2008; M.S., California Institute of Technology
2009.
    Thesis: Dynamics and Scaling of Self-Excited Passive Vortex Generators for Underwater
Propulsion.

Sungwook Woo  (Bioengineering)  B.S., Pohang University of Science and Technology 2007; 
    Thesis: Beyond Watson and Crick: Programming the Self-Assembly and Reconfiguration of
DNA Nanostructures Based on Stacking Interactions.

Indira Wu  (Bioengineering)  B.S., Columbia University 2006.

Huan Xu  (Mechanical Engineering)  S.B., Harvard College 2007; M.S., California Institute of
Technology 2008.

Guoan Zheng  (Electrical Engineering)  B.S., Zhejiang University 2007; M.S., California Institute of
Technology 2008; M.S., California Institute of Technology 2008.
    Thesis: Innovations in Imaging System Design: Gigapixel, Chip-Scale and Multi-Functional
Microscopy.

Hongchao Zhou  (Electrical Engineering)  B.S., Tsinghua University 2006; M.S., 2008; M.S., 
California Institute of Technology 2009.
**Doctor of Philosophy continued**

DIVISION OF GEOLOGICAL AND PLANETARY SCIENCES


Kristin Diane Bergmann (Geology) B.A., Carleton College 2004; M.S., California Institute of Technology 2011.

Thesis: Constraints on the Carbon Cycle and Climate during the Early Evolution of Animals.

Melanie Beth Channon (Geochemistry) B.S., Arizona State University 2007; M.S., California Institute of Technology 2010.

Thesis: Oxygen Isotopes and Volatiles in Martian Meteorites.

Steven Michael Chemtob (Geochemistry) B.A., Washington University 2006; M.S., California Institute of Technology 2008.

Thesis: The Origin and Evolution of Amorphous Silica Coatings on Young Hawaiian Basalts.

Yi-Chun Chen (Environmental Science and Engineering) B.S., National Taiwan University 2006.


Anne Elizabeth Dekas (Geobiology) A.B., Harvard College 2004.


Lauren Ashley Edgar (Geology) B.A., Dartmouth College 2007; M.S., California Institute of Technology 2009.


Emily A. Hamecher (Geology) B.A., Humboldt State University 2007; M.S., California Institute of Technology 2009.


Thesis: Dynamics of Earth’s Hadley Circulation.

King-Fai Li (Environmental Science and Engineering) B.S., The Chinese University of Hong Kong 2004; M.Phil., 2006.

Thesis: Atmospheric Trace Gases as Probes of Chemistry and Dynamics.

Yunung Nina Lin (Geology) B.A., National Taiwan University 2003; M.S., 2005; M.S., California Institute of Technology 2013.


Lingsen Meng (Geophysics) B.S., Nanjing University 2007; M.S., California Institute of Technology 2009.

Francisco Hernan Ortega Culaciati (Geophysics and Computational Science and Engineering) B.Sc., Universidad de Chile 2005; M.S., California Institute of Technology 2008.


Belle Philibosian (Geology) B.S., California Institute of Technology 2005; M.S., University of Oregon 2007.

Kristin Phillips-Alonge (Geophysics) B.S., University of California, San Diego 2006; M.S., California Institute of Technology 2009.
Thesis: Structure of the Subduction System in Southern Peru from Seismic Array Data.

Steven Michael Skinner (Geology) B.A., B.S., University of California, Los Angeles 2006.
Thesis: Plate Tectonic Constraints on Flat Subduction and Paleomagnetic Constraints on Rifting.

Claire Waller Thomas (Geology) B.S., Virginia Polytechnic Institute and State University 2008; M.S., California Institute of Technology 2011.

Jeffrey Muir Thompson (Geophysics and Civil Engineering) B.S., University of Southern California 2008; M.S., California Institute of Technology 2010.

Yu Wang (Geology) B.S., National Taiwan University 2001; M.S., 2002.

