Trustees, Administration, Faculty



OFFICERS

Kent Kresa, Chairman David L. Lee, Vice Chairman

Jean-Lou Chameau, President Edward M. Stolper, Provost

Dean W. Currie Vice President for Business and

Finance Charles Elachi

> Vice President and Director, Jet Propulsion Laboratory

Sandra Ell

Chief Investment Officer

Peter D. Hero

Vice President for

Development and Alumni

Relations

Sharon E. Patterson

Associate Vice President for Finance and Treasurer

Anneila I. Sargent

Vice President for Student Affairs

Mary L. Webster Secretary

Harry M. Yohalem

General Counsel

BOARD OF TRUSTEES

Trustees

(with date of first election)

Robert C. Bonner (2008)

Senior Partner

Sentinel HS Group, L.L.C.

Brigitte M. Bren (2009)

John E. Bryson (2005)

Chairman and CEO (Retired) Edison International

Jean-Lou Chameau (2006)

President California Institute of Technology

Milton Chang (2005)

Managing Director

Incubic Venture Capital

John S. Chen (2008)

Chairman, CEO, and President Sybase, Inc.

Robert B. Chess (2006)

Chairman

Nektar Therapeutics

Lounette M. Dyer (1998)

Gilad I. Elbaz (2008)

Founder

Factual Inc.

William T. Gross (1994)

Chairman and Founder

Idealab

Frederick J. Hameetman (2006) Chairman

Cal American

Robert T. Jenkins (2005)

Peter D. Kaufman (2008)

Chairman and CEO

Glenair, Inc.

Jon Faiz Kayyem (2006)

Managing Partner

Efficacy Capital Ltd.

Louise Kirkbride (1995)

Board Member

State of California Contractors

State License Board

Kent Kresa (1994) Chairman Emeritus

Northrop Grumman Corporation

Jon B. Kutler (2005)

Chairman and CEO

Admiralty Partners, Inc.

Louis J. Lavigne Jr. (2009)

Management Consultant

Lavigne Group David Li Lee (2000)

Managing General Partner Clarity Partners, L.P.

York Liao (1997)

Managing Director

Winbridge Company Ltd.

Alexander Lidow (1998)

CEO

EPC Corporation

Ronald K. Linde (1989)

Independent Investor

Chair: The Ronald and Maxine

Linde Foundation

Founder/Former CEO

Envirodyne Industries, Inc.

Shirley M. Malcom (1999)

Director, Education and Human

Resources Programs

American Association for the Advancement of Science

Deborah McWhinney (2007)

President

Citi Personal Wealth Management Citigroup, Inc.

Capital Research and Management Lewis W. van Amerongen (2004) LvA Enterprises, Inc. Gayle E. Wilson (1995) Nonprofit Consultant

Suzanne H. Woolsey (2006) Corporate Governance Consultant Senior Trustees (with date of first election and date of election as Senior Trustee) Gordon M. Binder (1995, 2007) Managing Director Coastview Capital Harold Brown (1969, 1999) President Emeritus Counselor Center for Strategic and International Studies (CSIS) Walter Burke (1975, 1994) Treasurer Sherman Fairchild Foundation, William H. Davidow (1996, 2007) Founding Partner Mohr Davidow Ventures Thomas E. Everhart (1998, 2004) President Emeritus California Institute of Technology Arthur L. Goldstein (1995, 2007) Chairman and CEO (Retired) Ionics, Inc. Shirley M. Hufstedler (1975, 1997) Senior Of Counsel Morrison & Foerster Bobby R. Inman (1989, 2003) Professor, Lyndon B. Johnson Centennial Chair in National Policy Interim Dean, LBJ School of Public Affairs The University of Texas at Austin A. Michael Lipper (2005, 2007) President and CEO Lipper Advisory Services, Inc. Gordon E. Moore (1983, 2001) Chairman Emeritus Chairman Emeritus Intel Corporation Stanley R. Rawn Jr. (1974, 2000) Private Investor Stewart A. Resnick (2005, 2008) Chairman Roll International Corp. Walter L. Weisman (1988, 2007) Former Chairman and CEO American Medical International. Inc.

Jay S. Wintrob (2007) President and CEO

AIG Retirement Services, Inc.

Virginia V. Weldon (1996, 2007) Senior Vice President for Public Policy (Retired) Monsanto Company

Life Trustees

(with date of first election and date of election as Life Trustee)

George L. Argyros (1992, 2008)

Chairman and CEO

Arnel and Affiliates

Stephen D. Bechtel Jr. (1967, 1997)

Chairman (Retired)

Bechtel Group, Inc.

G. Patricia Beckman (2003, 2008)

Community Leader
Donald L. Bren (1983, 2004)

Chairman of the Board
The Irvine Company

Eli Broad (1993, 2007) Founder

The Broad Foundations

Jewel Plummer Cobb (1990, 2005) President Emerita California State University,

California State University, Fullerton

Harry M. Conger (1985, 2007) Chairman & CEO, Emeritus Homestake Mining Company Richard P. Cooley (1973, 2007)

Richard P. Cooley (1973, 2007) Retired Chairman Seafirst Bank

Camilla C. Frost (1977, 2007) Trustee of the Chandler Trust and a Director and Secretary-Treasurer

Chandis Securities Company Philip M. Hawley (1975, 1997) Chairman

P. M. Hawley, Inc.

William F. Kieschnick (1982, 2005) President and CEO (Retired) Atlantic Richfield Co.

Sidney R. Petersen (1980, 2007) Chairman and CEO (Retired) Getty Oil Company

Simon Ramo (1964, 1985) Cofounder & Director Emeritus TRW Inc.

Arthur Rock (1988, 1998)

Principal

Arthur Rock and Company

Benjamin M. Rosen (1986, 2005)

Chairman Emeritus

Chairman Emeritus
Compag Computer Corporation

Richard M. Rosenberg (1989, 2007) Chairman and CEO (Retired) Bank of America Corporation

Robert J. Schultz (1991, 2002) Vice Chairman (Retired) General Motors Corporation Mary L. Scranton (1974, 1990)

Nonprofit Consultant

Dennis Stanfill (1976, 1999) Private Investor

Charles H. Townes (1979, 1987)

Nobel Laureate and

Professor in the Graduate School

Department of Physics

University of California, Berkeley

Albert D. Wheelon (1987, 2001)

Standing Committees

Executive Committee—K. Kresa, Chair; D. L. Lee*, Vice Chair; J.-L. Chameau*, W. H. Davidow*, S. M. Hufstedler, B. R. Inman, R. T. Jenkins*, L. Kirkbride*, A. Lidow*, R. K. Linde, P. M. Neches*, S. R. Onderdonk*, S. A. Ross*, C. R. Trimble*, W. L. Weisman, G. E. Wilson*; Consulting Members: G. E. Moore, B. M. Rosen; Advisory Members: D. W. Currie, C. Elachi, P. D. Hero, R. L. O'Rourke, A. I. Sargent, E. M. Stolper, H. M. Yohalem

Audit and Compliance Committee—R. K. Linde, Chair; M. I. Stern, Vice Chair; R. C. Bonner, L. Kirkbride, K. Kresa*, L. J. Lavigne Jr., A. M. Lipper, P. M. Neches, S. R. Onderdonk, W. L. Weisman; Advisory Members: M. Brewer, J.-L. Chameau, D. W. Currie, C. Elachi, D. M. Johnson, P. Koyzis, S. E. Patterson, S. L. Proia, E. M. Stolper, V. Stratman, E. L. Tattini, H. M. Yohalem

AC Transaction Conflict Review Subcommittee—R. K. Linde, *Chair*; R. C. Bonner, P. M. Neches, S. R. Onderdonk; *Advisory Member*: H. M. Yohalem

Buildings and Grounds Committee—S. R. Onderdonk, Chair; N. C. Rising, Vice Chair; J. E. Bryson, J.-L. Chameau*, L. M. Dyer, T. E. Everhart, R. T. Jenkins, K. Kresa*, J. B. Kutler, S. A. Resnick, L. W. van Amerongen; Consulting Members: S. D. Bechtel Jr.; Advisory Members: J. Cowell, D. W.

Currie, H. P. Daily, S. A. Ell, P. D. Hero, A. I. Sargent, E. M. Stolper

Business and Finance Committee— D. L. Lee, Chair; J.-L. Chameau*, T. E. Everhart, K. Kresa*, L. J. Lavigne Jr., A. Lidow, R. K. Linde, A. M. Lipper, S. M. Malcom, P. M. Neches, S. R. Rawn Jr., J. F. Rothenberg, D. W. Tang, L. W. van

Amerongen, W. L. Weisman, S. H. Woolsey; Consulting Member: H. M. Conger; Advisory Members: D. W. Currie, S. A. Ell, P. D. Hero, D. M. Johnson, J. McCallin, R. E. McQuinn, S.

E. Patterson, E. M. Stolper, H. M. Yohalem

Development Committee—W. H. Davidow, Chair; J. F. Rothenberg, Vice Chair; J.-L. Chameau*, R. J. Jenkins, P. D. Kaufmann, K. Kresa*, D. D. McWhinney, W. L. Weisman; Advisory Members: P. D. Hero, R. E. McQuinn, E. M. Stolper

Executive Compensation

Committee—A. Lidow, Chair; J. E. Bryson, K. Kresa*, D. L. Lee*, R. K. Linde, P. M. Neches, W. L. Weisman; Advisory Members: J.-L. Chameau, J. McCallin

Institute and Alumni Relations

Committee-R. T. Jenkins, Chair; S. M. Malcom, Vice Chair; J.-L. Chameau*, W. H. Davidow, L. M. Dyer, W. T. Gross, L. Kirkbride, K. Kresa*, Y. Liao, R. K. Linde, P. M. Neches, S. R. Onderdonk, W. L. Weisman, V. V. Weldon, G. E. Wilson; Advisory Members: F. A. Blum, J. Bryant, D. W. Currie, H. P. Daily, D. Dougherty, P. D. Hero, R. Kieckhefer, R. E. McQuinn, R. L. O'Rourke, A. I. Sargent, A. B. Shaindlin, E. M. Stolper

Investment Committee—S. A. Ross, Chair; R. K. Linde, Vice Chair; J.-L. Chameau*, J. F. Rothenberg, J. S. Wintrob; Advisory Members: E. Broad, S. Dow, S. A. Ell, L. R. Hoagland, R. Perry

Jet Propulsion Laboratory

Committee—C. R. Trimble, Chair; J. B. Kutler, Vice Chair; H. Brown, W. Burke, J.-L. Chameau*, L. M. Dyer, T. E. Everhart, F. J. Hameetman, S. M. Hufstedler, B. R. Inman, J. F. Kayyem,

L. Kirkbride, K. Kresa*, L. J. Lavigne Jr., P. M. Neches, P. Norton, R. L. Olson, S. R. Onderdonk, S. R. Rawn Jr., S. A. Resnick, S. K. Ride, W. L. Weisman, G. E. Wilson, S. H. Woolsey; Consulting Member: G. E. Moore, C. H. Townes; Advisory Members: D. W. Currie, H. P. Daily, C. Elachi, P. D. Hero, R. P. O'Toole, E. M. Stolper, H. M. Yohalem

Nominating Committee—A. Lidow, Chair; J. E. Bryson, Vice Chair; H. Brown, J.-L. Chameau*, B. R. Inman, L. Kirkbride, K. Kresa*, D. L. Lee, R. K. Linde, D. D. McWhinney, R. L. Olson, M. I. Stern, D. W. Tang, W. L. Weisman, V. V. Weldon, G. E. Wilson, S. H. Woolsey; Consulting Members: W. F. Kieschnick, S. Ramo; Advisory Members: P. D. Hero, E. M. Stolper, H. M. Yohalem

Student Experience Committee—L. Kirkbride, Chair; P. H. Nettles, Vice Chair; J.-L. Chameau*, M. M. Chang, R. B. Chess, K. Kresa*, S. M. Malcom, D. D. McWhinney; P. Norton, C. R. Trimble, S. H. Woolsey; Advisory Members: J. F. Hall, P. D. Hero, M.L. Hunt, A. I. Sargent, J. E. Shepherd, E. M. Stolper; Student Advisory Members: A. Beck, D. Bower, D. Coleman, A. Price

Technology Transfer Committee—

P.M. Neches, Chair; L. Kirkbride, Vice Chair; G. M. Binder, H. Brown, J.-L. Chameau*, M. M. Chang, J. S. Chen, R. B. Chess, L. M. Dyer, A. L. Goldstein, F. J. Hameetman, J. F. Kayyem, K. Kresa*, L. J. Lavigne Jr., A. Lidow, R. K. Linde, P. H. Nettles Jr., R. L. Olson, D. W. Tang, C. R. Trimble, L. W. van Amerongen; Advisory Members: D. W. Currie, S. A. Ell, F. Farina, S. Mayo, E. M. Stolper, T. A. Tombrello, H. M. Yohalem

Transaction Review Subcommittee

P. M. Neches, Chair; L. Kirkbride, A. Lidow, R. K. Linde, R. L. Olson; Advisory Member: H. M. Yohalem

^{*} ex officio member

ADMINISTRATIVE OFFICERS



Jean-Lou Chameau President



Edward M. Stolper Provost

Dean W. Currie Vice President for Business and Finance Hall P. Daily Director of Government Relations Dennis A. Dougherty Chair of the Faculty Board Charles Elachi Vice President and Director, 7et Propulsion Laboratory Sandra Ell Chief Investment Officer Richard E. Fagen Chief Information Officer John F. Hall Dean of Students Peter D. Hero Vice President for Development and Alumni Relations Melany L. Hunt Vice Provost

Stephen L. Mayo Vice Provost Julia McCallin Associate Vice President for Human Resources Sharon E. Patterson Associate Vice President for Finance and Treasurer Anneila I. Sargent Vice President for Student Affairs Joseph E. Shepherd Dean of Graduate Studies Mary L. Webster Secretary, Board of Trustees Harry M. Yohalem General Counsel

Chairs of Divisions

Elliot M. Meyerowitz

Biology
Jacqueline K. Barton
Chemistry and Chemical
Engineering
Ares J. Rosakis
Engineering and Applied Science
Kenneth A. Farley
Geological and Planetary Sciences
Jonathan N. Katz
Humanities and Social Sciences
Andrew E. Lange
Physics, Mathematics and
Astronomy

Administrative Committees

Administrative Management Council (AMC)—J.-L. Chameau, Chair; D. W. Currie, D. A. Dougherty, P. D. Hero, M. L. Hunt, S. Mayo, A. I. Sargent, E. M. Stolper, M. L. Webster, H. M. Yohalem

Animal Care and Use [fills the role of Caltech's Institutional Animal Care and Use Committee—IACUC] (Reports to the Provost)—A. Huang, *Chair*; R. A. Andersen, J. Baer*, G. Bertani, J. Brackman, D. Chan, K. Chase (alternate), G. C. Fisher-Adams, E. Helms, L. Hsieh-Wilson, D. Mayo, J. H. Richards, C. Scislowicz (alternate), M. Ton (alternate)

Benefits (Reports to the Vice President for Business and Finance)—D. M. Grether, *Chair*; P. L. Carter-Lockert*, W. Chapman, I. Cureton-Snead, J. R. Goodstein, J. A. Grinols, C. Hart*, P. T. Hoffman, D. M. Johnson, A. Kuppermann, J. McCallin*, J. C. Milbrandt, K. L. Montes*, S. E. Patterson*, N. A. Pierce, R. M. Roessler*, J. Stock

Biosafety [fills the role of Caltech's Institutional Biosafety Committee—IBC] (Reports to the Vice President for Business and Finance)—E. Rothenberg, *Chair*; J. Baer, W. Dietrick, G. Fisher-Adams*, R. D. Lansford, J. D. Leadbetter, C. Scislowicz*, R. P. Seligman*

Computing Advisory Committee (Reports to the Provost)—K. M. Chandy, *Chair*; K. C. Border, R. Clayton, D. W. Currie*, K. Douglas*, R. Fagen, W. C. Ford, J. Kaiser§, S. Kalyanaraman†, S. L. Mayo, J. McCallin*, B. V. McKoy, E. O'Neal*, S. E. Patterson*, D. B. Rutledge, B. Simon

Council on Undergraduate Education (Reports to the Provost)—M. L. Hunt, *Chair*; P. M. Bellan, M. E. Brown, B. W. Filippone, J. F. Hall, C. Jurca, C. Montouri[‡], M. N. Morley, C. Ng[‡], A. I. Sargent, A. Siegel[‡], B. M. Stoltz, A. J. Weinstein

Institute Academic Council (IACC)—E. M. Stolper, *Chair*; J. K. Barton, J.-L. Chameau, K. A. Farley, J. N. Katz, A. E. Lange, E. M. Meyerowitz, A. J. Rosakis

Institute Administrative Council (IAC)—J.-L. Chameau, *Chair*; J. K. Barton, D. W. Currie, H. P. Daily, D. Dougherty, C. Elachi, S. A. Ell, R. Fagen, K. A. Farley, J. F. Hall, P. D. Hero, M. L. Hunt, J. N. Katz, A. E. Lange, S. Mayo, J. McCallin, E. M. Meyerowitz, S. Patterson, A. J. Rosakis, A. I. Sargent, J. E. Shepherd, E. M. Stolper, M. L. Webster, H. M. Yohalem

Institute Art (Reports to the Director, Public Events)—P.
Perona, Chair; A. Boyle, J.
Buchwald, F. E. C. Culick, H. P.
Daily, S. Ell, G. Gage, D. G.
Goodwin, C. Klein[‡], T. Knutson[†], D. Kremers, D. Nelson Nash^{*}, T.
Schneider, C. S. Smith, C.
Theodoris[‡] (alternate), L. Yeung[†]

Performing and Visual Arts (Reports to the Vice President for Student Affairs)—S. C. Frautschi, Chair; P. D. Asimow, J. Barry, S. Brown, P. T. Hoffman, J. La Belle, S. A. Marneus, D. Nelson Nash, J. H. Richards, J. D. Roberts

President's Diversity Council (Reports to the President)—E. M. Stolper, Chair; R. M. Alvarez, J. E. Bercaw, J. F. Hall*, M. R. Hoffmann*, M. L. Hunt, S. L. Mayo, J. M. McCallin, D. Nelson Nash, A. I. Sargent, C. A. Weinstein

Protection of Human Subjects [fills the role of Caltech's

Inis the role of Caltech's Institutional Review Board—IRB] (Reports to the Provost)—C. R. Plott, *Chair*; J. M. Allman (alternate), J. F. Baer (alternate), R. I. Feinberg, G. Fisher-Adams, A. Frey (adviser), G. Q. Jung, J. L. Kirschvink, P. Perona, C. Scislowicz*, R. P. Seligman*, J. M. Tyszka (adviser), H. M. Yohalem*, D. W. Zeh

Radiation Safety (Reports to the Vice President for Business and Finance)—D. S. Burnett, *Chair*; A. Asthagiri, B. Filippone, H. Issaian, W. L. Johnson, A. Kumagai, C. Scislowicz*

Sponsored Research (Reports to the Provost)—B. V. McKoy, *Chair*; T. H. Heaton, J. O. Ledyard, P. H. Patterson, N. C. Yeh

SURF (Reports to the Provost)— H. B. Gray, *Chair*; G. A. Blake*, D. Chan, J. O. Dabiri, S. C. Frautschi, K. M. Gilmartin, J. M. Jackson, G. Orton, W. M. Whitney, R. M. Wilson

FACULTY OFFICERS AND COMMITTEES 2008-09

Officers

Chair: D. A. Dougherty
Vice Chair: S. M. Haile
Secretary: F. Cowie

Faculty Board

R. M. Alvarez, 2011

K. C. Border, 2012 M. E. Brown, 2010 D. C. Calegari, 2012 K. M. Chandy, 2010 J. O. Dabiri, 2010 S. E. Fraser, 2011 N. Lapusta, 2012 N. S. Lewis, 2010 V. J. Orphan, 2012 H. D. Politzer, 2012 W. Sargent, 2011 A. Stathopoulos, 2010 C. S. Steidel, 2010

D. J. Stevenson, 2011 B. Stoltz, 2012 Z.-G. Wang, 2011 E. Winfree, 2011

Ex Officio:

J. K. Barton J.-L. Chameau K. A. Farley J. F. Hall J. N. Katz A. E. Lange E. M. Meyerowitz A. J. Rosakis A. I. Sargent J. E. Shepherd

Steering

E. M. Stolper

D. A. Dougherty, Chair*
K. C. Border
F. Cowie*
D. G. Goodwin
S. M. Haile*
M. L. Hunt
S. L. Mayo
E. M. Stolper*

^{*}ex officio member

†representing graduate students

‡representing undergraduate students

§representing postdoctoral scholars

^{*}ex officio member

Academic Freedom and Tenure

J. Bercaw, 2010 S. Fraser, 2010

F. A. Harrison, 2010

J. A. Kornfield, 2011

P. Perona, 2011

J. H. Seinfeld, 2011

Academic Policies

P. M. Bellan, Chair

O. Aharonson, 2012

S. C. Frautschi, 2010

W. Goddard, 2012

J. E. Marsden, 2010

S. R. Quartz, 2012

J. D. Roberts, 2010

Athletics and Physical Education

M. R. Hoffmann, Chair

O. Aharonson, 2012

R. Bischoff*

R. H. Grubbs, 2012

L. Hillenbrand, 2010

W. J. Irwin*

J. L. Kirschvink, 2012

J. P. Wendell*

K. G. Zinn, 2012

Convocations

K. P. Giapis, Chair

S. M. Haile* J. F. Hall*

C. Hitchcock, 2010

T. Schneider, 2010

J. E. Shepherd*

C. A. Weinstein, 2012

Core Curriculum Steering

B. W. Filippone, *Chair*

K. Gilmartin, 2012

M. B. Kennedy, 2010

N. S. Lewis, 2012

D. I. Meiron, 2010

E. Phinney III, 2011

J. Pine, 2011

Curriculum

F. Echenique, Chair

R. W. Clayton, 2010

J. F. Hall*

C. Hitchcock, 2010

M. N. Morley*

D. Rees, 2011

B. M. Simon, 2012

C. A. Weinstein, 2012

Educational Outreach

M. Feingold, Chair

M. Bronner-Fraser, 2010

S. Golwala, 2010

N. Lapusta, 2012

Exchange Programs and Study

Abroad (CEPSA)

H. B. Newman, Chair

J. R. Goodstein (non-voting)

T. C. Ho, 2011

G. J. Laurent, 2011

M. N. Morley*

N. A. Pierce, 2010

W. Sargent, 2012

T. Schneider, 2012

D. J. Stevenson, 2010

L. Stolper*

Foreign Students and Scholars

A. G. Siapas, Chair

K. P. Giapis, 2010

M. Gooding*

Y. T. Hou, 2012

G. J. Laurent, 2011

Freshman Admissions

M. Aschbacher, 2010

J. L. Beauchamp, 2012

W. Bing (non-voting)

R. Bischoff*

N. R. Corngold, 2012

M. C. Cross, 2010

D. R. Kiewiet, 2012

B. McKoy, 2011

B. Megdal (non-voting)

O. J. Painter, 2012

S. Shimojo, 2010 D. Tsao, 2012

B. Wernicke, 2010

Graduate Studies

B. T. Fultz, Chair*

R. W. Clayton, 2011

T. E. Colonius, 2011

S.-A. Hajimiri, 2011

J. E. Shepherd*

*ex officio member

Health

P. T. Hoffman, Chair

K. Austin*

D. M. Grether, 2012

W. Jack*

J. A. Kornfield, 2010

S. C. Miller*

P. H. Patterson, 2012

Institute Programs

J. Cohen, Chair

D. Bing*

J. R. Greer, 2012

K. Haugen, 2010

D. LaVertu*

S. Mazmanian, 2010

R. L. O'Rourke*

T. R. Palfrey, 2012

Library

J. H. Richards, Chair

C. E. Brennen, 2010

J. Bruck, 2012

R. A. Cameron, 2010

S. G. Djorgovski, 2012

K. Douglas*

R. C. Flagan, 2011

A. P. Ingersoll, 2012

J. M. Kousser, 2010

A. G. Siapas, 2012

C. Steidel, 2011

P. W. Sternberg, 2012

Membership and Bylaws

S. M. Haile, Chair*

K. C. Border, 2010

F. Cowie*

M. Okumura, 2010

N. A. Pierce, 2010

T. Schneider, 2010

R. P. Sherman, 2010

Nominating

W. Sargent, Chair

K. M. Chandy, 2009

F. Cowie*

A. Stathopoulos, 2009

P. W. Sternberg, 2009

Z.-G. Wang, 2009

Patents and Relations with Industry

T. Colonius, Chair

F. H. Arnold, 2012

K. Bhattacharya, 2010

J. Bruck, 2011

M. Gharib, 2011

S.-A. Hajimiri, 2011

N. A. Pierce, 2011

A. G. Siapas, 2012

B. J. Wold, 2012

A. Yariv, 2011

Scholarships and Financial Aid

A. W. Blain, Chair

R. Bischoff*

G. Blake*

D. Crewell*

J. F. Hall*

J. L. Kirschvink, 2010

A. Kuppermann, 2012

G. Refael, 2012

Student Housing

J. Shepherd, Chair

T. Agapie, 2012

P. D. Asimow, 2011

G. A. Blake*

P. Daily (non-voting)

M. Iaryczower, 2011

W. Jack*

T. Mannion (non-voting)

B. J. McKeon, 2010

P. Wennberg, 2011

L. Yariv, 2011

Undergraduate Academic Standards and Honors

Standards and Hono R. P. Sherman, *Chair*

W. C. Brown, 2010

J. L. Campbell, 2012

G. R. Gavalas, 2012

D. Goodwin, 2011 J. F. Hall*

M. N. Morley*

E. S. Phinney, 2012

D. P. Weitekamp, 2012

Upperclass Admissions

R. Bischoff*

D. Calegari, 2010

K. L. Haugen, 2012

*ex officio member

STAFF OF INSTRUCTION AND RESEARCH

Division of Biology

Elliot M. Meyerowitz, Chair Raymond Deshaies, Executive Officer for Molecular Biology Christof Koch, Executive Officer for Neurobiology

Professors Emeriti

John N. Abelson, Ph.D.

George Beadle Professor of Biology
Charles J. Brokaw, Ph.D.

Biology

John J. Hopfield, Ph.D.

Roscoe G. Dickinson Professor of
Chemistry and Biology

Ray D. Owen, Ph.D., Sc.D.h.c. Biology

Jean-Paul Revel, Ph.D.

Albert Billings Ruddock Professor
of Biology

Melvin I. Šimon, Ph.D.

Anne P. and Benjamin F. Biaggini
Professor of Biological Sciences

James H. Strauss, Ph.D. Ethel Wilson Bowles and Robert Bowles Professor of Biology

Senior Research Associate Emeriti

Ellen G. Strauss, Ph.D.

Roy J. Britten, Ph.D.

Distinguished Carnegie Senior
Research Associate in Biology,
Emeritus
Anne Chomyn, Ph.D.

Professors

Ralph Adolphs, Ph.D.

Bren Professor of Psychology and
Neuroscience and Professor of
Biology

John M. Allman, Ph.D. Frank P. Hixon Professor of Neurobiology Richard A. Andersen, Ph.D.

James G. Boswell Professor of Neuroscience

David J. Anderson, Ph.D.¹ Seymour Benzer Professor of Biology

David Baltimore, Ph.D., D.Sc.h.c., D.Phil.h.c., Nobel Laureate Robert Andrews Millikan Professor of Biology

Pamela Bjorkman, Ph.D.¹
Max Delbrück Professor of Biology

Marianne Bronner-Fraser, Ph.D.

Albert Billings Ruddock Professor
of Biology

Judith L. Campbell, Ph.D. *Chemistry and Biology*

Eric H. Davidson, Ph.D.

Norman Chandler Professor of Cell

Biology

Raymond Deshaies, Ph.D.¹ Biology

Michael H. Dickinson, Ph.D.

Esther M. and Abe M. Zarem

Professor of Bioengineering

William G. Dunphy, Ph.D. Biology

Scott E. Fraser, Ph.D.

Anna L. Rosen Professor of Biology
and Professor of Bioengineering

Bruce A. Hay, Ph.D. Biology

Mary B. Kennedy, Ph.D.

Allen and Lenabelle Davis

Professor of Biology

Christof Koch, Ph.D.

Lois and Victor Troendle Professor
of Cognitive and Behavioral
Biology and Professor of
Computation and Neural Systems

Masakazu Konishi, Ph.D.

Bing Professor of Behavioral
Biology

Gilles J. Laurent, Ph.D., D.V.M.

Lawrence A. Hanson Jr. Professor
of Biology and Computation and
Neural Systems

Henry A. Lester, Ph.D.

Bren Professor of Biology

Stephen L. Mayo, Ph.D.

Bren Professor of Biology and
Chemistry

Elliot M. Meyerowitz, Ph.D. George W. Beadle Professor of Biology

Dianne K. Newman, Ph.D. Biology and Geobiology

Senior Research Associates

Carol Chace Tydell, D.V.M.

Jane E. Mendel, Ph.D.

James R. Pierce, M.D.

Willy Supatto, Ph.D.

Damien Soghoian, B.S.

R. Andrew Cameron, Ph.D. Marcus G. B. Heisler, Ph.D. Akiko Kumagai, Ph.D.

Senior Research Fellows

Stijn Cassenaer, Ph.D. Chun-Hong Chen, Ph.D. Jae Hyoung Cho, Ph.D. Maxellende Ezin, Ph.D. Rong-gui Hu, Ph.D. Igor Kagan, Ph.D. Ali Khoshnan, Ph.D. David Koos, Ph.D. Edoardo Marcora, Ph.D. Sotiris Masmanidis, Ph.D. Juscilene Menezes, Ph.D. Julie Miwa, Ph.D. S. M. Reza Motaghian Nezam, Ph.D. Tatjana Sauka-Spengler, Ph.D. Andrew Steele, Ph.D. Daniel A. Wagenaar, Ph.D. Allyson Whittaker, Ph.D. Guangying Wu, Ph.D. Mary An-yuan Yui, Ph.D.

Senior Faculty Associate

Alice S. Huang, Ph.D.

Visiting Associates

Elaine L. Bearer, Ph.D., M.D. Hamid Bolouri, Ph.D. Andres Collazo, Ph.D. Michael Collins, Ph.D. Susan Ernst, Ph.D. Vladimir Filkov, Ph.D. Caleb Finch, Ph.D. Igor Fineman, M.D. Winrich Freiwald, Ph.D. Jordi Garcia-Ojalvo, Ph.D. Robin B. Gasser, Ph.D. Ming Guo, Ph.D., M.D.

Paul H. Patterson, Ph.D. Anne P. and Benjamin F. Biaggini Professor of Biological Sciences Ellen Rothenberg, Ph.D.

Albert Billings Ruddock Professor of Biology

Erin M. Schuman, Ph.D.1 Biology

Shinsuke Shimojo, Ph.D. Biology

Paul W. Sternberg, Ph.D.¹ Thomas Hunt Morgan Professor of

Alexander J. Varshavsky, Ph.D. Howard and Gwen Laurie Smits Professor of Cell Biology

Barbara J. Wold, Ph.D. Bren Professor of Molecular Biology

Kai Zinn, Ph.D. Biology

¹ Joint appointment with Howard Hughes Medical Institute

Associate Professors

David C. Chan, M.D., Ph.D.¹ Biology Michael Elowitz, Ph.D.1 Biology and Applied Physics Bren Scholar Grant J. Jensen, Ph.D.1 Biology

Athanassios G. Siapas, Ph.D. Computation and Neural Systems Bren Scholar

Assistant Professors

Alexei Aravin, Ph.D. Biology Sarkis Mazmanian, Ph.D. Biology David Prober, Ph.D. Biology Angelike Stathopoulos, Ph.D. Biology Doris Ying Tsao, Ph.D. Biology

Lecturers

John Choi, Ph.D.

Sang-Kyou Han, Ph.D. Cecily Jill Harrison, Ph.D. Narimon Honarpour, M.D., Ph.D. Daniel Kahn, M.D., Ph.D. Michael Liebling, Ph.D. Minghsun Liu, M.D., Ph.D. Carol Ann Miller, M.D. Eric Mjolsness, Ph.D. Farshad Moradi, M.D., Ph.D. Carmie Puckett Robinson, M.D. Jose Luis Riechmann, Ph.D. Ian Ross, M.D. Kathrin Schrick, Ph.D. Bruce E. Shapiro, Ph.D. Thomas T. Su, M.D., Ph.D. Carol Chace Tydell, D.V.M.

Member of the Beckman Institute

Russell E. Jacobs, Ph.D.

Members of the Professional Staff

Eugene Akutagawa, B.S.
Janet F. Baer, D.V.
Gary Belford, Ph.D.
L. Elizabeth Bertani, Ph.D.
Bruce Cohen, Ph.D.
Rochelle A. Diamond, B.A.
Ker-hwa Ou, M.S.
Shirley Pease, B.Sc.
Piotr J. Polaczek, Ph.D.
Andrew J. Ransick, Ph.D.
Hiroaki Shizuya, M.D., Ph.D.
Peter Siegel, Ph.D.
Julian Michael Tyszka, Ph.D.
Jie Zhou, Ph.D.

Senior Postdoctoral Scholars

Vijay S. Chickarmane, Ph.D. Ryan Michael Drenan, Ph.D. Isabelle S. Peter Lashgari Faghani, Ph.D. Constantin Georgescu, Ph.D.

Postdoctoral Scholars

Murat Acar, Ph.D. Meghan Adams, Ph.D. Mark Aizenberg, Ph.D.¹

Omar Akbari, Ph.D. Bader Al-Anzi, Ph.D. Roee Amit, Ph.D. Constantinos Anastassiou, Ph.D. Todd Anthony, Ph.D. Kenta Asahina, Ph.D. Young-Kyung Bae, Ph.D. Alejandro Balazs, Ph.D. Tadato Ban, Ph.D. Teodora-Adriana Barbacaru, Ph.D. Julius Barsi, Ph.D. Ryan L. Baugh, Ph.D. Morgan Beeby, Ph.D.1 Shlomo Ben-Tabou de-Leon, Ph.D. Smadar Ben-Tabou de-Leon, Ph.D. Michael Bethune, Ph.D. Jesse Bloom, Ph.D. Catherine Bregere, Ph.D. Lindsay Bremner, Ph.D. Ariane Briegel, Ph.D.¹ Haijiang Cai, Ph.D. Long Cai, Ph.D. Ivan Cajigas, Ph.D. Michael Campos, Ph.D. Christie Canaria, Ph.D. Luca Caneparo, Ph.D. Holly J. Carlisle, Ph.D. Moran Cerf, Ph.D. Ameya Champhekar, Ph.D. Nickie Chan, Ph.D.1 Songye Chen, Ph.D. Vikram Chib, Ph.D. Roberto Antonio Chica, Ph.D. John Choi, Ph.D. Tsui-Fen Chou, Ph.D. Willem den Besten, Ph.D.1 Benjamin Deverman, Ph.D. Ron Diskin, Ph.D. Meenakshi Kshirsagar Doma, Ph.D.¹ Jiangang Du, Ph.D. Chee-Kwee Ea, Ph.D. Avigdor Eldar, Ph.D. Ethan D. Emberley, Ph.D. Jeremy Lane Emken, Ph.D. Katherine Fishwick, Ph.D. Lu Gan, Ph.D. Feng Gao, Ph.D. Constantin Georgescu, Ph.D. Aidyl Gonzalez-Serricchio, Ph.D. Xoana Gonzalez Troncoso, Ph.D. Sean Gordon, Ph.D. Arnulf Graf, Ph.D. Piercesare Grimaldi, Ph.D., M.D. Elissa Hallem, Ph.D. Shengli Hao, Ph.D. Wulf Eckhard Haubensak, Ph.D.

Zachary Nimchuk, Ph.D.

Ryan Michael O'Connell, Ph.D.

553

Marc Vermulst, Ph.D.

Sofia Vrontou, Ph.D.

Lorraine R. Washburn, Ph.D. Kiichi Watanabe, M.D., Ph.D. Casimir Wierzynski, Ph.D. Claudia Beate Wilimzig, Ph.D. Melanie Wilke, Ph.D. Allan Wong, Ph.D. Cheng Xiao, M.D., Ph.D. Young Y. Yoon, Ph.D.¹ Zhiheng Yu, Ph.D. Alon Zaslaver, Ph.D. Xiaolan Zhang, Ph.D. Yan Zhang, M.D., Ph.D. Lin Zhao, Ph.D. Weiwei Zhong, Ph.D.!

¹ Joint appointment with Howard Hughes Medical Institute

Jelena Zinnanti, Ph.D.

Visitors

Libera Berghela Mark Boldin, Ph.D. Hajer Brahem, B.S. Pranav Kosuri, B.S. Mingzhi Liang, Ph.D. Jasna Markovac, Ph.D. Leonard Mlodinow, Ph.D. Seth W. Ruffins, Ph.D. Heiko Stemmann, Ph.D. Andreas Walz, Ph.D.

Division of Chemistry and Chemical Engineering

 Jacqueline K. Barton, Chair
 Richard C. Flagan, Executive Officer for Chemical Engineering
 Mitchio Okumura, Executive Officer for Chemistry
 Douglas C. Rees, Executive Officer for Biochemistry and Molecular Biophysics

Professors Emeriti

Fred C. Anson, Ph.D., D.h.c. Elizabeth W. Gilloon Professor of Chemistry John D. Baldeschwieler, Ph.D. J. Stanley Johnson Professor and Professor of Chemistry Sunney I. Chan, Ph.D. George Grant Hoag Professor of Biophysical Chemistry George R. Gavalas, Ph.D. Chemical Engineering John J. Hopfield, Ph.D. Roscoe G. Dickinson Professor of Chemistry and Biology John D. Roberts, Ph.D., Dr.rer.Nat.h.c., Sc.D.h.c., D.Sc.h.c. Institute Professor of Chemistry Nicholas W. Tschoegl, Ph.D. Chemical Engineering

Senior Research Associates Emeriti

Richard E. Marsh, Ph.D. Chemistry William P. Schaefer, Ph.D. Chemistry

Professors

Frances H. Arnold, Ph.D.

Dick and Barbara Dickinson
Professor of Chemical Engineering
and Biochemistry
Jacqueline K. Barton, Ph.D.,
D.Sc.h.c., D.L.h.c.
Arthur and Marian Hanisch
Memorial Professor and Professor

of Chemistry; Chair, Division of Chemistry and Chemical Engineering

Jesse L. Beauchamp, Ph.D. Mary and Charles Ferkel Professor of Chemistry

John E. Bercaw, Ph.D.

Centennial Professor of Chemistry

Geoffrey A. Blake, Ph.D.

Cosmochemistry and Planetary
Sciences and Chemistry

John F. Brady, Ph.D.

Chevron Professor of Chemical Engineering and Professor of Mechanical Engineering

Judith L. Campbell, Ph.D. Chemistry and Biology

Mark E. Davis, Ph.D.

Warren and Katharine Schlinger
Professor of Chemical Engineering

Peter B. Dervan, Ph.D., D.Sc.h.c. Bren Professor of Chemistry

Dennis A. Dougherty, Ph.D.

George Grant Hoag Professor of
Chemistry

Richard C. Flagan, Ph.D.

Irma and Ross McCollum–William
H. Corcoran Professor of Chemical
Engineering and Professor of
Environmental Science and
Engineering

William A. Goddard III, Ph.D. Charles and Mary Ferkel Professor of Chemistry, Materials Science, and Applied Physics

Harry B. Gray, Ph.D., D.Sc.h.c., Laurea h.c., Fil.Dr.h.c., D.L.h.c. Arnold O. Beckman Professor of Chemistry and Founding Director of the Beckman Institute

Robert H. Grubbs, Ph.D., Nobel Laureate

Victor and Elizabeth Atkins
Professor of Chemistry

Sossina M. Haile, Ph.D.

Materials Science and Chemical
Engineering

James R. Heath, Ph.D. Elizabeth W. Gilloon Professor and Professor of Chemistry

Julia A. Kornfield, Ph.D. Chemical Engineering

Aron Kuppermann, Ph.D. Chemical Physics

Nathan S. Lewis, Ph.D. George L. Argyros Professor and Professor of Chemistry Rudolph A. Marcus, Ph.D., D.Sc.h.c., Fil.Dr.h.c., D.h.c., Nobel Laureate Arthur Amos Noyes Professor of Chemistry

Stephen L. Mayo, Ph.D.

Bren Professor of Biology and
Chemistry

B. Vincent McKoy, Ph.D. Theoretical Chemistry

Mitchio Okumura, Ph.D. *Chemical Physics*

Carl S. Parker, Ph.D. Biochemistry

Jonas C. Peters, Ph.D. Chemistry

Douglas C. Rees, Ph.D.¹ Roscoe Gilkey Dickinson Professor of Chemistry

John H. Richards, Ph.D. Organic Chemistry and Biochemistry

John H. Seinfeld, Ph.D., D.Sc.h.c. Louis E. Nohl Professor and Professor of Chemical Engineering

Brian M. Stoltz, Ph.D.

Ethel Wilson Bowles and Robert
Bowles Professor of Chemistry

David A. Tirrell, Ph.D., D.h.c. Ross McCollum–William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering

Zhen-Gang Wang, Ph.D. Chemical Engineering Daniel P. Weitekamp, Ph.D.