June Ki Wicks (Geochemistry) B.S., California Institute of Technology 2008; M.S., California Institute of Technology 2010.
Thesis: Sound Velocities and Equation of State of Iron-Rich (Mg,Fe)O.
Thesis: Defining the Relationship between Seismicity and Deformation at Regional and Local Scales.

Aaron S. Wolf  (Planetary Science) B.S. (Earth Sciences), B.S. (Physics), University of California, Santa Cruz 2005; M.S., California Institute of Technology 2009.

Lindsay Diana Yee  (Environmental Science and Engineering) B.S., University of California, Riverside 2008; M.S., California Institute of Technology 2010.

Xi Zhang  (Planetary Science) B.S., Peking University 2007; M.S., California Institute of Technology 2009.

DIVISION OF HUMANITIES AND SOCIAL SCIENCES

Dustin Beckett  (Social Science) B.A., Claremont McKenna College 2004; M.S., California Institute of Technology 2008.


Benjamin Bushong  (Social Science) B.S., University of Oregon 2007.

Mürüvvet Ilknur Büyükboyaci Hanay  (Social Science) B.S., Bilkent University 2005; M.A., Sabanci University 2007.
Thesis: Essays on Contests, Coordination Games, and Matching.

Peter William Foley  (Social Science) B.S., California Institute of Technology 2006; M.S., 2010.


Emerson Cristian Melo Sanchez  (Social Science) B.S., Universidad de Chile 2005; M.S., 2006.

Guilherme Pereira De Freitas  (Social Science) B.S., Universidade de Brasilia 2004; M.Sc., Intituto Nacional de Matemática Pura e Aplicada 2007.

Nilanjan Roy  (Social Science) B.Sc., Presidency College, University of Calcutta 2006; M.S., Indian Statistical Institute 2008; M.S., California Institute of Technology 2010.
Thesis: Essays on Cooperation and Reciprocity.
Doctor of Philosophy continued

Thomas Gorden Ruchti (Social Science) B.S., Ohio University 2008; M.S., California Institute of Technology 2010.
John Andrew Sinclair (Social Science) B.A., Claremont McKenna College 2008; M.S., California Institute of Technology 2010.

DIVISION OF PHYSICS, MATHEMATICS AND ASTRONOMY

   Thesis: Testing Inflationary Cosmology with the BICEP1 and BICEP2 Experiments.
Daniel James Alton (Physics) B.Sc., University of Western Australia 2005; B.Sc., Australian National University 2006; M.S., California Institute of Technology 2012.
   Thesis: Completing $\mathcal{E}$-dense Partial Latin Squares.
Peter Bernard Brooks (Physics) B.S., Stanford University 2007.
Branimir Josip Ćaćić (Mathematics) B.Sc., University of Toronto 2007.
Sha Chang (Mathematics) B.S., Nanjing University 2007.
Kevin T. Engel (Physics) B.A., B.S.E., Case Western Reserve University 2007.
   Thesis: Charged Pion Contribution to the Anomalous Magnetic Moment of the Muon.
Vera Gluščević (Astrophysics) B.Sc., University of Belgrade 2007; M.S., California Institute of Technology 2009.
   Thesis: CMB as a Probe of New Physics and Old Times.
   Thesis: Lattice Quantum Codes and Exotic Topological Phases of Matter.
Kevin Peter Hickerson (Physics) B.S., California Institute of Technology 2002; M.S., 2011.
   Thesis: Determinantal Hypersurface from a Geometric Perspective.
Doctor of Philosophy  continued

Shankar Iyer  (Physics)  A.B., Princeton University 2007; M.S., California Institute of Technology 2011.  

Tucker Jones  (Astrophysics)  S.B., Massachusetts Institute of Technology 2007; M.S., California Institute of Technology 2009.  

Scott Ian Kelber  (Physics)  B.A. (Economics), B.A. (Physics), The University of Chicago 2006; M.S., California Institute of Technology 2013.  

Isaac Hyun Kim  (Physics)  S.B., Massachusetts Institute of Technology 2007.  

David Benjamin Levitan  (Physics)  B.A., Cornell University 2006.  