Chemical Physics
Ahmed H. Zewail, Ph.D., D.Sc.h.c.,
D.h.c., D.Univ.h.c., D.Phil.h.c.,
LL.D.h.c., M.D.h.c., Nobel
Laureate
Linus Pauling Professor of

¹ Joint appointment with Howard Hughes Medical Institute

Chemistry and Professor of Physics

Associate Professors

Konstantinos P. Giapis, Ph.D. *Chemical Engineering* Linda C. Hsieh-Wilson, Ph.D.¹ *Chemistry*

¹ Joint appointment with Howard Hughes Medical Institute

Assistant Professors

Theodor Agapie, Ph.D.
Chemistry

Anand R. Asthagiri, Ph.D.
Chemical Engineering
William M. Clemons, Ph.D.
Biochemistry

Thomas F. Miller III, Ph.D.
Chemistry

Sarah E. Reisman, Ph.D.
Chemistry

Shu-ou Shan, Ph.D.

Lecturers

Chemistry

Kathryn Bikle, M.A. Chemistry Aaron Chamberlain, Ph.D.¹ Chemistry Nathan Dalleska, Ph.D.1 Chemistry Michael W. Day, Ph.D. Chemistry Sonjong Hwang, Ph.D. Chemistry Jay Labinger, Ph.D. Chemistry Mona Shahgholi, Ph.D. Chemistry Cara Tracewell, Ph.D.1 Chemistry Scott Virgil, Ph.D. Chemistry Michael Walter, Ph.D.1 Chemistry Jay Winkler, Ph.D. Chemistry

¹In residence 2008-09

Faculty Associates

Jay A. Labinger, Ph.D. Chemistry Jay R. Winkler, Ph.D. Chemistry

Visiting Associates

Paul von Allmen, Ph.D. *Physics*

Richard J. Bing, M.D., D.h.c, M.D.h.c. Chemistry Pin Chen, Ph.D. Chemistry Ara Chutjian, Ph.D. Chemistry Stephen J. Forman, M.D. Chemical Engineering M. Michael Glovsky, M.D. Chemistry Fred J. Grieman, Ph.D. Chemistry Jeremy D. Heidel, Ph.D. Chemical Engineering Michael G. Hill, Ph.D. Chemistry Susan M. Hojnacki, Ph.D. Chemistry James E. House, Ph.D. Chemical Engineering James E. Howard, Ph.D. Chemistry Keiko Kanamori, Ph.D. Chemistry Laura L. Kiessling, Ph.D. Chemistry Henry Levenson, M.D. Chemistry Garrett B. McGuinness, Ph.D. Mechanical Engineering Adrian Ponce, Ph.D. Chemistry Ronald T. Raines, Ph.D. Chemistry Eric D. A. Stemp, Ph.D. Chemistry Kenneth W. Wright, M.D. Chemical Engineering Yun Yen, M.D., Ph.D. Pathology and Cell Biology

Members of the Beckman Institute

Bruce S. Brunschwig, Ph.D. Jay R. Winkler, Ph.D.

Members of the Professional Staff

Thomas R. Dunn, A.A. *Chemistry*

Senior Postdoctoral Scholars

Oh Hoon Kwon, Ph.D. Hyun Soon Park, Ph.D.

Chemistry

Postdoctoral Scholars

Omar Farghaly Mohammed Abdelsaboor, Ph.D. Ravinder Abrol, Ph.D. Nandini Ananth, Ph.D. Tomoko Ashizawa, Ph.D. Brett E. Barwick, Ph.D. Matthew J. Bierman, Ph.D. Bahar Bingol, Ph.D. Shannon W. Boettcher, Ph.D. Andrew J. Boydston, Ph.D. Eric M. Brustad, Ph.D. Julie Anne Champion, Ph.D. Stephen A. Chapman, Ph.D. Wei-Chen Chen, Ph.D. Wei-Ting Chen, Ph.D. Lionel E. Cheruzel, Ph.D. Ann Feng Chueng, Ph.D. Rosemary M. Conrad, Ph.D. Isabelle Michele Marie Darolles, Ph.D. Guangbin Dong, Ph.D. Nathan C. Eddingsaas, Ph.D. Mary F. Farrow, Ph.D. David J. Flannigan, Ph.D. Cristal I. Gama, Ph.D. Chris Gandhi, Ph.D. Gali Golan, Ph.D. Daniel A. Gubler, Ph.D. Sang Soo Han, Ph.D. Matthew R. Hartings, Ph.D. Peter J. Heinzelman, Ph.D. Christopher E. Henry, Ph.D. Jiyoung Heo, Ph.D. Kevin G. Hoff, Ph.D. Rohan A. Hule, Ph.D. Vlad M. Iluc, Ph.D. Thomas Jensen, Ph.D.

Lars E. Johansson, Ph.D. Eric Johnson, Ph.D. Jeremiah A. Johnson, Ph.D. Amanda C. Jones, Ph.D. Kenneth K. Karanja, Ph.D. Kathryn E. Kautzman, Ph.D. Tetsunari Kimura, Ph.D. Maksym Kryvohuz, Ph.D. Tsun Yin (Bert) Lai, Ph.D. Vinh Q. Lam, Ph.D. Vincent Lavallo, Ph.D. Jonas Yun Lee, Ph.D. Song-Gil Lee, Ph.D. Sergiy M. Levin, Ph.D. Oded Lewinson, Ph.D. Jared C. Lewis, Ph.D. Wenxi Liang, Ph.D. Zhenfeng Liu, Ph.D. Hui-Qiang Lou, Ph.D. Ruifeng Lu, Ph.D. Andrew B. Mahon, Ph.D. Michael S. Malarek, Ph.D. Matthew S. Mattson, Ph.D. Andrew McClory, Ph.D. Nolan T. McDougal, Ph.D. Jordan L. Meier, Ph.D. Gabriele Meloni, Ph.D. Qixi Mi, Ph.D. Steven W. Millward, Ph.D. Slobodan Mitrovic, Ph.D. Florence Mingardon, Ph.D. Manuel Moliner Marin, Ph.D. Axel Muller, Ph.D. Heather E. Murrey, Ph.D. Michelle A. Noonan, Ph.D. Jason E. Ollerenshaw, Ph.D. Bradley D. Olsen, Ph.D. Christina Marie Othon, Ph.D. Kimberly S. Petersen, Ph.D. Subhash Pokharel, Ph.D. Xiangdong Qin, Ph.D. Suresh Kumar Ramasamy, Ph.D. Andrea Rentmeister, Ph.D. Karla R. Reyes Gil, Ph.D. Yuriy Roman-Leshkov, Ph.D. Michael J. Rose, Ph.D. Romelia Del Carmen Salomon Ferrer, Ph.D. Petros Samartzis, Ph.D. Ishu Saraogi, Ph.D. Andrew M. Sawayama, Ph.D. Sascha Schafer, Ph.D. Curtis J. Schneider, Ph.D. Qihui Shi, Ph.D. Jason Slinker, Ph.D. Christopher D. Snow, Ph.D. Nicholas C. Strandwitz, Ph.D.

Jan Streuff, Ph.D. Bryan D. Stubbert, Ph.D. Janek Szychowski, Ph.D. Peili Teo, Ph.D. Bartosz Trzaskowski, Ph.D. Yuko Tsutsui, Ph.D. Shelly Tzlil, Ph.D. Phoebe Tzou, Ph.D. Jasim Uddin, Ph.D. Michael G. Walter, Ph.D. Troy A. Walton, Ph.D. Cedric M. Weiss, Ph.D. Nathan M. West, Ph.D. Kun-Yun Yang, Ph.D. Wen Yi, Ph.D. Keiko Yokoyama, Ph.D. Sze-Man Yu, Ph.D. Aycan Yurtsever, Ph.D. Dawei Zhang, Ph.D. Limei Zhang, Ph.D. Ruoyu Zhang, Ph.D. Qingsong Zhang, Ph.D. Binquan Zhuang, Ph.D.

Visitors

Diego Benitez, Ph.D. Chemistry Helen Fei-Lun Chuang, Ph.D. Chemical Engineering Koji Endo, M.S. Chemistry Daniel Ess, Ph.D. Chemistry Tapan Ganguly, Ph.D. Chemistry Zeev Gross, Ph.D. Physical Organic Chemistry Zhong-vi Jiang, Ph.D. Chemical Engineering Judy E. Kim, Ph.D. Chemistry Ralf Langen, Ph.D. Chemistry Michael J. Mackel, Ph.D. Chemical Engineering Matthew G. MacDougall, B.S. Biology Matthew S. Mattson, Ph.D. Applied Physics Josef C. Meier, Ph.D. Chemistry Yan Shuen Poon, Ph.D. Chemistry

Julius Tsu-Li Su, Ph.D.

Chemistry

Ekatrina Tkatchouk, Ph.D.

Chemistry

Melanie Zimmerman, Ph.D.

Chemistry

William J. Royea, Ph.D. Chemistry

Division of Engineering and Applied Science

Ares J. Rosakis, *Chair*Kaushik Bhattacharya, *Executive*Officer for Mechanical
Engineering

Babak Hassibi, Executive Officer for Electrical Engineering

Niles A. Pierce, Executive Officer for Bioengineering

Guruswami Ravichandran, Director, Graduate Aerospace Laboratories

Professors Emeriti

Allan J. Acosta, Ph.D.

Richard L. and Dorothy M.

Hayman Professor of Mechanical
Engineering

William B. Bridges, Ph.D.

Carl F Braun Professor of
Engineering

Norman H. Brooks, Ph.D. James Irvine Professor of Environmental and Civil Engineering

Francis H. Clauser, Ph.D. Clark Blanchard Millikan Professor of Engineering

Donald S. Cohen, Ph.D.

Charles Lee Powell Professor of
Applied Mathematics

Donald E. Coles, Ph.D. *Aeronautics*

Noel R. Corngold, Ph.D.

Applied Physics

Fred E. C. Culick, Ph.D.
Richard L. and Dorothy M.
Hayman Professor of Mechanical
Engineering and Professor of Jet
Propulsion

Thomas E. Everhart, Ph.D., D.L.h.c., D.h.c. Electrical Engineering and Applied Physics

Joel N. Franklin, Ph.D. Applied Mathematics

David L. Goodstein, Ph.D.
Frank J. Gilloon Distinguished
Teaching and Service Professor and
Professor of Physics and Applied
Physics

Roy W. Gould, Ph.D. Simon Ramo Professor of Engineering

Hans G. Hornung, Ph.D.
C. L. "Kelly" Johnson Professor of
Aeronautics

Wilfred D. Iwan, Ph.D. *Applied Mechanics*

Paul C. Jennings, Ph.D. Civil Engineering and Applied Mechanics

Wolfgang G. Knauss, Ph.D.

Theodore von Kármán Professor of
Aeronautics and Applied Mechanics
Lines V. Krawles Bh.D. P. Schlere

James K. Knowles, Ph.D., D.Sc.h.c. William R. Kenan Jr. Professor and Professor of Applied Mechanics

Anthony Leonard, Ph.D.

Theodore von Kármán Professor of
Aeronautics

E. John List, Ph.D.

Environmental Engineering
Science

Frank E. Marble, Ph.D.
Richard L. and Dorothy M.
Hayman Professor of Mechanical
Engineering and Professor of Jet
Propulsion

Hardy C. Martel, Ph.D. Electrical Engineering

Robert J. McEliece, Ph.D.

Allen E. Puckett Professor and
Professor of Electrical Engineering

Carver A. Mead, Ph.D., D.Sc.h.c., D.Hon.

Gordon and Betty Moore Professor of Engineering and Applied Science R. David Middlebrook, Ph.D.

R. David Middlebrook, Ph.D. Electrical Engineering

James J. Morgan, Ph.D., D.Sc.h.c. Marvin L. Goldberger Professor of Environmental Engineering Science

Marc-Aurele Nicolet, Ph.D.

Electrical Engineering and Applied
Physics

Fredric Raichlen, Sc.D. Civil and Mechanical Engineering Anatol Roshko, Ph.D.

Theodore von Kármán Professor of Aeronautics

Rolf H. Sabersky, Ph.D. Mechanical Engineering

Frederick B. Thompson, Ph.D.

Applied Philosophy and Computer
Science

Thad Vreeland Jr., Ph.D. Materials Science

Gerald B. Whitham, Ph.D. Charles Lee Powell Professor of Applied Mathematics

Theodore Y. Wu, Ph.D. Engineering Science

Professors

Yaser S. Abu-Mostafa, Ph.D. Electrical Engineering and Computer Science

Harry A. Atwater Jr., Ph.D.

Howard Hughes Professor and
Professor of Applied Physics and
Materials Science

Alan H. Barr, Ph.D.

Computer Science

James L. Beck, Ph.D.

Engineering and Applied Science

Paul M. Bellan, Ph.D.

Applied Physics

Kaushik Bhattacharya, Ph.D.

Mechanics and Materials Science

John F. Brady, Ph.D.

Chevron Professor of Chemical

Engineering and Professor of

Mechanical Engineering

Christopher E. Brennen, D.Phil. Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering

Jehoshua Bruck, Ph.D. Gordon and Betty Moore Professor of Computation and Neural Systems and Electrical Engineering

Oscar P. Bruno, Ph.D.

Applied and Computational

Mathematics

Joel W. Burdick, Ph.D.

Mechanical Engineering and
Bioengineering

Emmanuel J. D. Candes, Ph.D.
Ronald and Maxine Linde
Professor of Applied and
Computational Mathematics

Jean-Lou Chameau, Ph.D.

Civil Engineering, Environmental
Science and Engineering, and
Mechanical Engineering

K. Mani Chandy, Ph.D.
Simon Ramo Professor and
Professor of Computer Science

Timothy E. Colonius, Ph.D. Mechanical Engineering Michael H. Dickinson, Ph.D.

Esther M. and Abe M. Zarem
Professor of Bioengineering

Paul E. Dimotakis, Ph.D.

John K. Northrop Professor of
Aeronautics and Professor of
Applied Physics

John C. Doyle, Ph.D.

John G Braun Professor of Control
and Dynamical Systems, Electrical
Engineering, and Bioengineering

Michelle Effros, Ph.D. Electrical Engineering

James P. Eisenstein, Ph.D. Frank J. Roshek Professor of Physics and Applied Physics

Charles Elachi, Ph.D.

Electrical Engineering and
Planetary Science

Richard C. Flagan, Ph.D.

Irma and Ross McCollum–William
H. Corcoran Professor of Chemical
Engineering and Professor of
Environmental Science and
Engineering

Scott E. Fraser, Ph.D.

Anna L. Rosen Professor of Biology
and Professor of Bioengineering

Brent T. Fultz, Ph.D.

Materials Science and Applied
Physics

Morteza Gharib, Ph.D. Hans W. Liepmann Professor of Aeronautics and Professor of Bioinspired Engineering

William A. Goddard III, Ph.D. Charles and Mary Ferkel Professor of Chemistry, Materials Science, and Applied Physics

David G. Goodwin, Ph.D.

Mechanical Engineering and
Applied Physics

Sossina M. Haile, Ph.D. Materials Science and Chemical Engineering

Seyed-Ali Hajimiri, Ph.D. Electrical Engineering

John F. Hall, Ph.D. Civil Engineering

Babak Hassibi, Ph.D.

Electrical Engineering

Thomas H. Heaton, Ph.D. Engineering Seismology

Michael R. Hoffmann, Ph.D. James Irvine Professor of Environmental Science

Yizhao Thomas Hou, Ph.D. Charles Lee Powell Professor of Applied and Computational Mathematics

Melany L. Hunt, Ph.D.

Mechanical Engineering

William L. Johnson, Ph.D. Ruben F. and Donna Mettler Professor of Engineering and Applied Science

Alexei Kitaev, Ph.D.

Theoretical Physics and Computer Science

Christof Koch, Ph.D.

Lois and Victor Troendle Professor of Cognitive and Behavioral Biology and Professor of Computation and Neural Systems

Steven Low, Ph.D.

Computer Science and Electrical

Engineering

Jerrold E. Marsden, Ph.D.

Carl F Braun Professor of
Engineering, Control and
Dynamical Systems, and Applied
and Computational Mathematics

Alain J. Martin, Ing. Computer Science

Daniel İ. Meiron, Sc.D. Fletcher Jones Professor of Aeronautics and Applied and Computational Mathematics

Richard M. Murray, Ph.D.

Thomas E. and Doris Everhart

Professor of Control and

Dynamical Systems and

Bioengineering

Michael Ortiz, Ph.D.

Dotty and Dick Hayman Professor
of Aeronautics and Mechanical
Engineering

Sergio Pellegrino, Ph.D. Aeronautics and Civil Engineering and JPL Senior Research Scientist

Pietro Perona, D.Eng., Ph.D. Allen E. Puckett Professor of Electrical Engineering

Robert Phillips, Ph.D.

Applied Physics and Mechanical

Engineering

Dale I. Pullin, Ph.D.

Theodore von Kármán Professor of
Aeronautics

Guruswami Ravichandran, Ph.D. John E. Goode Jr. Professor of Aeronautics and Mechanical Engineering Ares J. Rosakis, Ph.D.

Theodore von Kármán Professor of
Aeronautics and Mechanical
Engineering

Michael L. Roukes, Ph.D.

Physics, Applied Physics, and
Bioengineering

David B. Rutledge, Ph.D. Kiyo and Eiko Tomiyasu Professor of Electrical Engineering

Axel Scherer, Ph.D.

Bernard A. Neches Professor of
Electrical Engineering, Applied
Physics, and Physics

Tapio Schneider, Ph.D.

Environmental Science and
Engineering

Peter Schröder, Ph.D.

Computer Science and Applied and
Computational Mathematics

Leonard J. Schulman, Ph.D. Computer Science

John H. Seinfeld, Ph.D., D.Sc.h.c. Louis E. Nohl Professor and Professor of Chemical Engineering

Joseph E. Shepherd, Ph.D. C. L. "Kelly" Johnson Professor of Aeronautics and Professor of Mechanical Engineering

Yu-Chong Tai, Ph.D.

Electrical Engineering and
Mechanical Engineering

Sandra M. Troian, Ph.D.

Applied Physics, Aeronautics, and
Mechanical Engineering

Kerry J. Vahala, Ph.D.

Ted and Ginger Jenkins Professor
of Information Science and
Technology and Professor of Applied
Physics

P. P. Vaidyanathan, Ph.D. Electrical Engineering

Paul O. Wennberg, Ph.D. R. Stanton Avery Professor of Atmospheric Chemistry and Environmental Science and Engineering

Amnon Yariv, Ph.D.

Martin and Eileen Summerfield

Professor of Applied Physics and

Professor of Electrical Engineering

Associate Professors

Jess F. Adkins, Ph.D. Geochemistry and Global Environmental Science

John O. Dabiri, Ph.D.

Aeronautics and Bioengineering

Mathieu Desbrun, Ph.D. Computer Science

Michael Elowitz, Ph.D.¹

Biology and Applied Physics Bren Scholar

Nadia Lapusta, Ph.D.

Mechanical Engineering and Geophysics

Jared R. Leadbetter, Ph.D. Environmental Microbiology

Oskar J. Painter, Ph.D. Applied Physics

Niles A. Pierce, D.Phil.

Applied and Computational Mathematics and Bioengineering

Keith C. Schwab, Ph.D. *Applied Physics*

Athanassios G. Siapas, Ph.D. Computation and Neural Systems

Christopher Umans, Ph.D.

Computer Science

Erik Winfree, Ph.D.

Computer Science, Computation and Neural Systems, and Bioengineering

Changhuei Yang, Ph.D.

Electrical Engineering and
Bioengineering

Assistant Professors

Simona Bordoni, Ph.D.

Environmental Science and
Engineering

Chiara Daraio, Ph.D.

Aeronautics and Applied Physics

Azita Emami-Neyestanak, Ph.D.

Electrical Engineering

Julia R. Greer, Ph.D. Materials Science

Chin-Lin Guo, Ph.D.

Bioengineering and Applied Physics

Tracey C. Ho, Ph.D.

Electrical Engineering and
Computer Science

R. Andreas Krause, Ph.D. *Computer Science*

Swaminathan Krishnan, Ph.D. Civil Engineering and Geophysics

Beverley J. McKeon, Ph.D. Aeronautics

Houman Owhadi, Ph.D.

Applied and Computational

Mathematics and Control and Dynamical Systems

Joel A. Tropp, Ph.D.

Applied and Computational
Mathematics

Axel van de Walle, Ph.D.

Materials Science

Adam Wierman, Ph.D. Computer Science

Instructors

Guo Luo, Ph.D.

Theodore von Kármán Instructor in Applied and Computational Mathematics

Pengchong Yan, Ph.D.

Theodore von Kármán Instructor in Applied and Computational Mathematics

Lecturers

Channing Ahn, Ph.D. Materials Science

Dimitros Antsos, Ph.D.

Electrical Engineering

Daniel E. A. Appelo, Ph.D.¹
Mechanical Engineering

David A. Boyd, Ph.D.