Xerxes F. López-Yglesias  (Physics)  B.S., University of California, Santa Barbara 2002; M.S., California Institute of Technology 2005.  

Chao Ma  (Physics)  B.S., Beijing Institute of Technology 2007; M.S., California Institute of Technology 2010.  
Thesis: Single Cell Proteomics Microchip to Profile Immune Function, with Applications in Stem Cell Biology, Translational Disease Mechanism Study and Clinical Therapeutics Monitoring.


Thesis: Measurement of Thermo-Optic Properties of Thin Film Dielectric Coatings.

Piti Ongmongkolkul  (Physics)  B.S., Carnegie Mellon University 2006.  
Thesis: Measurement of Direct CP Asymmetry in $b \rightarrow s \gamma$ via Sum of Exclusive B Meson Decays Using the BABAR Detector.
Laura María Pérez Muñoz (Astrophysics) B.S., Universidad de Chile 2005; M.S., 2006; M.S., California Institute of Technology 2008.  
Thesis: Grain Growth in Protoplanetary Disks.

Laura Rebecca Rynne Peskin (Mathematics) B.A., Columbia University 2008.  

Christopher S. Rogan (Physics) A.B., Princeton University 2006; M.S., California Institute of Technology 2009.  
Thesis: Searches for New Symmetries in pp Collisions with the Razor Kinematic Variables at √s = 7 TeV.

Thesis: The Intergalactic and Circumgalactic Medium Surrounding Star-Forming Galaxies at Redshifts 2<Z<3.

Thesis: Topological Quantum Field Theory and the Geometric Langlands Correspondence.

Thesis: Geometric Quantization and Foliation Reduction.

Marcus Lawrence Teague (Physics) B.S., Texas A&M University 2003.  

Kevin Kai-Wen Teh (Mathematics) B.A.Sc., University of Toronto 2007; M.Sc., 2008.  

Vladlen Timciuc (Physics) B.S., Moscow Institute of Physics and Technology 2003; M.S., 2005; M.S., California Institute of Technology 2009.  
Thesis: Search for Heavy Neutral Resonances in the Dielectron Channel with the CMS Detector at the LHC.

Hei Man Tsang (Physics) B.Sc., University of Hong Kong 2005; M.Phil., 2007.  

Chien-Yao Tseng (Physics) B.S., National Taiwan University 2004; M.S., 2005.  
Thesis: Deviation from Standard Inflationary Cosmology and the Problems in Ekpyrosis.

Robin Daniel Tucker-Drob (Mathematics) B.S., Tulane University 2008.  
Doctor of Philosophy  continued

Michel van Garrel (Mathematics)  B.S., Swiss Federal Institute of Technology 2006; M.S., 2008.  

Thesis: Studies of Zgamma Production and Constraints on Anomalous Triple Gauge Couplings in pp Collisions at $\sqrt{s} = 7$ TeV.

Christopher Wegg (Physics) M.S., University College London 2003.  
Thesis: The Dynamics of White Dwarfs, Black Holes and Stellar Cusps.

Wong, Wing Hong Tony (Mathematics)  B.S., The Chinese University of Hong Kong 2008; B.S., University of California, Berkeley 2008.  
Thesis: Diagonal Forms, Linear Algebraic Methods and Ramsey-type Problems.

Huan Yang (Physics) B.S., California Institute of Technology 2007.  

Yong Yang (Physics)  B.S., University of Science and Technology of China 2005; M.S., California Institute of Technology 2009.  
Thesis: Search for a Standard Model Higgs Boson Decaying to Two Photons in CMS at the LHC.

Aaron Benjamin Zimmerman (Physics)  B.S., The University of New Mexico 2008; M.S., California Institute of Technology 2012.  
PRIZES AND AWARDS

Prizes and awards are listed only for those students receiving degrees in 2013, and include prizes and awards received by them in previous years.

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.

2013  Avin Daniel Andrade, Juan Diego Caporale

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.

2013  Catherine Bingchan Xie

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

2013  Andrew Joseph Zucker

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.

The prizes above are announced at the commencement ceremony.
AXLINE MERIT SCHOLARSHIP
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.

2007  Jessica Tsu-Yun Su  
2008  Jessica Tsu-Yun Su  
2010  Jessica Tsu-Yun Su  
2011  Jessica Tsu-Yun Su  
2012  Jessica Tsu-Yun Su

ADVOCATING CHANGE TOGETHER (ACT) AWARD
The Caltech Y ACT Award allows students to learn about a global, national, or local issue by immersing themselves with activists working on a cause over the summer and then challenges them to educate others by creating and leading programs designed to raise awareness on campus the following year.

2012  Amol Deepak Kamat

APOSTOL AWARD FOR EXCELLENCE IN TEACHING IN MATHEMATICS
Named in honor of Tom Apostol, who was a great teacher at Caltech for over 50 years, the award recognizes excellence in teaching by our graduate and undergraduate teaching assistants.

2010  Wong, Wing Hong Tony  
2011  Padraic James Bartlett, Kevin Kai-Wen Teh, Michel van Garrel  
2012  Laura Rebecca Rynne Peskin  
2013  Branimir Josip Ćačić

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.

2009  Ian Jacobi  
2010  Bharat Prasad Penmecha
ROBERT P. BALLES 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.
2012  Ryan Thorngren

WILLIAM F. BALLHAUS PRIZE
Awarded to aeronautics students for outstanding doctoral dissertations.
2013  Adrianus Indrat Aria, Alejandro Lopez Ortega

ERIC TEMPLE BELL UNDERGRADUATE MATHEMATICS RESEARCH PRIZE
Awarded to one or more juniors or seniors for outstanding original research in mathematics.
2013  Andrew Joseph Zucker

BHANSALI PRIZE IN COMPUTER SCIENCE
Awarded to an undergraduate student for outstanding research in computer science in the current academic year. Awardees are selected by a committee of computer science faculty. (The award was established in 2001 by Vineer Bhansali (BS, MS 1987 Physics) in memory of his grandfather, Mag Raj Bhansali.)
2013  Eun Jee Lee

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.
2010  Haoyang Ren

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
2013  Remi Arthur Carmigniani
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.
2012  Kevin Michael Sutherland

CALTECH ALUMNI ASSOCIATION SPIRIT AWARD
Commemorates extraordinary activities by Caltech undergraduate students, graduate students, and postdoctoral scholars who best exemplify the spirit, tradition, and values of Caltech. This Award is given only when the Association finds that exceptional activities have occurred which merit this special recognition.
2012  Raymond Christian Jimenez, Rebecca Jean Lawler, Sebastián Rojas Mata, Ryan Thorngren

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.
2013  Mulin Cheng, Michael B. McCoy

CENTENNIAL PRIZE FOR THE BEST THESIS IN MECHANICAL AND CIVIL ENGINEERING
Awarded each year to a candidate for the degree of Doctor of Philosophy in applied mechanics, civil engineering, or 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 and civil engineering. The prize consists of a citation and a cash award of $1,000 and was established with gifts from alumni following the Mechanical Engineering Centennial Celebration in 2007.
2013  Jacob K. Notbohm

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.
2013  Ian Jacobi
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.
2011  Avin Daniel Andrade, Matthew Kuenzli Fu

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.
2013  Ian Jacobi, Robert Wells Whittlesey

DEANS’ CUP AND STUDENT LIFE AND MASTER’S AWARDS
Two awards, selected by the deans, the director of student 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.
2012  Kristen Marie Holtz, Deans’ Cup
2013  Christopher Forrest Kolner, Deans’ Cup
        Supriya Iyer, Student Life and Master’s
        Stephanie Ya-Wen Kwan, Student Life and Master’s
        Alan Joseph Menezes, Student Life and Master’s
        Collin Michael Murphy, Student Life and Master’s