Mechanical Engineering

Curtis L. Collins, Ph.D. Mechanical Engineering

Gregory L. Davis, Ph.D.

Aeronautics

Antony R. H. Fender, B.S.

Engineering
Glen A. George, M.S.

Computer Science and Electrical Engineering

Alex D. Groce, Ph.D.¹
Computer Science

Klaus Havelund, Ph.D. Computer Science

Matthew C. Heverly, Ph.D.¹
Mechanical Engineering

Gerard J. Holzmann, Ph.D. Computer Science

¹ Joint appointment with Howard Hughes Medical Institute

Rajeev Joshi, Ph.D.¹

Computer Science

Monica D. Kohler, Ph.D.¹

Civil Engineering

Russell D. Lansford, Ph.D.¹

Bioengineering

Heun Jin Lee, Ph.D.¹

Applied Physics Yi-Kai Liu, Ph.D.¹

Computer Science

Douglas G. MacMynowski, Ph.D. Control and Dynamical Systems

Barry B. Megdal, Ph.D. Electrical Engineering

Mika Nystroem, Ph.D.

Computer Science

Michael T. Pauken, Ph.D. Mechanical Engineering

Danny Petrasek, Ph.D.¹
Bioengineering

Gillian Pierce, B.A. *Engineering*

Aeronautics

Donald Pinkston III, B.S.

Computer Science

James E. Polk, Ph.D.¹

Kevin J. Quirk, Ph.D. *Electrical Engineering* Carol W. Readhead, Ph.D.

Engineering J. Michael Tyszka, Ph.D.¹

Bioengineering John P. Van Deusen, B.S.

Mechanical Engineering Michael C. Vanier, Ph.D.

Computer Science Joris G. B. Vankerschaver, Ph.D.¹

Control and Dynamical Systems Jakob J. Van Zyl, Ph.D. Electrical Engineering and

Planetary Science Michael Watkins, Ph.D. Aeronautics

Senior Research Associates

Channing C. Ahn, Ph.D.

Materials Science

Agustin J. Colussi, Ph.D.

Environmental Science and
Engineering

Douglas G. MacMynowski, Ph.D.

Control and Dynamical Systems

Paul W. K. Rothemund, Ph.D.

Bioengineering, Computer Science,
and Computation and Neural
Systems

Senior Research Fellows

David A. Boyd, Ph.D.

Mechanical Engineering

Marios D. Demetriou, Ph.D.

Materials Science

William B. Dickson, Ph.D.

Bioengineering

David J. Hill, Ph.D.

Aeronautics

Michael Hucka, Ph.D.

Faculty Associates

Carol Carmichael, Ph.D.

Engineering and Applied Science
Gerard J. Holzmann, Ph.D.

Computer Science

Control and Dynamical Systems

Peter H. Siegel, Ph.D. *Electrical Engineering* G. Jeffrey Snyder, Ph.D.

Materials Science

Jakob J. Van Zyl, Ph.D. Electrical Engineering and Aeronautics

Sander Weinreb, Ph.D. Electrical Engineering

Moore Distinguished Scholar

Fazle Hussain, Ph.D.¹ Engineering and Applied Science

Visiting Professors

Bruno Crosignani, Lib.Doc.

Applied Physics

Potros D. Koumoutsakos Pl

Petros D. Koumoutsakos, Ph.D. Clark B. Millikan Visiting Professor of Aeronautics

John H. S. Lee, Ph.D.¹
Clark B. Millikan Visiting Professor of Aeronautics

Kenneth A. Pickar, Ph.D. Mechanical Engineering

¹ In residence 2008–09

¹ In residence 2008-09

Frank Raes, Ph.D.1 Environmental Science and Engineering

Vilupanur A. Ravi, Ph.D. Bioengineering and Materials Science

Visiting Assistant Professor

Melvin Leok, Ph.D.¹ Control and Dynamical Systems

¹ In residence 2008-09

Visiting Associates

Lachlan L. H. Andrew, Ph.D. Computer Science Erik K. Antonsson, Ph.D.

Mechanical Engineering

Josette Bellan, Ph.D. Mechanical Engineering

Dane A. Boysen, Ph.D. Materials Science

Fred J. Brechtel, Ph.D. Environmental Science and Engineering

James B. Breckinridge, Ph.D. Aeronautics

Tirong Chen, M.S. Applied Physics

Calum R. I. Chisholm, Ph.D. Materials Science

R. Dale Conner, Ph.D. Materials Science

Matthew Cook, Ph.D.

Computation and Neural Systems Luigi De Nardo, Ph.D.

Aeronautics

Jacqueline G. Gish, Ph.D. Aeronautics

Philip L. Gleckman, Ph.D. Materials Science

Frank A. Gomez, Ph.D. Applied Physics

Janet G. Hering, Ph.D. Environmental Science and Engineering

Lee K. Johnson, Ph.D. Aeronautics

Emil P. Kartalov, Ph.D. Electrical Engineering Jeehveong Khim, Ph.D. Environmental Science and Engineering

Paul C. Kim, Ph.D. Materials Science

Richard R. King, Ph.D. Applied Physics

Monica D. Kohler, Ph.D. Civil Engineering

Rouslan Krechetnikov, Ph.D. Control and Dynamical Systems

Joon-Hyung Lee, Ph.D. Materials Science

Reginald K. Lee, Ph.D.

Applied Physics Tiecheng Li, Ph.D.

Engineering and Applied Science

Martin W. Lo, Ph.D. Computer Science

Naoki Mitsumoto, Ph.D.

Mechanical Engineering

Alain Molinari, Ph.D. Aeronautics

Anna Pandolfi, Ph.D. Aeronautics

Leora Peltz, Ph.D. Electrical Engineering

Danny Petrasek, M.D., Ph.D. Applied and Computational Mathematics and Bioengineering

James E. Polk, Ph.D. Aeronautics

Demetri Psaltis, Ph.D. Electrical Engineering

Daniel Rittel, Ph.D. Aeronautics

Peter N. Saeta, Ph.D. Applied Physics

Ross J. Salawitch, Ph.D. Geological and Planetary Science and Environmental Engineering Science

Konrad H. Samwer, Ph.D. Materials Science

Toshiyuki Sanada, Ph.D. Mechanical Engineering

Andrew A. Shapiro, Ph.D. Mechanical Engineering

Edwin T. Upchurch, Ph.D. Center for Advanced Computing Research

Xinlong Wang, Ph.D.

Engineering Science

Theodore A. Waniuk, Ph.D. Materials Science

Electrical Engineering

Tau-Mu Yi, Ph.D. Control and Dynamical Systems

Bernard Yurke, Ph.D.

Computation and Neural Systems

Members of the Professional Staff

Michael Aivazis, Ph.D.

Center for Advanced Computing Research

Nathan F. Dalleska, Ph.D.

Environmental Analysis Center

Guy A. DeRose, Ph.D. Applied Physics

Carol M. Garland, B.A.

Kavli Nanoscience Institute Keith A. Porter, Ph.D.

Civil Engineering

Won-Kyu Rhim, Ph.D. Materials Science

Mark Stalzer, Ph.D.

Center for Advanced Computing Research

Roy D. Williams, Ph.D.

Center for Advanced Computing Research

Senior Postdoctoral Scholars

Teruyuki Ikeda, Ph.D. Materials Science

Heun Jin Lee, Ph.D. Applied Physics

Gaby Maimon, Ph.D. Bioengineering

Eric G. Matson, Ph.D.

Environmental Science and Engineering

Benjamin Recht, Ph.D.

Center for the Mathematics of Information

Andrew Straw, Ph.D.

Bioengineering

Yoshihiro Yamazaki, Ph.D.

Materials Science Peng Yin, Ph.D.

Bioengineering and Computer Science

Postdoctoral Scholars

Nathan L. Albin, Ph.D. Applied and Computational Mathematics

Thiago Pedro Mayer Alegre, Ph.D. Applied Physics

Maen A. Alkhader, Ph.D. Aeronautics

Daniel E. A. Appelo, Ph.D. Applied and Computational Mathematics

Koray Aydin, Ph.D.

Applied Physics

Philippe M. Bardet, Ph.D. Aeronautics

Joseph C. Bardin, Ph.D.

Electrical Engineering Victor Beck, Ph.D.

Bioengineering

Salman Abolfathe Beikidezfuli, Ph.D.

Computer Science

Laurence Bodelot, Ph.D. Aeronautics

Kristin Mara Branson, Ph.D. Electrical Engineering

Ryan Camacho, Ph.D. Applied Physics

Gwyneth Card, Ph.D.

Bioengineering Ho-Lin Chen, Ph.D.

Center for the Mathematics of Information

Yenyu Chen, Ph.D. Bioengineering

Daniel C. K. Chung, Ph.D. Aeronautics

Meng Cui, Ph.D. Electrical Engineering

Alexander V. Dementsov, Ph.D.

Materials Science

Mathias Dietzel, Ph.D. Electrical Engineering

Piotr Dollar, Ph.D.

Electrical Engineering Veronica Eliasson, Ph.D.

Aeronautics Shinichi Enami, Ph.D. Environmental Science and Engineering

Malena I. Espano, Ph.D. Aeronautics

Eyal Feigenbaum, Ph.D. Applied Physics

Daniel Fuster, Ph.D. Robert M. Mateescu, Ph.D. Mechanical Engineering Electrical Engineering Ivan Grudinin, Ph.D. Euan McLeod, Ph.D. Applied Physics Applied Physics Michele Guala, Ph.D. Ljubomir Miljacic, Ph.D. Aeronautics Materials Science Abha Misra, Ph.D. Ercan Gurses, Ph.D. Aeronautics Aeronautics Christoph Haselwandter, Ph.D. Nader Motee, Ph.D. Applied Physics Control and Dynamical Systems Jeremy Munday, Ph.D. Francisco Javier Huera Huarte, Ph.D. Applied Physics Aeronautics Akshay Naik, Ph.D. Dongchan Jang, Ph.D. Applied Physics Materials Science Sujit Nair, Ph.D. J. Brandon Keith, Ph.D. Control and Dynamical Systems Materials Science Deirdre M. O'Carroll, Ph.D. Jaemin Kim, Ph.D. Applied Physics Materials Science Yizar Or, Ph.D. Ju-Young Kim, Ph.D. Control and Dynamical Systems Materials Science Mingxing Ouyang, Ph.D. Seheon Kim, Ph.D. Bioengineering and Applied Physics Electrical Engineering Hatice Ozsoy, Ph.D. Marin Kobilarov, Ph.D. Social and Informational Science W. M. Keck Institute for Space Laboratory Studies Postdoctoral Scholar in Yanzhong Pei, Ph.D. Control and Dynamical Systems Materials Science Jean-Francois Krawczynski, Ph.D. Raviv Perahia, Ph.D. Aeronautics Applied Physics Ali Lashgari, Ph.D. Laurent Ponson, Ph.D. Applied and Computational Mechanical Engineering Mathematics Andres Prieto Aneiros, Ph.D. Hansuek Lee, Ph.D. Applied and Computational Center for the Physics of Mathematics Information Lulu Oian, Ph.D. Marina S. Leite, Ph.D. Bioengineering Derek G. Rinderknecht, Ph.D. Applied Physics Qiang Lin, Ph.D. Bioengineering Applied Physics Adam Rosenthal, Ph.D. Yi-Kai Liu, Ph.D. Environmental Science and Computer Science Engineering Yu Liu, Ph.D. Arnab Samanta, Ph.D. Mechanical Engineering Applied Physics Nuria Llombart Juan, Ph.D. Ali Saramat, Ph.D. Electrical Engineering Materials Science Luca Maddalena, Ph.D. Matthew Shaw, Ph.D. Aeronautics Applied Physics Akita Mamiya, Ph.D. Zuoqiang Shi, Ph.D. Applied and Computational Bioengineering Jason R. Marden, Ph.D. Mathematics Social and Information Science David Soloveichik, Ph.D. Computation and Neural Systems Laboratory Nikolay Markovskiy, Ph.D. Allesandro Spadoni, Ph.D. Materials Science Aeronautics Marion R. Martin, Ph.D. Timothy John Sullivan, Ph.D.

Aeronautics

Materials Science

Adele Tamboli, Ph.D. Applied Physics Chee Wei Tan, Ph.D.

Computer Science

Ezgi S. Taskinoglu, Ph.D. Mechanical Engineering

Eric Toberer, Ph.D.

Beckman Institute Postdoctoral Scholar in Materials Science

Ufuk Topcu, Ph.D.

Control and Dynamical Systems Ioris G. B. Vankerschaver, Ph.D.

Control and Dynamical Systems

Jeffrey Vieregg, Ph.D. Bioengineering

Hua Wang, Ph.D.

Electrical Engineering

Stephanie Wehner, Ph.D. Computer Science

Ahuva Mu'alem Weil, Ph.D.

Social and Information Sciences Laboratory

Jigang Wu, Ph.D.

Electrical Engineering Shuman Xia, Ph.D.

Aeronautics

Division of Geological and Planetary Sciences

Kenneth A. Farley, Chair Jean-Philippe Avouac, Director,

Tectonics Observatory Robert W. Clayton, Divisional

Academic Officer

Michael Gurnis

Director, Seismological Laboratory

Professors Emeriti

Thomas J. Ahrens, Ph.D. Fletcher Jones Professor of

Geophysics

Arden L. Albee, Ph.D. Geology and Planetary Science

Clarence R. Allen, Ph.D.

Geology and Geophysics Don L. Anderson, Ph.D., Crafoord Laureate

Eleanor and John R. McMillan Professor of Geophysics

Donald S. Burnett, Ph.D.

Nuclear Geochemistry Peter Goldreich, Ph.D.

Lee A. DuBridge Professor of Astrophysics and Planetary Physics

David G. Harkrider, Ph.D. Geophysics

W. Barclay Kamb, Ph.D. Barbara and Stanley R. Rawn 7r. Professor of Geology and Geophysics

Hiroo Kanamori, Ph.D. John E. and Hazel S. Smits

Professor of Geophysics Duane O. Muhleman, Ph.D.

Planetary Science Bruce C. Murray, Ph.D.

Planetary Science and Geology

Leon T. Silver, Ph.D. W. M. Keck Foundation Professor for Resource Geology

Hugh P. Taylor Jr., Ph.D. Robert P. Sharp Professor of Geology

G. J. Wasserburg, Ph.D., D.h.c., D.Sc.h.c, Sc.D.h.c, Crafoord Laureate

John D. MacArthur Professor of Geology and Geophysics

Peter J. Wyllie, Ph.D., D.Sc.h.c. Geology

Professors

Jean-Philippe Avouac, Doctorat Geology

Geoffrey A. Blake, Ph.D.

Cosmochemistry and Planetary
Sciences and Chemistry

Michael E. Brown, Ph.D.
Richard and Barbara Rosenberg
Professor and Planetary Astronomy

Robert W. Clayton, Ph.D. *Geophysics*

John M. Eiler, Ph.D.

Robert P. Sharp Professor of Geology and Professor of Geochemistry

Charles Elachi, Ph.D.

Electrical Engineering and
Planetary Science

Kenneth A. Farley, Ph.D. W. M. Keck Foundation Professor of Geochemistry

John P. Grotzinger, Ph.D. Fletcher Jones Professor of Geology Michael C. Gurnis, Ph.D.

Michael C. Gurnis, Ph.D.

John E. and Hazel S. Smits

Professor of Geophysics

Thomas H. Heaton, Ph.D.

Engineering Seismology
Donald V. Helmberger, Ph.D.

Smits Family Professor of Geological and Planetary Sciences

Andrew P. Ingersoll, Ph.D.

Earle C. Anthony Professor of
Planetary Science

Joseph L. Kirschvink, Ph.D. Nico and Marilyn Van Wingen Professor of Geobiology

Shrinivas R. Kulkarni, Ph.D. John D. and Catherine T. MacArthur Professor of Astronomy and Planetary Science

Dianne K. Newman, Ph.D. Biology and Geobiology

George R. Rossman, Ph.D. Eleanor and John R. McMillan Professor of Mineralogy

Jason B. Saleeby, Ph.D.

Geology

Tapio Schneider, Ph.D.

Environmental Science and
Engineering

Mark Simons, Ph.D. *Geophysics*

David J. Stevenson, Ph.D. George Van Osdol Professor of Planetary Science Joann M. Stock, Ph.D. Geology and Geophysics Edward M. Stolper, Ph.D.

Provost
William E. Leonhard Professor of
Geology

Paul O. Wennberg, Ph.D. R. Stanton Avery Professor of Atmospheric Chemistry and Environmental Science and

Engineering
Brian P. Wernicke, Ph.D.
Chandler Family Professor of
Geology

Yuk L. Yung, Ph.D. Planetary Science

Associate Professors

Jess F. Adkins, Ph.D. Geochemistry and Global Environmental Science

Oded Aharonson, Ph.D.

Planetary Science

Paul D. Asimow, Ph.D.

Geology and Geochemistry

Nadia Lapusta, Ph.D. Mechanical Engineering and Geophysics

Jared Leadbetter, Ph.D. Environmental Microbiology

Assistant Professors

Jean-Paul Ampuero Saenz, Ph.D. Seismology

Simona Bordoni, Ph.D.

Environmental Science and
Engineering

Woodward Fischer, Ph.D. *Geobiology*

Jennifer Jackson, Ph.D. Mineral Physics

Swaminathan Krishnan, Ph.D. Civil Engineering and Geophysics

Michael Lamb, Ph.D. Geology

Victoria Örphan, Ph.D. Geobiology

Mark I. Richardson, Ph.D. Planetary Science

Alex L. Sessions, Ph.D. Geobiology

Lecturer

Kathryn Bikle, M.A. *Geology*

Senior Research Associate

Egill Hauksson, Ph.D. *Geophysics*

Faculty Associate

Dimitri A. Papanastassiou, Ph.D. *Geochemistry*

Visiting Professors

Paul Myrow, Ph.D. *Geology* Peter Shearer, Ph.D. *Geophysics*

Visiting Associates

Mark A. Allen, Ph.D. Planetary Science John M. Harris, Ph.D. Geology Susan Hough, Ph.D. Geophysics Kenneth W. Hudnut, Ph.D. Geophysics Takeo Ito, Ph.D. Geophysics Lucile M. Jones, Ph.D. Geophysics Daniel J. McCleese, Ph.D. Planetary Science Robert Pappalardo, Ph.D. Planetary Science Paul Rosen, Ph.D. Geophysics Stanley P. Sander, Ph.D. Planetary Science and Environmental Engineering Science

Wolfgang Sturhahn, Ph.D.

Geophysics

Geophysics

Geoffrey Toon, Ph.D.

Planetary Science

Oliver Tschauner, Ph.D.

Duane Waliser, Ph.D. Planetary Science Frank Webb, Ph.D. Geology Yanquin Wu, Ph.D. Planetary Science

Members of the Professional Staff

Vikki Appel, B.S.

Geophysics
Michael B. Baker, Ph.D.
Geology
John R. Beckett, Ph.D.
Geology
Ma Chi, Ph.D.
Geochemistry
Joachim Genrich, Ph.D.
Geology
Yunbin Guan, Ph.D.
Geochemistry
Katherine Hutton, Ph.D.
Geophysics
Sally Newman, Ph.D.
Geology

Senior Postdoctoral Scholars

Maren Boese, Ph.D.

Geophysics
Guiseppe Mitri, Ph.D.

Planetary Science
Klaus Pontoppidan, Ph.D.

Planetary Science

Postdoctoral Scholars

Alon Amrani, Ph.D.

Geology

Geochemistry
Jake Bailey, Ph.D.
Agouron Postdoctoral Scholar
Sylvain Barbot, Ph.D.
Geology
Melinda Beaver, Ph.D.
Environmental Science and
Engineering
Magali Bonifacie, Ph.D.
Geochemistry
Tomaso Bontognali, Ph.D.
Geobiology
Thomas Bristow, Ph.D.