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 prize is made possible by a gift from Anna Kokkalis Demetriades and Sterge T. Demetriades, Eng ’58.
2011  Fiona Adriani Chandra
2013  Pedro de Souza Leao Coelho
DEMETRIADES-TSAFKA-KOKKALIS PRIZE IN ENTREPRENEURSHIP OR RELATED FIELDS
Awarded annually for the best business plan or proposal, start-up, thesis, publication, discovery, or related efforts by student(s) in entrepreneurship 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.
2013  Guoan Zheng

DEMETRIADES-TSAFKA-KOKKALIS PRIZE IN ENVIRONMENTALLY 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.
2013  James Robert McKone

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.
2013  Janna C. Nawroth

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.
2009  Emily Lowell Warren
2012  Matthew Reed Shaner
EVERHART DISTINGUISHED GRADUATE STUDENT LECTURER AWARD
Awarded to a graduate student who has demonstrated exemplary presentation ability and graduate research.

2012  Keenan Michael Crane, Adler R. Dillman, Janna C. Nawroth
2013  Elaine Yi-Nien Hsiao, James Robert McKone, Piya Pal

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

2013  Nikita Sinha

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.

2013  Adler R. Dillman

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.

2012  Judy Mou

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.

2012  Matthew Zoccoli Mayers
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.
2013  Jill Suzanne Craven, Daniel B. Turner-Evans

GEORGE W. AND BERNICE E. GREEN MEMORIAL PRIZE
Awarded to the undergraduate student who, in the opinion of the division chairs, has shown outstanding ability and achievement in creative scholarship.
2013  Megan Nora Jackson

DAVID M. GREther PRIZE IN SOCIAL SCIENCE
Awarded to the undergraduate student who demonstrates outstanding performance and creativity in one of the social science options. Funded by Susan G. Davis in recognition of David M. Grether's contributions to econometrics and experimental economics and his service to the Division of the Humanities and Social Sciences, the prize is awarded annually by a committee of social science faculty and carries a cash award of $500.
2013  Tong Lu

THE 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.
2013  Susan Elizabeth Liao, Eric B. Zhang

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.
2012  Megan Nora Jackson
ALEXANDER P. AND ADELAIDE F. HIXON PRIZE FOR WRITING
Awarded annually in recognition of the best writing in freshman humanities courses.

2011 Michelle Esther Bobrow

HANS G. HORNUNG PRIZE
Awarded for the best oral Ph.D. defense presentation by a student advised by aerospace faculty. The decision is made by a committee of students who attend all thesis presentations for the year.

2013 Niema Mohammed Pahlevan

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.

2012 Sebastián Rojas Mata
2013 Sarah Louise Wright

SCOTT RUSSELL JOHNSON GRADUATE DISSERTATION PRIZE IN MATHEMATICS
Awarded for the best graduate dissertation in mathematics.

2013 Laura Rebecca Rynne Peskin, Robin Daniel Tucker-Drob

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.

2010 Padraic James Bartlett
2012 Robin Daniel Tucker-Drob
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.
2013 Ryan Thorngren

SCOTT RUSSELL JOHNSON PRIZE FOR EXCELLENCE IN GRADUATE TEACHING IN MATHEMATICS
Awarded to continuing graduate students for excellence in teaching.
2012 Wong, Wing Hong Tony

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.
2009 Alejandro Lopez Ortega
2013 Melanie Delapierre

D. S. KOTHARI PRIZE IN PHYSICS
Awarded to a graduating senior in physics who has produced an outstanding research project during the year.
2013 Rebecca Ann Wernis

MARGIE LAURITSEN LEIGHTON PRIZE
Awarded to one or two undergraduate women who are majoring in physics or astrophysics, and who have demonstrated academic excellence.
2011 Nina Budaeva

THE LEMELSON-CALTECH STUDENT PRIZE
Awarded through an annual competition to a senior or graduate student who has created or improved a product or process, applied a technology in a new way, redesigned a system, or in other ways demonstrated remarkable inventiveness.
2011 Guoan Zheng
LIBRARY FRIENDS’ SENIOR THESIS PRIZE
This prize was established in 2010 to recognize a senior thesis that exemplifies scholarly research, including the effective use of library resources and other bibliographic materials. A $1,200 cash award accompanies the citation. The senior thesis is an extensive, independent written work usually undertaken during a senior thesis course series. The University Librarian and the Friends of Caltech Libraries oversee the evaluation and nomination process and make recommendations to the Undergraduate Academic Standards and Honors Committee for final selection. At the discretion of the Friends of Caltech Libraries, more than one award, or none, may be made in any year.