M. Robinson Cecil, Ph.D. Javier Ruiz Paredes, Ph.D. Geology Bin Chen, Ph.D. Texaco Postdoctoral Scholar Yi-Ju Chou, Ph.D. Geology Risheng Chu, Ph.D. Geophysics Alexander Copley, Ph.D. Geology Robert Eagle, Ph.D. Geochemistry Ian Eisenman, Ph.D. Environmental Science and Engineering Jean Elkhoury, Ph.D. Geophysics Ryan Ewing, Ph.D. Geology Alessandro Fabbrizio, Ph.D. Geochemistry Oleg Fat'yanov, Ph.D. Geophysics Wesley Fraser, Ph.D. Planetary Science Roberta Hansman, Ph.D. Geobiology Itai Haviv, Ph.D. Geology Gregor Hillers, Ph.D. Geophysics James Hollingsworth, Ph.D. Geology Seth John, Ph.D. Geochemistry Yohai Kaspi, Ph.D. Environmental Science and

Geophysics Benjamin Passey, Ph.D. Dreyfus Postdoctoral Scholar Rachel Poretsky, Ph.D. Geobiology Timothy Raub, Ph.D. Geology Kunio Sayanagi, Ph.D. Planetary Science Anthony Sladen, Ph.D. Geology Jason St. Clair, Ph.D. Environmental Science and Engineering Jonathan Wilson, Ph.D. O. K. Earl Postdoctoral Scholar in Geology Debra Wunch, Ph.D. Environmental Science and Engineering Wenzheng Yang, Ph.D. Geophysics

Visitors

Abigail Allwood, Ph.D. Geology James Chen, Ph.D. Geochemistry Shana Goffredi, Ph.D. Geobiology Martha House, Ph.D. Geology Joel Hurowitz, Ph.D. Geology Francisco Martin-Torres, Ph.D. Planetary Science Ralph Milliken, Ph.D. Geology Henry Ngo, Ph.D. Geochemistry Sidao Ni, Ph.D. Geophysics Aradhna Tripati, Ph.D. Geochemistry

Engineering

Duncan Keppie, Ph.D. Geophysics

Naomi Levin, Ph.D.

Olivia Mason, Ph.D.

Anna Meckler, Ph.D.

Rowin Meijerink, Ph.D.

Planetary Science Eva Niedermeyer, Ph.D. Foster and Coco Stanback Postdoctoral Fellow in Global Environmental Science Hiroyuki Noda, Ph.D. Geophysics

Geochemistry

Geochemistry

Geobiology

+

Division of the Humanities and Social Sciences

Jonathan N. Katz, Chair Jean-Laurent Rosenthal, Executive Officer for the Social Sciences Cindy Weinstein, Executive Officer for the Humanities

Professors Emeriti

Louis Breger, Ph.D.

Psychoanalytic Studies

Lance E. Davis, Ph.D.

Mary Stillman Harkness

Professor of Social Science

Daniel J. Kevles, Ph.D.

J. O. and Juliette Koepfli Professor

of the Humanities

Burton H. Klein, Ph.D.

Economics
Jenijoy La Belle, Ph.D.

English Oscar Mandel, Ph.D. Literature

Edwin S. Munger, Ph.D. Geography

Thayer Scudder, Ph.D.

Anthropology

Annette J. Smith, Ph.D. Literature

Frederick B. Thompson, Ph.D.

Applied Philosophy and Computer
Science

Associate Professor Emeritus

Heinz E. Ellersieck, Ph.D. History

Lecturers Emeriti

Lee F. Browne, M.S.

Education
Valentina A. Lindholm, M.A.

Russian
Shirley A. Marneus, M.A.

Theater Arts

Professors

Ralph Adolphs, Ph.D.

Bren Professor of Psychology and
Neuroscience and Professor of
Biology

R. Michael Alvarez, Ph.D. *Political Science*

Kim C. Border, Ph.D. Economics

Peter L. Bossaerts, Ph.D.

William D. Hacker Professor of
Economics and Management and
Professor of Finance

John Brewer, Ph.D.

Eli and Edye Broad Professor of
Humanities and Social Sciences
and Professor of History and
Literature

Jed Z. Buchwald, Ph.D.

Doris and Henry Dreyfuss

Professor of History

Colin F. Camerer, Ph.D.

Robert Kirby Professor of
Behavioral Economics

Jaksa Cvitanic, Ph.D. Mathematical Finance

Jean E. Ensminger, Ph.D.

Edie and Lew Wasserman

Professor of Anthropology

Mordechai Feingold, D.Phil.

History Kevin M. Gilmartin, Ph.D. English

Jacob K. Goeree, Ph.D. Economics

David M. Grether, Ph.D. Frank J. Gilloon Professor of Economics

Christopher R. Hitchcock, Ph.D. *Philosophy*

Philip T. Hoffman, Ph.D. Rea A. and Lela G. Axline Professor of Business Economics and Professor of History

Jonathan N. Katz, Ph.D. Social Sciences and Statistics

D. Roderick Kiewiet, Ph.D. *Political Science*

Diana L. Kormos-Buchwald, Ph.D. History

J. Morgan Kousser, Ph.D. History and Social Science

John O. Ledyard, Ph.D., D.Lit.h.c. Allen and Lenabelle Davis Professor of Economics and Social Sciences

Peter C. Ordeshook, Ph.D. Mary Stillman Harkness Professor of Political Science

Thomas R. Palfrey, Ph.D. Flintridge Foundation Professor of Economics and Political Science

George W. Pigman III, Ph.D. English

Charles R. Plott, Ph.D., D.Lit.h.c., D.h.c.

Edward S. Harkness Professor of Economics and Political Science

Robert A. Rosenstone, Ph.D. History

Jean-Laurent Rosenthal, Ph.D. Rea A. and Lela G. Axline Professor of Business Economics

Robert P. Sherman, Ph.D. Feonomics and Statistics

Matthew S. Shum, Ph.D.

Economics
Matthew L. Spitzer, J.D., Ph.D.
Law and Social Science

Cindy Weinstein, Ph.D.

English

James F. Woodward, Ph.D. J. O. and Juliette Koepfli Professor of the Humanities

Associate Professors

Warren C. Brown, Ph.D. History

Christopher P. Chambers, Ph.D. *Economics*

Fiona Cowie, Ph.D.

Philosophy
Tracy K. Dennison, Ph.D.
History

Federico Echenique, Ph.D. *Economics*

Catherine Jurca, Ph.D. English

John P. O'Doherty, D.Phil. Psychology

Steven R. Quartz, Ph.D. Philosophy

Antonio Rangel, Ph.D. Economics

Leeat Yariv, Ph.D. Economics

Assistant Professors

Dehn Gilmore, Ph.D. English

Kristine Haugen, Ph.D. English

Matias Iaryczower, Ph.D. Economics and Political Science

Gideon Manning, Ph.D. *Philosophy*

Andrea Mattozzi, Ph.D. Economics

Pietro Ortoleva, Ph.D.

Erik Snowberg, Ph.D.

Economics and Political Science Michiko Ueda, Ph.D.

Political Science

Ahmanson Postdoctoral Instructor

Katie E. Clark, Ph.D. History

Caltech-Huntington Mellon Postdoctoral Instructors

Jason Baskin, Ph.D. English Marius Stan, Ph.D. Philosophy

Weisman Postdoctoral Instructor

Matthew C. Hunter, Ph.D. Art History

Instructors

Anja-Silvia Goeing, Ph.D. *History* Christopher Eagle, Ph.D. *English*

Lecturers

Andreas Aebi, Ph.D. German Gloria Arjona, Ph.D. Spanish Shelley M. Bennett, Ph.D. Art History Christine M. Daley, Ph.D.

English

Daniel A. Garcia, M.A. Spanish

Merrill Joan Gerber, M.A. Creative Writing

Judith Hall, M.A. Creative Writing

Ritsuko Hirai, Ph.D. 7apanese

Kayoko Hirata, Ph.D. Japanese

Feng-Ying Ming, Ph.D.

Chinese

Thomas A. Neenan, M.F.A. Music

Christiane H. Orcel, Ph.D. French

Lynn Paul, Ph.D. Psychology

Shiing-wu Wang, Ph.D. Accounting

Xiangyun Wang, Ph.D. Chinese

Juliann Kay Wolfgram, Ph.D. Art History

Senior Research Associate

Tilman Sauer, Ph.D. History

Faculty Associates

Stuart A. Ende, Ph.D. Literature Simon J. Wilkie, Ph.D. Economics

Francis Bacon Visiting Professor

Naomi Oreskes, Ph.D. History of Science

Eleanor Searle Visiting Professor

David B. Wilson, Ph.D. History

Visiting Professors

Bradford Cornell, Ph.D. Finance

Edward J. McCaffery, J.D.

Howard Rosenthal, Ph.D. Political Science

Noel M. Swerdlow, Ph.D. History

Visiting Associates

Jasmina Arifovic, Ph.D.

Economics

Marcus Berliant, Ph.D.

Economics

Jozsef Illy, Ph.D.

History

Tarja Knuuttila, Ph.D. Philosophy

Anne Kox, Ph.D.

History

Steven Nafziger, Ph.D.

Economics

Robert C. Ritchie, Ph.D. History

Wolfram Schultz, Ph.D.

Neuroscience

Michael L. Spezio, Ph.D.

Psychology Jeroen van Dongen, Ph.D.

History

William R. Zame, Ph.D.

Economics

Member of the Professional Staff

Ze'ev Rosenkranz, M.L.S.

Postdoctoral Scholars

Elina Birmingham, Ph.D.

Psychology

Benedetto De Martino, Ph.D.

Neuroscience

Ian Glascher, Ph.D. Psychology

Todd A. Hare, Ph.D.

Neuroeconomics

Daniel Kennedy, Ph.D.

Neuroscience Cendri Hutcherson, Ph.D.

Neuroeconomics

Yuan-Chan Lien, Ph.D. **Economics**

Seung-Lark Lim, Ph.D. Neuroeconomics

Morgan Llewellyn, Ph.D. Political Science

Aniol Llorente-Saguer, Ph.D. *Economics*

Alexander Smith, Ph.D. *Economics*

Damian Stanley, Ph.D. Neuroeconomics

Naotsugu Tsuchiya, Ph.D. Psychology and Neuroscience

Oana Tuduscuic, Ph.D. Neuroscience, Psychology

Stephanie W. Wang, Ph.D. *Economics*

Shih-Wei Wu, Ph.D. Neuroeconomics

Division of Physics, Mathematics and Astronomy

Andrew E. Lange, Chair
B. Thomas Soifer, Deputy Chair and
Director, Spitzer Science Center

Lynne A. Hillenbrand, Executive Officer for Astronomy

Kenneth G. Libbrecht, Executive Officer for Physics

Charles A. Beichman

Executive Director, Michelson

Science Center

George Helou, Executive Director, Infrared Processing and Analysis Center

Shrinivas Kulkarni, Director, Caltech Optical Observatories

Jay Marx, Executive Director, LIGO Laboratory (Laser Interferometer Gravitational-Wave Observatory)

Thomas G. Phillips, *Director*; *Caltech Submillimeter Observatory*

Anthony C. S. Readhead, Director,
Owens Valley Radio Observatory
and Chajnantor Observatory

Michael Roukes, Codirector, Kavli Nanoscience Institute

Axel Scherer, Codirector, Kavli Nanoscience Institute Barry Simon, Executive Officer for Mathematics

Professors Emeriti

Tom M. Apostol, Ph.D. Mathematics

Barry C. Barish, Ph.D. Ronald and Maxine Linde Professor of Physics

Charles A. Barnes, Ph.D. *Physics*

Felix H. Boehm, Ph.D.

William L. Valentine Professor of
Physics

Robert F. Christy, Ph.D.

Institute Professor of Theoretical
Physics

Marshall H. Cohen, Ph.D. Astronomy

Eugene W. Cowan, Ph.D. *Physics*

Richard A. Dean, Ph.D.

Mathematics

Ronald W. P. Drever, Ph.D. *Physics*

Steven C. Frautschi, Ph.D.

Theoretical Physics

F. Brock Fuller, Ph.D. *Mathematics*

Murray Gell-Mann, Ph.D., Sc.D.h.c., D.Sc.h.c., Nobel Laureate

Robert Andrews Millikan Professor of Theoretical Physics

Peter M. Goldreich, Ph.D.

Lee A. DuBridge Professor of Astrophysics and Planetary Physics

David L. Goodstein, Ph.D.
Frank J. Gilloon Distinguished
Teaching and Service Professor and
Professor of Physics and Applied
Physics

Ralph W. Kavanagh, Ph.D. *Physics*

Gary A. Lorden, Ph.D. Mathematics

W. A. J. Luxemburg, Ph.D. *Mathematics*

Gerry Neugebauer, Ph.D. Robert Andrews Millikan Professor of Physics

Charles W. Peck, Ph.D. *Physics*

Maarten Schmidt, Ph.D., Sc.D. Francis L. Moseley Professor of Astronomy

Kip S. Thorne, Ph.D., D.Sc.h.c., D.h.c., L.H.D.h.c. Richard P. Feynman Professor of Theoretical Physics

Rochus E. Vogt, Ph.D. R. Stanton Avery Distinguished Service Professor and Professor of Physics

David B. Wales, Ph.D. Mathematics

Ward Whaling, Ph.D. *Physics*

Harold Zirin, Ph.D. Astrophysics

Senior Research Associate Emeritus

Petr Vogel, Ph.D. *Physics*

Professors

Michael Aschbacher, Ph.D. Shaler Arthur Hanisch Professor of Mathematics

Alexei Borodin, Ph.D.

Mathematics

Danny Calegari, Ph.D.

Richard Merkin Distinguished

Professor of Mathematics

Judith G. Cohen, Ph.D. Kate Van Nuys Professor of Astronomy

Michael C. Cross, Ph.D. Theoretical Physics

S. George Djorgovski, Ph.D. *Astronomy*

James P. Eisenstein, Ph.D. Frank J. Roshek Professor of Physics and Applied Physics

Richard S. Ellis, D.Phil., D.Sc.h.c. Steele Family Professor of Astronomy

Bradley W. Filippone, Ph.D.

Physics Matthias Flach, Ph.D. Mathematics

Matthew Fisher, Ph.D.

Earle C. Anthony Professor of
Theoretical Physics

Thomas Graber, Ph.D. *Mathematics*

Sergei Gukov, Ph.D. Theoretical Physics and

Mathematics Fiona A. Harrison, Ph.D. Physics and Astronomy

David G. Hitlin, Ph.D. *Physics*

Marc Kamionkowski, Ph.D.

Robinson Professor of Theoretical
Physics and Astrophysics

Alexander S. Kechris, Ph.D. Dh.

Alexander S. Kechris, Ph.D., D.h.c. *Mathematics* H. Jeff Kimble, Ph.D.

William L. Valentine Professor and Professor of Physics

Alexei Kitaev, Ph.D.

Theoretical Physics and Computer
Science

Shrinivas R. Kulkarni, Ph.D. John D. and Catherine T. MacArthur Professor of Astronomy and Planetary Science

Andrew E. Lange, Ph.D.

Marvin L. Goldberger Professor of
Physics

Kenneth G. Libbrecht, Ph.D. *Physics*

Nikolai G. Makarov, Ph.D. Mathematics

Matilde Marcolli, Ph.D. Mathematics

D. Christopher Martin, Ph.D. *Physics*

Robert D. McKeown, Ph.D. *Physics*

Harvey B. Newman, Sc.D. *Physics*

Hiroshi Oguri, Ph.D. Fred Kavli Professor of Theoretical Physics

Thomas G. Phillips, D.Phil. Altair Professor of Physics

E. Sterl Phinney, Ph.D. Theoretical Astrophysics

Jerome Pine, Ph.D. *Physics*

H. David Politzer, Ph.D., Nobel Laureate Richard Chace Tolman Professor of

Theoretical Physics
Frank C. Porter, Ph.D.
Physics

John P. Preskill, Ph.D. John D. MacArthur Professor of Theoretical Physics

Thomas A. Prince, Ph.D. *Physics*

Eric M. Rains, Ph.D. *Mathematics*

Dinakar Ramakrishnan, Ph.D. Taussky-Todd-Lonergan Professor of Mathematics

Anthony C. S. Readhead, Ph.D.

Barbara and Stanley R. Rawn Jr.

Professor of Astronomy

Michael L. Roukes, Ph.D.

Physics, Applied Physics, and
Bioengineering

Anneila I. Sargent, Ph.D.

Benjamin M. Rosen Professor of
Astronomy

Wallace L. W. Sargent, Ph.D.

Ira S. Bowen Professor of

Astronomy

Axel Scherer, Ph.D.

Bernard A. Neches Professor of
Electrical Engineering, Applied
Physics, and Physics

John H. Schwarz, Ph.D.

Harold Brown Professor of
Theoretical Physics

Nicholas Z. Scoville, Ph.D. Francis L. Moseley Professor of Astronomy

Barry M. Simon, Ph.D., D.Sc.h.c.

IBM Professor of Mathematics and
Theoretical Physics

B. Thomas Soifer, Ph.D. *Physics*

Charles C. Steidel, Ph.D.

Lee A. DuBridge Professor of
Astronomy

Edward C. Stone, Ph.D., D.Sc.h.c. David W. Morrisroe Professor of Physics

Thomas A. Tombrello Jr., Ph.D., Ph.D.h.c. William R. Kenan Jr. Professor and Professor of Physics

Alan J. Weinstein, Ph.D. *Physics*

Richard M. Wilson, Ph.D. *Mathematics*

Mark B. Wise, Ph.D.

John A. McCone Professor of High

Energy Physics

Nai-Chang Yeh, Ph.D. *Physics*

Ahmed H. Zewail, Ph.D., D.Sc.h.c., D.h.c., D.Univ.h.c., D.Phil.h.c., LL.D.h.c., M.D.h.c., Nobel Laureate Linus Pauling Professor of Chemistry and Professor of Physics Jonas Zmuidzinas, Ph.D. Physics

Associate Professors

Lynne Anne Hillenbrand, Ph.D.
Astronomy
Anton Kapustin, Ph.D.
Theoretical Physics
Gil Refael, Ph.D.
Theoretical Physics
Re'em Sari, Ph.D.
Astrophysics and Planetary Science
Maria Spiropulu, Ph.D.

Assistant Professors

Physics

Rana Adhikari, Ph.D. *Physics* Andrew W. Blain, Ph.D. *Astronomy* Yanbei Chen, Ph.D.

Physics
Sunil Columba Ph.D.

Sunil Golwala, Ph.D. *Physics*

Christopher Hirata, Ph.D.

Astrophysics

John A. Johnson, Ph.D. Astronomy

Elena Montovan, Ph.D. Mathematics

Olexei Motrunich, Ph.D. Theoretical Physics

Yi Ni, Ph.D.

Mathematics

Christian Ott, Ph.D.

Theoretical Astrophysics

Instructors

Susama Agarwala, Ph.D. Harry Bateman Research

Instructor in Mathematics
Baskar Balasubramanynam, Ph.D.

Harry Bateman Research Instructor in Mathematics

Niranjan Blaachandran, Ph.D. Harry Bateman Research Instructor in Mathematics

Maurice Duits, Ph.D.

Olga Taussky and John Todd

Instructor in Mathematics Inessa Epstein, Ph.D. Olga Taussky and John Tode

Olga Taussky and John Todd Instructor in Mathematics

Amin Gholampour, Ph.D.

Olga Taussky and John Todd

Instructor in Mathematics

Nam-Gyu Kang, Ph.D. Olga Taussky and John Todd Instructor in Mathematics

Baptiste Morin, Ph.D.

Harry Bateman Research
Instructor in Mathematics

Eric Ryckman, Ph.D.

Harry Bateman Research
Instructor in Mathematics

Fokko Van De Bult, Ph.D. Harry Bateman Research Instructor in Mathematics

Jiajun Wang, Ph.D.

Olga Taussky and John Todd Instructor in Mathematics

Lecturers

Eric D. Black, Ph.D. *Physics*

Thomas Gottschalk, Ph.D. *Physics*

Lee A. Lindblom, Ph.D. *Physics*

Chris Mach, B.S. *Physics*

Frank Rice, M.S.

Physics

Virginio Sannibale, Ph.D. *Physics*

Senior Research Associates

John Carpenter, Ph.D. Astronomy

Sean Carroll, Ph.D. *Physics*

George Helou, Ph.D. Physics

Lee A. Lindblom, Ph.D.

Physics Dariusz C. Lis, Ph.D. Physics

Jay Marx, Ph.D.

Physics

Richard A. Mewaldt, Ph.D. *Physics*

Stephen Padin, Ph.D. Astrophysics

Timothy J. Pearson, Ph.D. *Radio Astronomy*

Senior Research Fellows

Koji Arai, Ph.D.

Experimental Physics

Andrew Benson, Ph.D.

Theoretical Cosmology

Kieran A. Cleary, Ph.D. Astronomy

Seung-Yeop Lee, Ph.D. Sherman Fairchild Senior

Research Fellow in Mathematics

Andrei Mikhailov, Ph.D. *Physics*

Yasushi Mino, Ph.D. Physics

Mark Scheel, Ph.D.

Physics

577

Henry Wilton, Ph.D. Scott Russell Johnson Senior Research Fellow in Mathematics

Senior Faculty Associates

Charles Beichman, Ph.D. *Astronomy*

James J. Bock, Ph.D. *Physics*Curt Cutler, Ph.D. *Physics*

Faculty Associate

I. Juliana Sackmann, Ph.D. *Physics*

Visiting Associates

Igor Bilenko, Ph.D. *Physics*

Roger Blandford, Ph.D. *Physics*

Douglas Bock, Ph.D.

Astronomy

Charles Matt Bradford, Ph.D.

Physics Vladimir B. Braginsky, Ph.D. Physics

Todd Brun, Ph.D.

Physics

Alessandra Buonanno, Ph.D. *Physics*

Goutam Chattopadhyay, Ph.D. *Physics*

Asantha Cooray, Ph.D. *Physics*

Brendan P. Crill, Ph.D. *Physics*

Shtefan L. Danilishin, Ph.D. Theoretical Astrophysics

Peter Day, Ph.D. *Physics*

Stanley Deser, Ph.D. Theoretical Physics

Darren Dowell, Ph.D. *Physics*

Robert V. Duncan, Ph.D. *Physics*

Gerald Eigen, Ph.D. *Physics*

Wolfgang Fink, Ph.D. *Physics*

Todd Gaier
Astronomy

Avishay Gal-Yam, Ph.D. Astronomy

Paul F. Goldsmith, Ph.D. *Physics*

Gabriela Gonzalez, Ph.D. *Physics*

Krzysztof Gorski, Ph.D.

Physics Keith J.B. Grainge, Ph.D.

Physics Herold R. Gustafson, Ph.D.

Physics Inseob Hahn, Ph.D.

Physics

Stephen W. Hawking, Ph.D. Sherman Fairchild Distinguished Scholar

Emlyn W. Hughes, Ph.D. *Physics*

Farid Khalili, Ph.D.

Physics

Haseo Ki, Ph.D. Mathematics

JaiSam Kim, Ph.D.

Physics Richard A. M. Lee, Ph.D.

Physics Daniel A. Lidar, Ph.D.

Theoretical Physics Jonathan Lubin, Ph.D. Mathematics

Fabian Malbet, Ph.D. *Astronomy*

Peter V. Mason, Ph.D.

Physics Steve McGuire, Ph.D.

Simona Mei, Ph.D. Astronomy

Physics

Georges S. Meylan, Ph.D. Astronomy

Valery Mitrofanov, M.Sc. *Physics*

Bahram Mobasher, Ph.D. Astronomy

Hien T. Nguyen, Ph.D.

Physics Bryan Penprase, Ph.D.

Astronomy Elena Pierpaoli, Ph.D.

Astrophysics
Pierre Puget, Ph.D.

Physics Physics

Andreas Quirrenbach, Ph.D. *Physics*

Michael Ramsey-Musolf, Ph.D. **Physics** David H. Reitze, Ph.D. LIGO Paul Renteln, Ph.D. Mathematics Jason Rhodes, Ph.D. Astronomy Janet D. Scheel, Ph.D. **Physics** Robert Schofield, Ph.D. **Physics** Michael D. Seiffert, Ph.D. **Physics** Eugene Serabyn, Ph.D. **Physics** David H. Shoemaker, Ph.D. LIGOKirill Shtengel, Ph.D. **Physics** David O. Siegmund, Ph.D. Mathematics David Silva, Ph.D. Astronomy, IPAC Graham Smith, Ph.D. Astronomy Lisa E. Szechter, Ph.D. LIGO Massimo Tinto, Ph.D. Theoretical Physics Marie Treyer, Ph.D. **Physics** Tony Travouillon, Ph.D. Astronomy Michele Vallisneri, Ph.D. **Physics**

Steven J. van Enk, Ph.D. *Physics*Serguei Viattchanine, Ph.D.

Physics
Mark E. Wiedenbeck, Ph.D.

Physics Sanichiro Yoshida, Ph.D. Physics

Members of the Professional Staff

Rachel Akeson, Ph.D. Stuart Anderson, Ph.D. Philip Appleton, Ph.D Lee Armus, Ph.D. Thomas Barlow, Ph.D. Bruce Berriman, Ph.D. James Kent Blackburn, Ph.D.

Andrew Boden, Ph.D. Julian Bunn, Ph.D. Sean J. Carey, Ph.D Robert W. Carr, M. Phil. Ranga Ram Chary, Ph.D. David R. Ciardi, Ph.D. Christina M.S. Cohen, Ph.D. Walter R. Cook, Ph.D. Dennis C. Coyne, M.S. Alan C. Cummings, Ph.D. Roc Cutri, Ph.D. Richard Dekany, Ph.D. Riccardo DeSalvo, Ph.D. Dario Fadda, Ph.D. David Frayer, Ph.D. Valery Frolov, Ph.D Philippe Galvez, Eng. Joseph A. Giaime, Ph.D. Thomas D. Gottschalk, Ph.D. Carl Grillmair, Ph.D. Eric K. Gustafson, Ph.D Dale Ingram, M.S. Thomas Jarrett, Ph.D. William Kells, Ph.D. Davy Kirkpatrick, Ph.D. Mark Lacy, Ph.D. Michael Landry, Ph.D. William Latter, Ph.D. Albert Lazzarini, Ph.D. Richard A. Leske, Ph.D. Deborah Levine, Ph.D. Phillip E. Lindquist, Eng. Steven Lord, Ph.D. Nanyao Lu, Ph.D. William Mahoney, Ph.D. Keith Matthews, M.S. Joseph Mazzarella, Ph.D. Patrick Morrissey, Ph.D. Alberto Noriega-Crespo, Ph.D. J.E. Brian O'Reilly, Ph.D. Deborah Padgett, Ph.D. Fredrick J. Raab, Ph.D. Simon J.E. Radford, Ph.D. William Reach, Ph.D. Luisa M. Rebull, Ph.D. Alan P. Rice, B.S. Norna A. Robertson, Ph.D. Gary H. Sanders, Ph.D. Richard Savage, Ph.D. Stephen L. Scott, Ph.D. Patrick Shopbell, Ph.D. David Shupe, Ph.D. Daniel Sigg, Ph.D. Nancy Silbermann, Ph.D. John Stauffer, Ph.D. Lisa Storrie-Lombardi, Ph.D. Jason Surace, Ph.D.

Harry Teplitz, Ph.D.
Schuyler Van Dyk, Ph.D.
Stanley E. Whitcomb, Ph.D.
Phil A. Willems, Ph.D.
David P. Woody, Ph.D.
Hiroaki Yamamoto, Ph.D.
Lin Yan, Ph.D.
Ren-Yuan Zhu, Ph.D.
Michael Zucker, Ph.D.
John Zweizig, Ph.D.

Senior Postdoctoral Scholars

Jeandrew Brink, Ph.D. *Physics* Ben Cai, Ph.D.

Physics Kipp Cannon, Ph.D. Physics

Chih-Hsiang Cheng, Ph.D. *Physics*

Jianglai Liu, Ph.D. *Physics*

James Don Neill, Ph.D. Space Astrophysics

Oded Eran Ofek, Ph.D.

Astronomy

Angiola Orlando, Ph.D.

Physics
Alexander Rakitin, Ph.D.
Physics

Marcus Runyan, Ph.D.

Observational Cosmology

Natalia Saulina, Ph.D.

Physics

Antony Searle, Ph.D. *Physics*

Anand Sengupta, Ph.D. *Physics*

Brian Siana, Ph.D.

Astronomy

Ulrich Sperhake, Ph.D. *Physics*

Bela Szilaqyi, Ph.D.

Physics

John E. Vaillancourt, Ph.D. *Physics*

Postdoctoral Scholars

Jason Alicea, Ph.D. *Physics*Deokkeun An, Ph.D. *IPAC*

Morten Andersen, Ph.D. *IPAC*

Shin'ichiro Ando, Ph.D. *Astrophysics*

Arthur Apresyan, Ph.D.

Experimental Physics

Stefan W. Ballmer, Ph.D. Astrophysics

Christoph Baranec, Ph.D. *Astronomy*

Ryan Barnett, Ph.D. *Physics*

Thomas Bell, Ph.D. *Physics*

Doron L. Bergman, Ph.D. Theoretical Physics

Joseph Betzweiser, Ph.D. *Physics*

Andrew D. Beyer, Ph.D. *Physics*

Nicolas Billot, Ph.D. *IPAC*

Judd D. Bowman, Ph.D. *Astrophysics*

Jonathan Breuer, Ph.D. *Physics*

Carrie R. Bridge, Ph.D. Astrophysics, IPAC

Aidan Brooks, Ph.D. *Physics*

Alyson Brooks, Ph.D. Theoretical Cosmology

Matthew Buckley, Ph.D. *Physics*

Kuenley Chiu, Ph.D. *Astronomy*

Eileen Chollet, Ph.D. *Physics*

Michelle E. Cluver, Ph.D. Astronomy, IPAC

Justin R. Crepp, Ph.D. Astronomy

Kelle Cruz, Ph.D.

Astronomy
Kalliopi Dasyra, Ph.D.
Astrophysics, IPAC

Matthew B. Day, Ph.D.

Mathematics

Sarah E. Dodson-Robinson, Ph.D. *Astronomy*

Ciro Donalek, Ph.D.

Astronomy

Daniel Dwyer, Ph.D. *Physics*

Bertrand Echenard, Ph.D. *Physics*

Louise Edwards, Ph.D. *Astrophysics*

580

Nancy del Carmen Elias de la Rosa, Kristin Madsen, Ph.D. Ph.D. **Physics IPAC** Joseph Marsano, Ph.D. Martin Emprechtinger, Ph.D. **Physics** Tomotake Matsumura, Ph.D. **Physics** Lukasz Fidkowski, Ph.D. **Physics** Jason Melbourne, Ph.D. Theoretical Physics Jeffrey P. Filippini, Ph.D. Astronomy Experimental Physics Stephen J.C. Muchovej, Ph.D. Nicolas Flagey, Ph.D. Astronomy IPACEric Murphy, Ph.D. Murali Krishna Ghatkesar, Ph.D. Astronomy, IPAC **Physics** Walter Ogburn, Ph.D. Orly Gnat, Ph.D. Experimental Physics **Physics** Toyoko Jennifer Orimoto, Ph.D. Sylvain Guieu, Ph.D. **Physics** Physics, IPAC Christian Ospelkaus, Ph.D. Sebastian Haan, Ph.D. **Physics** Astronomy, IPAC Scott B. Papp, Ph.D. Chad Hanna, Ph.D. Quantum Optics Deborah Paradis-Cami, Ph.D. **Physics** Erik A. Henriksen, Ph.D. Astrophysics, IPAC Ryan B. Patterson, Ph.D. **Physics** Alastair Hepnostall, Ph.D. **Physics Physics** Vasiliki Pavlidou, Ph.D. Janice Hester, Ph.D. Astronomy Space Astrophysics Fang Peng, Ph.D. Tanja Hinderer, Ph.D. **Astrophysics** Theoretical Relativity Tamar Pereg-Barnea, Ph.D. Matthew Ian Hollister, Ph.D. **Physics** Adrian Perez Galvan, Ph.D. Astronomy Andrea Isella, Ph.D. **Physics Physics** Annika H. Peter, Ph.D. Liang Jiang, Ph.D. **Physics** Theoretical Physics Andrea Petric, Ph.D. Stephen P. Jordan, Ph.D. Astrophysics, IPAC Theoretical Physics Robert Quimby, Ph.D. Styliani Kafka, Ph.D. Astronomy Vikram R. Rana, Ph.D. Astronomy, IPAC Peter M. Kalmus, Ph.D. **Physics** Cindy A. Regal, Ph.D. **Physics** Christoph A. Keller, Ph.D. Quantum Optics Dominik Riechers, Ph.D. Theoretical Physics Robert Koenig, Ph.D. Astronomy Theoretical Physics Kirill Saraykin, Ph.D. Michael H. Kesden, Ph.D. **Physics** Theoretical Astrophysics Maria Claudia Scarlata, Ph.D. Matthew La Haye, Ph.D. Astronomy, IPAC Center for the Physics of Sakura Schafer-Nameki, Ph.D. Information **Physics** Keith S. M. Lee, Ph.D. Fabian Schmidt, Ph.D. Theoretical Cosmology Physics Louis Levenson, Ph.D. Vernesa Smolcik, Ph.D. **Physics** Astronomy Jessica Lu, Ph.D. Kentaro Somiya, Ph.D.

Observational Astronomy

Theoretical Astrophysics

Nathaniel Stern, Ph.D.

Experimental Physics

Amber L. Stuver, Ph.D.

Physics

Christina V. Torres, Ph.D.

Physics

David Tzang, Ph.D.

Theoretical Astrophysics

Tanya C. Urrutia, Ph.D.

IPAC

Julian C. van Eyken, Ph.D.

Julian C. van Eyken, Ph.D.
Astronomy, IPAC
Luis Guillermo Villanueva Torrijo,
Ph.D.
Physics
Yanling Wu, Ph.D.

Yanling Wu, Ph.D.

Astronomy, IPAC
Jing Xia, Ph.D.

Experimental Physics

Michel Zamojski, Ph.D. Astronomy, IPAC Benjamin I. Zwiebel, Ph.D. Theoretical Physics

Center for Advanced Computing Research

Mark A. Stalzer, Ph.D. Director

Industrial Relations Center

Gaylord E. Nichols, B.A. Director

Information Management Systems and Services

Rich Fagen, B.A.

Chief Information Officer

Directorate

Beverly Allen, M.B.A. Glenn W. Bach, M.S. RuthAnne Bevier, M.L.I.S. Bradley Cain, J.D. John A. Dundas III, M.S. Ron Kong, M.S. Robert Logan, B.S. Leslie Maxfield, M.S. Wayne Waller, M.F.A.

Jet Propulsion Laboratory

Administered by Caltech for the National Aeronautics and Space Administration

Charles Elachi, *Director*Eugene L. Tattini, *Deputy Director*

Executive Council

Blaine A. Baggett

Manager, Office of

Communications and Education

John R. Casani

Special Assistant, Office of the

Director

Paul E. Dimotakis

Chief Technologist

Diane L. Evans

Director for Earth Science and

Technology

Richard S. Grammier Jim O'Donnell, M.S. (L.S.) Director for Solar System Head, Collections, Information and Exploration Programs Research Services Cozette M. Hart Judith R. Goodstein, Ph.D. Director for Human Resources University Archivist Dale M. Johnson Professional Staff Associate Director/Chief Financial Officer and Director for Business Teague Allen, M.S. (L.I.S.) **Operations** Kristin Buxton, M.S. (L.I.S.) Chris P. Jones Lindsay Cleary, M.S. (L.I.S.) Associate Director for Flight Betsy Coles, B.A. Projects and Mission Success S. Katherine Johnson, M.S. (L.I.S.) Matthew R. Landano Jim Latchney, M.S. (L.I.S.) Director for Safety and Mission George Porter, M.S. (L.S.) Success Dana Roth, M.S., M.S. (L.S.) Fuk K. Li Arun Sannuti, M.S., M.S. (L.I.S.) Manager, Mars Exploration Laura Smart, M.S. (L.I.S.) Program Office and Director for Jay Walters, B.A. Mars Exploration Leslie L. Livesay Staff/Faculty Director for Engineering and **Consultation Center** Science Daniel J. McCleese Chief Scientist Susan Cross, Director John B. McNamee Director for Interplanetary Student Affairs Network Directorate Firouz M. Naderi Anneila I. Sargent Associate Director for Project Vice President for Student Affairs Formulation and Strategy Kevin P. Austin Richard P. O'Toole Senior Director of Health and Manager, Office of Legislative Counseling Services Affairs Delores M. Bing James J. Rinaldi Coordinator, Performing and Manager, Office of the Chief Visual Arts Faculty and Programs Information Officer Richard Bischoff Director of Admissions Michael J. Sander Manager, Exploration Systems and Geoffrey A. Blake Technology Master of Student Houses Jakob J. van Zyl Don A. Crewell Director for Astronomy and Physics Director of Financial Aid Harry M. Yohalem Peter Daily Caltech General Counsel Assistant Vice President for Housing and Dining Eva Graham

Library Services

Kimberly Douglas, M.A., M.S. (L.S.) University Librarian Michelle Aldecua, B.A. Library Operations Administrator Judith Brott, M.B.A. Business Manager Sandra S. Garstang, B.S. Manager, Circulation Services

Wendell P. Jack Director of Athletics, Physical Education, and Recreation

Associate Dean of Graduate

Director of the Caltech Center for

Associate Dean of Students

Diversity

Felicia A. Hunt

Studies

John F. Hall

Barbara C. Green

Dean of Students

Stuart Miller

Medical Director

Mary N. Morley Registrar

Erica O'Neal

Assistant Vice President for Enrollment

Dimitris Sakellariou

Chief Administrator

Joseph E. Shepherd

Dean of Graduate Studies

Lauren Stolper

Director of Fellowships Advising and Study Abroad, and Career Development Center

EQ/

OFFICERS AND FACULTY

University of California = UC Berkeley California State University = Cal State L.A.

·

Jean-Lou Chameau, Ph.D., President; Professor of Civil Engineering, Environmental Science and Engineering, and Mechanical Engineering

Ing., École Nationale Supérieure d'Arts et Métiers, 1976; M.S., Stanford University, 1977; Ph.D., 1981. Professor of Civil Engineering, Environmental Science and Engineering, and Mechanical Engineering 2006–. President, 2006–.

.....

John Norman Abelson, Ph.D., George Beadle Professor of Biology, Emeritus B.S., Washington State University, 1960; Ph.D., Johns Hopkins University, 1965. Professor, Caltech, 1982–91; Beadle Professor, 1991–2002; Beadle Professor Emeritus, 2002–. Chair, Division of Biology, 1989–95.

Yaser S. Abu-Mostafa, Ph.D., Professor of Electrical Engineering and Computer Science B.Sc., Cairo University, 1979; M.S.E.E., Georgia Institute of Technology, 1981; Ph.D., Caltech, 1983. Garrett Research Fellow in Electrical Engineering, 1983; Assistant Professor, 1983–89; Associate Professor, 1989–94; Professor, 1994–.

Allan James Acosta, Ph.D., Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering, Emeritus B.S., Caltech, 1945; M.S., 1949; Ph.D., 1952. Assistant Professor, 1954–58; Associate Professor, 1958–66; Professor, 1966–90; Hayman Professor, 1990–93. Hayman Professor Emeritus, 1993–. Executive Officer for Mechanical Engineering, 1988–93.

Christoph Carl Adami, Ph.D., Faculty Associate in Computation and Neural Systems; Lecturer in Computation and Neural Systems; Lecturer in Computation and Neural Systems B.S., University of Bonn, 1982; Dipl., 1988; M.A., State University of New York (Stony Brook), 1988; Ph.D., 1991. Division Research Fellow, Caltech, 1992–95; Lecturer, 1996–2004; 2006–07; Senior Research Fellow, 1995–2000; Faculty Associate, 2001–.

Rana Adhikari, Ph.D., Assistant Professor of Physics

B.S., University of Florida (Gainesville), 1998; Ph.D., Massachusetts Institute of Technology, 2004. Caltech, 2006–.

Jess F. Adkins, Ph.D., Associate Professor of Geochemistry and Global Environmental Science B.S., Haverford College, 1990; Ph.D., Massachusetts Institute of Technology, 1998. Assistant Professor, Caltech, 2000–06;

Associate Professor, 2006-.

Ralph Adolphs, Ph.D., Bren Professor of Psychology and Neuroscience and Professor of Biology; Director, Brain Imaging Center B.S., Stanford University, 1986; M.S., 1986; Ph.D., Caltech, 1992. Professor of Psychology and Neuroscience, 2004–05; Bren Professor, 2005–; Professor of Biology, 2005–. Director, 2008–.

Andreas Aebi, Ph.D., Lecturer in German M.A., University of Southern California, 1970; Ph.D., 1974. Lecturer in French, Caltech, 1978; Lecturer in German, 1978–83; 1986–; Instructor in German, 1983–86.

Theodor Agapie, Ph.D., Assistant Professor of Chemistry
B.S., Massachusetts Institute of Technology, 2001; Ph.D., Caltech, 2007. Assistant
Professor, 2009–.

Oded Aharonson, Ph.D., Associate Professor of Planetary Science B.S., Cornell University, 1994; M.Eng., 1995; Ph.D., Massachusetts Institute of Technology, 2002. Assistant Professor, Caltech, 2002–08; Associate Professor, 2008–.

Channing C. Ahn, Ph.D., Senior Research Associate in Materials Science; Lecturer in Materials Science B.S., University of California, 1979; M.S., 1981; Ph.D., University of Bristol, 1985. Senior Research Fellow, Caltech, 1987–92; Senior Research Associate, 1992–; Lecturer, 1988; 1990–2007.

Thomas J. Ahrens, Ph.D., Fletcher Jones Professor of Geophysics, Emeritus B.S., Massachusetts Institute of Technology, 1957; M.S., Caltech, 1958; Ph.D., Rensselaer Polytechnic Institute, 1962. Associate Professor of Geophysics, Caltech, 1967–76; Professor, 1976–2004; W. M. Keck Foundation Professor of Earth Sciences, 1996–2001; Jones Professor, 2004–05; Jones Professor Emeritus, 2005–.