2013  Karolina Z. Kalbarczyk

MARI PETERSON LIGOCKI ('81) MEMORIAL AWARD
Awarded to a student who has improved the quality of student life at Caltech through his or her personal character.

2013  Vishnu Manoranjan

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.

2007  Jessica Tsu-Yun Su
2008  Jessica Tsu-Yun Su
2010  Jessica Tsu-Yun Su
2011  Jessica Tsu-Yun Su
2012  Jessica Tsu-Yun Su
MECHANICAL ENGINEERING AWARD
Awarded to a candidate for the degree of Bachelor of Science in mechanical engineering whose academic performance has demonstrated outstanding original thinking and 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.
2013 Matthew Kuenzli Fu, Anum Jang Sher

GORDON MCCLURE MEMORIAL COMMUNICATIONS PRIZE
Awarded to undergraduate students for excellence in essay writing in three subjects: English, history, and philosophy.
2012 Nerissa Emmy Graetz Hoglen, Blaine Roger Matulevich
2013 Shayan Doroudi, Vishnu Manorjan

THE HERBERT NEWBY MCCOY AWARD
Awarded to chemistry doctoral students for outstanding contributions to the science of chemistry.
2013 Pedro de Souza Leao Coelho, Benjamin Keith Keitz, Kuang Shen, Bin Zhang

JAMES MICHELIN SCHOLARSHIP
Given in memory of geologist James Michelin, who worked in the oil fields of Southern California in the 1930s and dreamed of returning to college at Caltech, this annual award recognizes undergraduate students for their contributions to the field of geology or geophysics.
2013 Kevin Michael Sutherland

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.
2013 Matthew Kuenzli Fu, Sebastián Rojas Mata, Mario Victor Zubia
PRESIDENT’S SCHOLARS
This scholarship, which is renewable contingent on academic performance, is awarded to selected freshmen to promote the breadth and diversity of the Caltech undergraduate student body.

2008  Marcus Aaron Lucas

HERBERT J. RYSER MEMORIAL SCHOLARSHIPS
Awarded to undergraduate students for academic excellence, preferably in mathematics.

2012  Ryan Thorngren, Saraswathi Joy Venkatesh, Andrew Joseph Zucker
2013  Zhengyang Jiang

SAN PIETRO TRAVEL PRIZE
Awarded to one or more sophomore, junior, or senior to fund an adventurous and challenging summer travel experience that expands the recipient’s cultural horizons and knowledge of the world.

2011  Mohit Tiwari
2012  Carly Mariah Bond, Catherine Bingchan Xie
2013  Chang Sub Kim, Melody Ann Morris, Geunwook Paek

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.

2013  Megan Nora Jackson, Matthew Zoccoli Mayers

ELEANOR SEARLE PRIZE IN LAW, POLITICS, AND INSTITUTIONS
The Eleanor Searle Prize was established in 1999 by friends and colleagues to honor Eleanor Searle. The prize is 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.

2013  Zeke Millikan
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.

2010  Jonathan Michael Mihaly
2011  Jason Scott Damazo
2012  Prakhar Mehrotra
2013  Nicholaus Joseph Parziale

RENUKA D. SHARMA AWARD
Awarded to a sophomore chemistry major for outstanding performance during his or her freshman year.

2011  Megan Nora Jackson
2012  Seohyun Kim

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.

2009  Geunwook Paek
2010  Blaine Roger Matulevich, Matthew Zoccoli Mayers
2012  Lucia Minjung Ahn, Timothy Meyer, HongAn Thuy Nguyen, Irene Chiyun Yang, Vivian Zhang
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.

2009    Christopher S. Rogan
2011    Piti Ongmongkolkul
2012    Kevin Thomas Engel, Jeongwan Haah

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

2008    Gjergji Zaimi

CHARLES AND ELLEN WILTS PRIZE
Awarded to a graduate student for outstanding independent research in electrical engineering leading to a Ph.D.

2013    Hongchao Zhou

FREDERICK J. ZEIGLER MEMORIAL AWARD
Awarded to an outstanding sophomore or junior in pure 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.

2011    Matthew Zoccoli Mayers
2012    Geunwook Paek
THE MEANING OF ACADEMIC DRESS

The costumes of those in the academic procession have a specific symbolism that dates back to at least the 14th century. Academic institutions in the United States adopted a code of academic dress in 1895 that has been revised from time to time. The dress of institutions in other countries varies, and there is not a worldwide code, but the basic elements are present in all academic costumes.

Caltech’s David Elliot (1917-2007), professor of history, emeritus, wrote the following about academic costumes:

“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. . . .

“With this color and symbolism, which is medieval 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.”
ODE TO JOY

Text of Beethoven Ninth Symphony excerpt, after the poem “An die Freude (“To Joy”) by Johann Christoph Friedrich von Schiller (1759-1805)

Freude, schöner Götterfunken
Joy, beautiful spark of the gods
Tochter aus Elysium,
Daughter of Elysium,
Wir betreten feuertrunken,
We enter, drunk with fire,
Himmlische, dein Heiligtum!
Heavenly one, your sanctuary!
Deine Zauber binden wieder
Your magic reunites
Was die Mode streng geteilt;
What custom strictly divided.
Alle Menschen werden Brüder,
All men will become brothers,
Wo dein sanfter Flügel weilt.
Where your gentle wing rests.

Wem der große Wurf gelungen,
Whoever has had the great fortune
Eines Freundes Freund zu sein;
To be a friend’s friend,
Wer ein holdes Weib errungen,
Whoever has married a beloved wife,
Mische seinen Jubel ein!
Let him mix in his jubilation!
Ja, wer auch nur eine Seele
Indeed, whoever can call even one soul
Sein nennt auf dem Erdenrund!
His own on this round earth!
Und wer’s nie gekonnt, der stehe
And whoever was never able to, must creep
Weinend sich aus diesem Bund!
Tearfully away from this band!
HAIL CIT
(\textit{Caltech alma mater})
by Manton Barnes, B.S. ’21

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.
Congratulations to today’s graduates. We welcome you to the family of Caltech alumni!

For more than 100 years, Caltech’s alumni have gone forward from this day to make a positive impact in the world. We know this year’s class will do the same, and that future Techers will be inspired by the achievements of the Class of 2013.

Your Caltech degree offers you a place among—and access to—one of the most accomplished alumni networks of any institution, with more than 22,000 graduates around the world. The Caltech Alumni Association, in partnership with Caltech, works to help you realize the full potential of that network, personally and professionally.

Graduates, your alumni community is proud of you. We encourage you to venture out to explore, invent, build, and innovate. Follow your passion, and in turn, make the world a better place.

Heather Dean, BS ’00, MS ’00
President, Board of Directors
Caltech Alumni Association
alumni.caltech.edu
SERVICES FOR COMMENCEMENT GUESTS

- PUBLIC TELEPHONES are available in Baxter Hall.
- RESTROOMS are available in Baxter Hall, Beckman Labs, and Dabney Hall.
- FIRST AID SERVICES are available at the information booth.
- LOST AND FOUND items may be reported and/or claimed at the information booth.

ATHENAEUM luncheon tickets will be on sale at the information booth from 8 to 10 a.m.

SPECIAL SERVICES FOR PERSONS WITH DISABILITIES

- ASSISTIVE LISTENING DEVICES are available at the information booth. A driver’s license or state-issued ID card is required.
- LARGE-TYPE PROGRAMS (abridged) are available at the information booth.
- 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 floors of Dabney Hall and Baxter Hall.
The passing of the torch symbolizes the spirit of research going from one hand to the next, from one generation to the next, from youth to maturity.