Arden Leroy Albee, Ph.D., Professor of Geology and Planetary Science, Emeritus A.B., Harvard College, 1950; A.M., Harvard University, 1951; Ph.D., 1957. Visiting Assistant Professor, Caltech, 1959–60; Associate Professor of Geology, 1960–66; Professor, 1966–99; Professor of Geology and Planetary Science, 1999–2002; Professor Emeritus, 2002. Academic

Officer, Geological and Planetary Sciences, 1971–79; Chief Scientist, Jet Propulsion Laboratory, 1979–84; Dean of Graduate Studies, 1984–2000.

Nathan L. Albin, Ph.D., Lecturer in Applied and Computational Mathematics B.S., University of Hawaii, 2001; M.S., University of Utah, 2004; Ph.D., 2006. Caltech, 2008.

Clarence R. Allen, Ph.D., Professor of Geology and Geophysics, Emeritus
B.A., Reed College, 1949; M.S., Caltech, 1951; Ph.D., 1954. Assistant Professor, 1955–59; Associate Professor, 1959–64; Professor, 1964–90; Professor Emeritus, 1990–. Interim Director, Seismological Laboratory, 1965–67; Acting Chairman, Division of Geology, 1967–68.

Mark Andrew Allen, Ph.D., Visiting Associate in Planetary Science
B.A., Columbia University, 1971; Ph.D., Caltech, 1976. Member of the Technical Staff, Jet Propulsion Laboratory, 1984—. Research Fellow, Caltech, 1978–81; Institute Visiting Associate, 1987–88; Visiting Associate, 1981–86; 1988–96; 2001–08; Faculty Associate, 1996–2001.

John Morgan Allman, Ph.D., Frank P. Hixon Professor of Neurobiology B.A., University of Virginia, 1965; A.M., University of Chicago, 1968; Ph.D., 1971. Assistant Professor, Caltech, 1974–77; Associate Professor, 1977–84; Professor, 1984–89; Hixon Professor, 1989–

Paolo Aluffi, Ph.D., Visiting Associate in Mathematics
M.S., Universita degli Studi di Torino, 1983; Ph.D., Brown University, 1987.
Professor, Florida State University, 2000–. Caltech, 2008–09.

R. Michael Alvarez, Ph.D., Professor of Political Science
B.A., Carleton College, 1986; M.A., Duke
University, 1990; Ph.D., 1992. Assistant
Professor, Caltech, 1992–95; Associate
Professor, 1995–2002; Professor, 2002–.

Jean Paul Ampuero Saenz, Ph.D., Assistant Professor of Seismology B.S., University of Paris, VII, 1997; M.S., 1998; Ph.D., 2002. Caltech, 2008–.

Jean-Paul Ampuero, Ph.D., Assistant Professor of Seismology B.S., University of Paris VII, 1997; M.S., 1998; Ph.D., 2002. Caltech, 2008–.

Richard A. Andersen, Ph.D., James G. Boswell Professor of Neuroscience B.S., University of California (Davis), 1973; Ph.D., University of California (San Francisco), 1979. Caltech, 1993—. David Jeffrey Anderson, Ph.D., Seymour Benzer Professor of Biology, Investigator, Howard Hughes Medical Institute
A.B., Harvard University, 1978; Ph.D., Rockefeller University, 1983. Assistant
Professor, Caltech, 1986–92; Associate
Professor, 1992–96; Professor, 1996–2004;
Sperry Professor, 2004–2009; Benzer
Professor, 2009. Assistant Investigator, 1989–92; Associate Investigator, 1992–97;
Investigator, 1997–

Don Lynn Anderson, Ph.D., Crafoord Laureate, Eleanor and John R. McMillan Professor of Geophysics, Emeritus
B.S., Rensselaer Polytechnic Institute, 1955;
M.S., Caltech, 1958; Ph.D., 1962. Research Fellow, 1962–63; Assistant Professor, 1963–64; Associate Professor, 1964–68; Professor, 1968–89; McMillan Professor, 1989–2002; McMillan Professor Emeritus, 2002. Director, Seismological Laboratory, 1967–89.

Robert Charles Anderson, Ph.D., Lecturer in Geology B.S., Old Dominion University, 1979; M.S., 1985; Ph.D., University of Pittsburgh, 1995. Caltech, 2008.

Lachlan Leicester Henry Andrew, Ph.D., Visiting Associate in Computer Science B.S., University of Melbourne, 1992; B.Sc., 1993; Ph.D., 1997. Associate Professor, Swineburne University of Technology, 2008.—Caltech, 2008–09.

Fred Colvig Anson, Ph.D., D.h.c.,
Elizabeth W. Gilloon Professor of Chemistry,
Emeritus
B.S., Caltech, 1954; Ph.D., Harvard
University, 1957; D.h.c., University of Paris
VII, 1993. Instructor, Caltech, 1957–58;
Assistant Professor, 1958–62; Associate
Professor, 1962–68; Professor, 1968–95;
Gilloon Professor, 1995–2001; Gilloon
Professor Emeritus, 2001–. Executive
Officer for Chemistry, 1973–77; Chairman,
Division of Chemistry and Chemical
Engineering, 1984–94.

Erik Karl Antonsson, Ph.D., Visiting Associate in Mechanical Engineering
B.S., Cornell University, 1976; M.S., Massachusetts Institute of Technology, 1978; Ph.D., 1982. Assistant Professor, Caltech, 1984–90; Associate Professor, 1990–97; Professor of Mechanical Engineering, 1997–2009; Visiting Associate in Mechanical Engineering, 2009–2010. Executive Officer for Mechanical Engineering, 1998–2002; Chief Technologist, Jet Propulsion Laboratory, 2002–.

Dimitrios Antsos, Ph.D., Lecturer in Electrical Engineering B.S., Caltech, 1990; M.S., 1991; Ph.D., 1994. Lecturer, 1994–99; 2004–08. Takao Aoki, Ph.D., Visiting Associate in Quantum Optics B.E., University of Tokyo, 1997; M.E., 1999; Ph.D., 2001. Research Associate, 2001—. Caltech, 2006–09.

Tom M. Apostol, Ph.D., Professor of Mathematics, Emeritus B.S., University of Washington, 1944; M.S., 1946; Ph.D., University of California, 1948. Assistant Professor, Caltech, 1950–56; Associate Professor, 1956–62; Professor, 1962–92; Professor Emeritus, 1992–.

Alexei A. Aravin, Ph.D., Assistant Professor of Biology B.S., University of Moscow, 1997; M.Sc., 1998; Ph.D., 2002. Caltech, 2009–.

Jasmina Arifovic, Ph.D., Visiting Associate in Economics
B.A., University of Sarajevo, 1981; M.A.,
University of Chicago, 1988; Ph.D., 1991.
Professor, Simon Fraser University
(Canada), 2002–Visiting Associate
Professor, Caltech, 1999–2001; Visiting
Associate, 2002–08.

Gloria Arjona, Ph.D., Lecturer in Spanish B.A., California State University, 1993; M.A., University of Southern California, 1997; Ph.D., University of Southern California, 2002. Caltech, 2000–08.

Frances Hamilton Arnold, Ph.D., Dick and Barbara Dickinson Professor of Chemical Engineering and Biochemistry B.S., Princeton University, 1979; Ph.D., University of California, 1985. Visiting Associate, Caltech, 1986; Assistant Professor of Chemical Engineering, 1987–92; Associate Professor, 1992–96; Professor, 1996–99; Professor of Chemical Engineering and Biochemistry, 1999–2000; Dickinson Professor, 2000–.

Michael Aschbacher, Ph.D., Shaler Arthur Hanisch Professor of Mathematics
B.S., Caltech, 1966; Ph.D., University of Wisconsin, 1969. Bateman Research Instructor, Caltech, 1970–72; Assistant Professor, 1972–74; Associate Professor, 1974–76; Professor, 1976–96; Hanisch Professor, 1996–. Executive Officer for Mathematics, 1991–94.

Paul David Asimow, Ph.D., Associate Professor of Geology and Geochemistry A.B., Harvard University, 1991; M.S., Caltech, 1993; Ph.D., 1997. Assistant Professor, 1999–2005; Associate Professor, 2005–.

Anand R. Asthagiri, Ph.D., Assistant Professor of Chemical Engineering B.S., Cornell University, 1995; Ph.D., Massachusetts Institute of Technology, 2000. Caltech, 2002–. Harry A. Atwater Jr., Ph.D., Howard Hughes Professor and Professor of Applied Physics and Materials Science B.S., Massachusetts Institute of Technology, 1982; M.S., 1983; Ph.D., 1987. Assistant Professor of Applied Physics, Caltech, 1988–94; Associate Professor, 1994–99; Professor of Applied Physics and Materials Science, 1999–; Howard Hughes Professor, 2002–.

Jean-Philippe Avouac, Doctorat, Habil., Professor of Geology; Director, Tectonics Observatory Dipl., École Polytechnique, 1987; Doctorat, University of Paris VII, 1991; Habil., 1992. Professor, Caltech, 2003—. Director, 2004—.

Clare Victoria Hartnell Baker, Ph.D., Visiting Associate in Biology
B.A., University of Cambridge, 1991;
Ph.D., 1994. Lecturer, 2002–. Caltech, Senior Research Fellow, 2000–02; Visiting Associate, 2002–03; 2008–09.

Niranjan Balachandran, M.S., Harry Bateman Research Instructor in Mathematics M.S., The Indian Statistical Institute, 2001. Caltech, 2008–09.

Baskar Balasubramanyam, Ph.D., Harry Bateman Research Instructor in Mathematics M.A., Brandeis University, 2006; Ph.D., 2007. Caltech, 2008–09.

John Dickson Baldeschwieler, Ph.D., J. Stanley Johnson Professor and Professor of Chemistry, Emeritus
B.Chem.E., Cornell University, 1956;
Ph.D., University of California, 1959.
Professor, Caltech, 1973–96; Johnson
Professor and Professor of Chemistry, 1996–99; Johnson Professor and Professor Emeritus, 1999–. Chairman, Division of Chemistry and Chemical Engineering, 1973–78.

David Baltimore, Ph.D., D.Sc.h.c., D.Phil.h.c., Nobel Laureate, Robert Andrews Millikan Professor of Biology B.A., Swarthmore College, 1960; Ph.D., Rockefeller University, 1963; D.Sc.h.c, Swarthmore College, Mount Holyoke College; Mount Sinai Medical Center; Bard College; University of Helsinki; Cold Spring Harbor Laboratory; University of Alabama; California Polytechnic State University; Columbia University; Yale University; Rockefeller University; Harvard University; D.Phil.h.c., Weizmann Institute of Science. Professor, Caltech, 1997-2006; Millikan Professor, 2006-. President, 1997-2006; President Emeritus, 2006-.

Mladen Barbic, Ph.D., Visiting Associate in Physics

Ph.D., University of California (San Diego), 2000. Assistant Professor, California State University (Long Beach), 2003.— Caltech, 2003–08. Barry Clark Barish, Ph.D., Laurea h.c., Ronald and Maxine Linde Professor of Physics,

B.A., University of California, 1957; Ph.D., 1962; Laurea h.c., University of Bologna. Research Fellow, Caltech, 1963–66; Assistant Professor, 1966–69; Associate Professor, 1969–72; Professor, 1972–91; Linde Professor Emeritus, 2005–. Principal Investigator of LIGO, 1994–97; Director, LIGO, 1997–2006.

Rennan Barkana, Ph.D., Moore Distinguished Scholar

Ph.D., Massachusetts Institute of Technology, 1997. Senior Lecturer, Tel Aviv University, 2001–. Caltech, 2008.

Charles Andrew Barnes, Ph.D., Professor of Physics, Emeritus

B.A., McMaster University, 1943; M.A., University of Toronto, 1944; Ph.D., University of Cambridge, 1950. Research Fellow, Caltech, 1953–54; Senior Research Fellow, 1954–58; Associate Professor, 1958–62; Professor, 1962–92; Professor Emeritus, 1992–.

Alan H. Barr, Ph.D., Professor of Computer Science

B.S., Rensselaer Polytechnic Institute, 1973; M.S., 1976; Ph.D., 1983. Research Fellow, Caltech, 1984; Assistant Professor, 1984–90; Associate Professor, 1990–98; Professor, 1998–. Executive Officer for Computer Science, 2000–01.

Jim Barry, B.A., Lecturer in Art—Drawing, Painting, Silkscreen, Airbrush B.A., University of California (Santa Barbara), 1972. Caltech, 1999–2008.

Yair Bartal, Ph.D., Visiting Associate in Computer Science Ph.D., Tel Aviv University, 1995. Associate Professor, Hebrew University of Jerusalem, 2000-. Caltech, 2006–08.

Jacqueline K. Barton, Ph.D., D.Sc.h.c., D.L.h.c., Arthur and Marian Hanisch Memorial Professor and Professor of Chemistry; Chair, Division of Chemistry and Chemical Engineering

A.B., Barnard College, 1974; Ph.D., Columbia University, 1978; D.Sc.h.c., New Jersey Institute; Kenyon College; Yale University; Hamilton College; Williams College; Lawrence University; D.L.h.c., Skidmore College. Visiting Associate, Caltech, 1989; Professor, 1989–; Hanisch Professor, 1997–; Chair, 2009–.

Jason Baskin, Ph.D., Caltech-Huntington Mellon Postdoctoral Instructor in English A.B., Harvard University, 2000; M.A., Princeton University, 2006; Ph.D., 2008. Caltech, 2008–10. Elaine L. Bearer, M.D., Ph.D., Visiting Associate in Biology

B.M., Manhattan School of Music, 1970; M.A., New York University, 1973; M.D., University of California (San Francisco), 1983; Ph.D., 1983. Professor, Brown University, 2004–. Visiting Associate in Biology, Caltech, 2004; 2005–09; Moore Distinguished Scholar, 2004–05.

Jesse Lee Beauchamp, Ph.D., Mary and Charles Ferkel Professor of Chemistry B.S., Caltech, 1964; Ph.D., Harvard University, 1967. Noyes Research Instructor, Caltech, 1967–69; Assistant Professor, 1969–71; Associate Professor, 1971–74; Professor, 1974–2000, Ferkel Professor, 2000–.

James L. Beck, Ph.D., Professor of Engineering and Applied Science B.Sc., University of Auckland, 1969; M.Sc., 1970; Ph.D., Caltech, 1979. Assistant Professor of Civil Engineering, 1981–87; Associate Professor, 1987–96; Professor of Applied Mechanics and Civil Engineering, 1996–2005; Professor of Engineering and Applied Science, 2005–. Executive Officer for Applied Mechanics and Civil Engineering, 1993–98.

Charles A. Beichman, Ph.D., Senior Faculty Associate in Astronomy; Executive Director, Michelson Science Center A.B., Harvard College, 1973; M.S. (Astronomy), University of Hawaii, 1975; M.S. (Physics), 1976; Ph.D., 1979. Visiting Associate, Caltech, 1991–99; 2003–05; Senior Faculty Associate, 2005–.

Josette Bellan, Ph.D., Visiting Associate in Mechanical Engineering B.S., Lycee Jules Ferry, 1964; M.S., University of Sciences (Paris), 1969; M.S., Princeton University, 1972; Ph.D., 1974. Senior Research Scientist, Jet Propulsion Laboratory, 1997-. Lecturer in Jet Propulsion, Caltech, 1992–93; Visiting Associate in Aeronautics, 1995–2006; Visiting Associate in Mechanical Engineering, 2006–09.

Paul Murray Bellan, Ph.D., Professor of Applied Physics

B.Sc., University of Manitoba, 1970; M.A.,
 Princeton University, 1972; Ph.D., 1976.
 Assistant Professor, Caltech, 1977–83;
 Associate Professor, 1983–89; Professor,
 1990–.

Serge Belongie, Ph.D., Visiting Associate in Electrical Engineering B.S., Caltech, 1995; M.S., University of California, 1997; Ph.D., 2000. Associate Professor, University of California (San Diego), 1996–. Visiting Associate, Caltech, 2008.

Shelley M. Bennett, Ph.D., Lecturer in Art History B.A., University of California (Riverside),

B.A., University of California (Riverside), 1969; M.A., University of California (Los Angeles), 1975; Ph.D., 1977. Caltech, 1986–2008.

Andrew Benson, Ph.D., Senior Research Fellow in Theoretical Cosmology M.Phys., University of Leicester, 1997; Ph.D., University of Durham, 2000. Caltech, 2006–09.

John Edward Bercaw, Ph.D., Centennial Professor of Chemistry

B.Ś., North Carolina State University, 1967; Ph.D., University of Michigan, 1971. Arthur Amos Noyes Research Fellow, Caltech, 1972–74; Assistant Professor, 1974–77; Associate Professor, 1977–79; Professor, 1979–93; Shell Distinguished Professor, 1985–90; Centennial Professor, 1993. Executive Officer for Chemistry, 1999–2002.

Kaushik Bhattacharya, Ph.D., Professor of Mechanics and Materials Science; Executive Officer for Mechanical Engineering
B. Tech., Indian Institute of Technology,
1986; Ph.D., University of Minnesota,
1991. Assistant Professor of Applied
Mechanics, Caltech, 1993–97; Assistant
Professor of Applied Mechanics and
Mechanical Engineering, 1997–99;
Associate Professor, 1999–2000; Professor,
2000–03; Professor of Mechanics and
Materials Science, 2003–. Executive Officer,
2007–.

Ronald L. Biegel, Ph.D., Visiting Associate in Aeronautics

B.A., Northern Illinois University, 1975; J.D., Loyola University (Chicago), 1985; M.S., State University of New York (Stony Brook), 1985; Ph.D., University of Southern California, 1989. Assistant Research Professor, 2004–. Caltech, 2005–08.

Kathryn Bikle, M.A., Lecturer in Chemistry; Lecturer in Geology

B.A., University of California (Santa Cruz), 1981; M.A., University of California, 1984. Lecturer in Chemistry, Caltech, 2000–08; Lecturer in Geology, 2000–08.

Igor Bilenko, Ph.D., Visiting Associate in

Ph.D., Moscow State University, 1991. Associate Professor, 1999–. Caltech, 2005–09.

Delores M. Bing, M.M., Lecturer in Chamber Music, Coordinator of the Performing and Visual Arts Faculty and Program B.M., Drake University, 1970; M.M., University of Southern California, 1972. Lecturer, Caltech, 1999–2007. Coordinator, 2007–10.

Richard J. Bing, M.D., M.D.h.c., D.h.c., Visiting Associate in Chemistry
M.D., University of Munich, 1934; M.D., University of Bern, 1935; M.D.h.c.,
University of Düsseldorf; D.h.c., University of Bologna. Professor of Medicine,
University of Southern California, 1969–;
Director, Cardiology and Intramural
Medicine, Huntington Memorial Hospital,
1969–. Research Associate in Engineering
Science, Caltech, 1970–72; Visiting
Associate in Biomedical Engineering,
1972–78; Visiting Associate in Chemistry
and Chemical Engineering, 1978–83;
Visiting Associate in Chemistry, 1984–2007.

William W. Bing, M.M., Lecturer in Concert Band and Jazz Band B.M., University of Michigan, 1965; M.M., University of Southern California, 1971. Caltech, 2000–.

Pamela Bjorkman, Ph.D., Max Delbriick Professor of Biology; Investigator, Howard Hugbes Medical Institute
B.A., University of Oregon, 1978; Ph.D., Harvard University, 1984. Assistant
Professor, Caltech, 1988–95; Associate
Professor, 1995–98; Professor, 1998–2004; Delbrück Professor, 2004—. Assistant
Investigator, 1989–95; Associate
Investigator, 1995–98; Investigator, 1998–2000; 2005–; Full Investigator, 2000–05. Executive Officer for Biology, 2000–06.

Eric D. Black, Ph.D., Lecturer in Physics B.S., University of Tennessee, 1991; M.S., University of Colorado, 1994; Ph.D., 1996. Caltech, 2000–08.

Andrew W. Blain, Ph.D., Assistant Professor of Astronomy
B.S., University of Cambridge, 1990; M.S.,

1991; Ph.D., 1995. Caltech, 2001–. **Geoffrey A. Blake, Ph.D.**, *Professor of Cosmochemistry and Planetary Sciences and*

Professor of Chemistry; Master of Student Houses
B.S., Duke University, 1981; Ph.D.,
Caltech, 1986. Assistant Professor of
Cosmochemistry, 1987–93; Associate
Professor of Cosmochemistry and Planetary
Sciences, 1993–97; Professor, 1997–99;
Professor of Cosmochemistry and Planetary
Sciences and Professor of Chemistry, 1999–
Deputy Director, Owens Valley Radio
Observatory, 2000–06. Master of Student
Houses, 2009–.

Roger David Blandford, Ph.D., Visiting Associate in Physics

B.A., University of Cambridge (Magdalene College), 1970; Ph.D., 1974. Director, Kavli Institute, Stanford University, 2004—. Assistant Professor, Caltech, 1976–79; Professor, 1979–89; Tolman Professor, 1989–2004; Visiting Associate, 2004–08. Executive Officer for Astronomy, 1992–95.

Douglas Carl-Johan Bock, Ph.D., Visiting Associate in Astronomy B.Sc., University of Sydney, 1992; B.E., 1994; Ph.D., 1998. Assistant Director, Radio Astronomy Laboratory, University of California, 2003—. Caltech, 2004—08.

James J. Bock, Ph.D., Visiting Associate in Physics
B.S., Duke University, 1987; M.A.,
University of California, 1990; Ph.D., 1990.
Research Scientist, Jet Propulsion
Laboratory, 1994—. Caltech, 1994–2008.

Marc W. Bockrath, Ph.D., Assistant Professor of Applied Physics B.S., Massachusetts Institute of Technology, 1993; Ph.D., University of California, 1999. Visiting Associate, Caltech, 2002; Assistant Professor, 2002–.

Felix Hans Boehm, Ph.D., William L. Valentine Professor of Physics, Emeritus
Dipl., Federal Institute of Technology
(Zurich), 1948; Ph.D., 1951. Research
Fellow, Caltech, 1953–55; Senior Research
Fellow, 1955–58; Assistant Professor,
1958–59; Associate Professor, 1959–61;
Professor, 1961–85; Valentine Professor,
1985–95; Valentine Professor Emeritus,
1995–.

Hamid Bolouri, Ph.D., Visiting Associate in Biology B.S., Brunel University, 1984; M.S., 1985;

B.S., Brunel University, 1984; M.S., 1985; Ph.D., 1990. Guest Faculty, Institute for Systems Biology, 2006–. Caltech, 1996–2009.

John Richard Bond, Ph.D., Visiting Associate in Theoretical Astrophysics B.Sc., University of Toronto, 1973; M.S., Caltech, 1975; Ph.D., 1979. Professor, University of Toronto, 2000. Moore Distinguished Scholar, Caltech, 2002; Visiting Associate, 2008.

Kim Christian Border, Ph.D., Professor of Economics

B.S., Caltech, 1974; Ph.D., University of Minnesota, 1979. Assistant Professor, Caltech, 1979–83; Associate Professor, 1983–95; Professor, 1995–. Executive Officer for the Social Sciences, 1995–99.

Simona Bordoni, Ph.D., Assistant Professor of Environmental Science and Engineering Laurea Dipl., University of Rome Tor Vergata, 1996; M.Sc., University of California (Los Angeles), 2003; Ph.D., 2007. Moore Postdoctoral Fellow, Caltech, 2007; Assistant Professor, 2009–.

Alexei Borodin, Ph.D., Professor of Mathematics M.Sc., Moscow State University, 1997;

M.Sc., Moscow State University, 1997; M.S.E., University of Pennsylvania, 2001; Ph.D., 2001. Caltech, 2003–. Peter L. Bossaerts, Ph.D., William D. Hacker Professor of Economics and Management and Professor of Finance Doctorandus, Universitaire Faculteiten Sint Ignatius (Belgium), 1982; Ph.D., University of California (Los Angeles), 1986. Assistant Professor of Finance, Caltech, 1990–94; Associate Professor, 1994–98; Professor, 1998-; Hacker Professor, 2003–. Executive Officer for the Social Sciences, 2002–05; Chair, Division of the Humanities and Social Sciences, 2006–07.

Robert C. Bowman Jr., Ph.D., Visiting Associate in Materials Science B.S., Miami University, 1967; M.S., Massachusetts Institute of Technology, 1969; Ph.D., Caltech, 1983. Member of the Technical Staff, Jet Propulsion Laboratory, 1997–. Visiting Associate, Caltech, 1991; 2001–08.

David A. Boyd, Ph.D., Lecturer in Mechanical Engineering M.S., University of Alabama, 1990; Ph.D., University of Virginia, 1997. Visiting Associate in Applied Physics, Caltech, 2001; Lecturer, 2007; 2008.

Charles Mathias Bradford, Ph.D., Visiting Associate in Physics B.S., Stanford University, 1994; Ph.D., Cornell University, 2001. Research Scientist, Jet Propulsion Laboratory, 2003–. Caltech, 2004–08.

John F. Brady, Ph.D., Chevron Professor of Chemical Engineering and Professor of Mechanical Engineering B.S., University of Pennsylvania, 1975; M.S., Stanford University, 1977; Ph.D., 1981. Associate Professor, Caltech, 1985–89; Professor, 1990–99; Chevron Professor, 1999–; Professor of Mechanical Engineering, 2005–. Executive Officer for Chemical Engineering, 1993–99.

Vladimir B. Braginsky, Ph.D., Visiting Associate in Physics M.S., Moscow University, 1954; Ph.D., 1959. Professor, Moscow State University, 1986–. Sherman Fairchild Distinguished Scholar, Caltech, 1990–91; Visiting Associate, 1994–2010.

Fred J. Brechtel, Ph.D., Visiting Associate in Environmental Science and Engineering B.S., University of California, 1987; M.S., 1992; Ph.D., Colorado State University, 1998. Research Scientist, Brechtel Manufacturing, Inc., 2002–. Caltech, 2002–09.

James B. Breckinridge, Ph.D., Lecturer in Aeronautics

B.Sc., Case Institute of Technology, 1961; M.Sc., University of Arizona, 1970; Ph.D., 1976. Lecturer in Applied Physics, Caltech, 1982; 1984–1991; 1993–96; 1998; Lecturer in Aeronautics, 2008.

Louis Breger, Ph.D., Professor of Psychoanalytic Studies, Emeritus B.A., University of California (Los Angeles), 1957; M.A., Ohio State University, 1959; Ph.D., 1961. Visiting Associate Professor of Psychology, Caltech, 1970–71; Associate Professor, 1971–80; Associate Professor of Psychology and the Humanities, 1980–83; Professor of Psychoanalytic Studies, 1983–94; Professor Emeritus, 1994–.

Christopher E. Brennen, D.Phil., Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering
B.A., University of Oxford, 1963; M.A., D.Phil., 1966. Research Fellow, Caltech, 1969–72; Senior Research Fellow, 1972–75; Research Associate, 1975–76; Associate Professor, 1976–82; Professor, 1982–2005; Hayman Professor, 2005–. Master of Student Houses, 1983–87; Dean of Students, 1988–92; Executive Officer for Mechanical Engineering, 1993–97; Vice President for Student Affairs, 1997–2002.

John Brewer, Ph.D., Eli and Edye Broad Professor of Humanities and Social Sciences and Professor of History and Literature B.A., University of Cambridge, 1968; M.A., 1972; Ph.D., 1973. Moore Distinguished Scholar, Caltech, 2001; Professor, 2002–; Broad Professor, 2003–.

William Bruce Bridges, Ph.D., Carl F Braun Professor of Engineering, Emeritus B.S., University of California, 1956; M.S., 1957; Ph.D., 1962. Sherman Fairchild Distinguished Scholar, Caltech, 1974–75; Professor of Electrical Engineering and Applied Physics, 1977–83; Braun Professor, 1983–2002; Braun Professor Emeritus, 2002. Executive Officer for Electrical Engineering, 1978–81.

Roy J. Britten, Ph.D., Distinguished Carnegie Senior Research Associate in Biology, Emeritus

B.S., University of Virginia, 1940; Ph.D., Princeton University, 1951. Visiting Associate, Caltech, 1971–73; Senior Research Associate, 1973–81; Distinguished Carnegie Senior Research Associate, 1981–99; Carnegie Senior Research Associate Emeritus, 1999–.

Charles Jacob Brokaw, Ph.D., Professor of Biology, Emeritus
B.S., Caltech, 1955; Ph.D., University of Cambridge, 1958. Visiting Assistant
Professor, Caltech, 1960; Assistant
Professor, 1961–63; Associate Professor, 1963–68; Professor, 1968–2000; Professor Emeritus, 2000–. Executive Officer for Biology, 1976–80; 1985–89; Associate Chairman of the Division of Biology, 1980–85.

Marianne Bronner-Fraser, Ph.D., Albert Billings Ruddock Professor of Biology Sc.B., Brown University, 1975; Ph.D., Johns Hopkins University, 1979. Professor, Caltech, 1996–2000; Ruddock Professor, 2000–.

Norman Herrick Brooks, Ph.D., James Irvine Professor of Environmental and Civil Engineering, Emeritus A.B., Harvard College, 1949; M.S., Harvard University, 1950; Ph.D., Caltech, 1954. Instructor in Civil Engineering, 1953-54; Assistant Professor, 1954-58; Associate Professor, 1958-62; Professor, 1962-70; Professor of Environmental Science and Civil Engineering, 1970-76; Irvine Professor of Environmental Engineering Science, 1976-77; Irvine Professor of Environmental and Civil Engineering, 1977-95; Irvine Professor Emeritus, 1995-. Academic Officer for Environmental Engineering Science, 1972-74; Director, Environmental Quality Laboratory, 1974-93; Executive Officer for Environmental Engineering Science, 1985-93.

Harold Brown, Ph.D., D.Eng.h.c., LL.D.h.c., Sc.D.h.c., D.h.c., President Emeritus

A.B., Columbia College, 1945; A.M., Columbia University, 1946; Ph.D., 1949; D.Eng.h.c., Stevens Institute; LL.D.h.c., Long Island University; Gettysburg College; Occidental College; University of California; Sc.D.h.c., University of Rochester; Brown University; University of South Carolina; Franklin and Marshall College; Chung-Ang University (Seoul); D.h.c., RAND Graduate School. President, Caltech, 1969–77; President Emerius, 1992–

Michael E. Brown, Ph.D., Richard and Barbara Rosenberg Professor and Professor of Planetary Astronomy A.B., Princeton University, 1987; M.A., University of California, 1990; Ph.D., 1994. Visiting Associate, Caltech, 1995; Assistant Professor, 1997–2002; Associate Professor, 2002–04; Professor, 2005–08; Rosenberg Professor, 2008–.

Warren C. Brown, Ph.D., Associate Professor of History B.S., Tufts University, 1985; M.A., University of Cincinnati, 1993; Ph.D., University of California (Los Angeles), 1997. Assistant Professor, Caltech, 1997–2003; Associate Professor, 2003–.

Lee F. Browne, M.S., Lecturer in Education, Emeritus

B.S., West Virginia State College, 1944; M.S., New York University, 1950. Director of Secondary School Relations, Caltech, 1969–77; Director of Secondary School Relations and Special Student Programs, 1977–90; Lecturer, 1971–90; Lecturer Emeritus, 1990–.

Jehoshua Bruck, Ph.D., Gordon and Betty Moore Professor of Computation and Neural Systems and Electrical Engineering B.Sc., Technion—Israel Institute of Technology, 1982; M.Sc., 1985; Ph.D., Stanford University, 1989. Associate Professor, Caltech, 1994–98; Professor, 1998–2001; Moore Professor, 2001– Director, Information Science and Technology, 2003–05.

Todd A. Brun, Ph.D., Visiting Associate in Theoretical Physics Ph.D., Caltech, 1994. Professor, University of Southern California, 2003–. Visiting Associate, Caltech, 2007–09.

Oscar P. Bruno, Ph.D., Professor of Applied and Computational Mathematics Lic., University of Buenos Aires, 1982; Ph.D., New York University (Courant Institute of Mathematical Sciences), 1989. Associate Professor, Caltech, 1995–98; Professor, 1998– Executive Officer for Applied Mathematics, 1998–2000.

Jed Z. Buchwald, Ph.D., Doris and Hemy Dreyfuss Professor of History B.A., Princeton University, 1971; M.A., Harvard University, 1973; Ph.D., 1974. Caltech, 2001—.

Alessandra Buonanno, Ph.D., Visiting Associate in Physics

Ph.D., University of Pisa, 1996. Associate Professor, University of Maryland, 2005–. Caltech, 2002–03; 2005–10.

Joel W. Burdick, Ph.D., Professor of Mechanical Engineering and Bioengineering B.S., Duke University, 1981; M.S., Stanford University, 1982; Ph.D., 1988. Assistant Professor, Caltech, 1988–94; Associate Professor, 1994–2000; Professor of Mechanical Engineering, 2000–02; Professor of Mechanical Engineering and Bioengineering, 2002–. Executive Officer for Bioengineering, 2006–07.

Donald Stacy Burnett, Ph.D., Professor of Nuclear Geochemistry, Emeritus B.S., University of Chicago, 1959; Ph.D., University of California, 1963. Research Fellow in Physics, Caltech, 1963–65; Assistant Professor of Nuclear Geochemistry, 1965–68; Associate Professor, 1968–75; Professor, 1975–2006; Professor Emeritus, 2006–. Academic Officer, Division of Geological and Planetary Sciences, 1979–87.

Robert R. Caldwell, Ph.D., Visiting Associate in Physics A.B., Washington University (St. Louis), 1987; M.Sc., University of Wisconsin (Madison), 1989; Ph.D., University of Wisconsin (Milwaukee), 1992. Associate Professor, Dartmouth College, 2005—. Caltech, 2003–04; 2007; 2008.

Danny Calegari, Ph.D., Ricbard Merkin Distinguished Professor of Mathematics B.A., University of Melbourne, 1994; Ph.D., University of California, 2000. Assistant Professor, Caltech, 2002–03; Associate Professor, 2003–06; Professor, 2007; Merkin Distinguished Professor, 2007.

Colin F. Camerer, Ph.D., Robert Kirby Professor of Behavioral Economics
B.A., Johns Hopkins University, 1976;
M.B.A., University of Chicago, 1979;
Ph.D., 1981. Visiting Associate, Caltech, 1993; Rea A. and Lela G. Axline Professor of Business Economics, 1994–2008; Kirby Professor of Behavioral Finance and Economics, 2008; Kirby Professor, 2008.

Robert Andrew Cameron, Ph.D., Senior Research Associate in Biology B.A., San Jose State College, 1968; Ph.D., University of California (Santa Cruz), 1975. Visiting Associate, Caltech, 1984–85; Senior Research Fellow, 1985–89; Senior Research Associate, 1989–.

Judith Lynn Campbell, Ph.D., Professor of Chemistry and Biology B.A., Wellesley College, 1965; Ph.D., Harvard University, 1974. Assistant Professor of Chemistry, Caltech, 1977–83; Associate Professor, 1983–85; Associate Professor of Chemistry and Biology, 1985–89; Professor, 1989–.

Emmanuel J. D. Candes, Ph.D., Ronald and Maxine Linde Professor of Applied and Computational Mathematics Dipl., Ecole Polytechnique, 1993; D.E.A., University of Paris IV and University of Paris IX, 1994; Ph.D., Stanford University, 1998. Assistant Professor of Applied Mathematics, Caltech, 2000; Assistant Professor of Applied and Computational Mathematics, 2000–03; Associate Professor, 2005–06; Linde Professor, 2006–.

Maria Jose Cantero, Ph.D., Visiting Associate in Mathematics B.Sc., University of Zaragoza, 1979; Ph.D., 1997. Professor, 2004–. Visiting Associate, Caltech, 2009.

Carol Carmichael, Ph.D., Faculty Associate in Engineering and Applied Science B.S., University of Wisconsin (Madison), 1985; M.S., Georgia Institute of Technology, 1988; Ph.D., University of Georgia, 2004. Caltech, 2006–.

John M. Carpenter, Ph.D., Senior Research Associate in Astronomy; Deputy Director, Owens Valley Radio Observatory B.S., University of Wisconsin (Madison), 1988; Ph.D., University of Massachusetts (Amherst), 1994. Senior Research Fellow, Caltech, 2002–05; Senior Research Associate, 2005–. Deputy Director, 2006–. Sean M. Carroll, Ph.D., Senior Research Associate in Physics B.S., Villanova University, 1988; Ph.D., Harvard University, 1993. Caltech, 2006–08.

Aaron Keith Chamberlain, Ph.D., Lecturer in Chemistry
B.A., Washington University (St. Louis), 1992; Ph.D., University of California, 1997. Caltech, 2009.

Christopher P. Chambers, Ph.D., Associate Professor of Economics B.S., University of Maryland, 1998; M.A., University of Rochester, 2001; Ph.D., 2003. Assistant Professor, Caltech, 2003–06; Associate Professor, 2006–.

Jean-Lou Chameau, Ph.D., President; Professor of Civil Engineering, Environmental Science and Engineering, and Mechanical Engineering (See page 571)

David C. Chan, M.D., Ph.D., Associate Professor of Biology A.B., Harvard College, 1988; M.D., Harvard Medical School, 1996; Ph.D., 1996. Assistant Professor, Caltech, 2000–06; Associate Professor, 2006–; Bren Scholar, 2000–06.

Sunney Ignatius Chan, Ph.D., George Grant Hoag Professor of Biophysical Chemistry, Emeritus

B.S., University of California, 1957; Ph.D., 1961. Assistant Professor of Chemical Physics, Caltech, 1963–64; Associate Professor, 1964–68; Professor, 1968–76; Professor of Chemical Physics and Biophysical Chemistry, 1976–92; Hoag Professor, 1992–2001; Hoag Professor Emeritus, 2002–. Acting Executive Officer, for Chemistry, 1977–78; Executive Officer, 1978–80; 1989–94; Master of Student Houses, 1980–83.

K. Mani Chandy, Ph.D., Simon Ramo Professor and Professor of Computer Science B. Tech., Indian Institute of Technology, 1965; M.S., Polytechnic Institute of Brooklyn, 1966; Ph.D., Massachusetts Institute of Technology, 1969. Sherman Fairchild Distinguished Scholar, Caltech, 1988; Visiting Professor, 1988–89; Professor, 1989–; Ramo Professor, 1997–Executive Officer for Computer Science, 1997–2000.

Goutam Chattopadhyay, Ph.D., Visiting Associate in Physics Ph.D., Caltech, 1999. Senior Member of the Engineering Staff, Jet Propulsion Laboratory, 2005–. Caltech, 2006–09.

Jui-Lin Chen, Ph.D., Visiting Associate in Mechanical Engineering B.S., National Taiwan University, 1986; M.S., 1988; Ph.D., 1991. Assistant Professor, 2004–. Caltech, 2007–08.

Pin Chen, Ph.D., Visiting Associate in Chemistry B.S., University of California, 1991; Ph.D., Caltech, 1999. Scientist, Jet Propulsion Laboratory, 2000–. Visiting Associate, Caltech, 2006–09.

Tirong Chen, M.S., Visiting Associate in Applied Physics
M.S., Wuhan University (China), 1962. Senior Scientist, Archcom Technology Inc., 2001–. Caltech, 1980–82; 1985–2008.

Yanbei Chen, Ph.D., Assistant Professor of Physics B.S., Peking University, 1999; Ph.D., Caltech, 2003. Visiting Associate, 2005–07; Assistant Professor, 2007–.

Jae Hyoung Cho, Ph.D., Senior Research Fellow in Biology B.S., Korea University, 1998; M.S., Pohang University of Science and Technology, 1996; Ph.D., 2001. Caltech, 2007–09.

Anne Chomyn, Ph.D., Senior Research Associate in Biology, Emeritus B.S., Drexel University, 1972; Ph.D., Caltech, 1978. Research Fellow, 1978–82; Senior Research Fellow, 1982–87; Senior Research Associate, 1989–2007; Senior Research Associate Emeritus, 2007–; Lecturer, 2007.

Jacob S. Christiansen, Ph.D., Harry Bateman Research Instructor in Mathematics M.S., University of Copenhagen, 2000; Ph.D., 2004. Caltech, 2005–08.

Robert Frederick Christy, Ph.D., Institute Professor of Theoretical Physics, Emeritus B.A., University of British Columbia, 1935; Ph.D., University of California, 1941. Associate Professor of Physics, Caltech, 1946–50; Professor of Theoretical Physics, 1950–83; Institute Professor, 1983–85; Institute Professor Emeritus, 1986–Executive Officer for Physics, 1968–70; Vice President and Provost, 1970–80; Acting President, 1977–78.

Ara Chutjian, Ph.D., Visiting Associate in Chemistry
B.S., Brown University, 1962; Ph.D.,
University of California, 1966. Senior
Research Scientist, Jet Propulsion
Laboratory, 1990.— Caltech, 1998–2008.

Francis H. Clauser, Ph.D., Clark Blanchard Millikan Professor of Engineering, Emeritus B.S., Caltech, 1934; M.S., 1935; Ph.D., 1937. Clark Blanchard Millikan Professor of Engineering, 1969–80; Millikan Professor Emeritus, 1980.— Chairman, Division of Engineering and Applied Science, 1969–74.

Robert Webster Clayton, Ph.D., Professor of Geophysics; Divisional Academic Officer for Geological and Planetary Sciences
B.A.Sc., University of Toronto, 1973; M.Sc., University of British Columbia, 1976; Ph.D., Stanford University, 1981. Assistant Professor of Exploration Geophysics, Caltech, 1981–85; Associate Professor, 1985–89; Professor of Geophysics, 1989–19. Executive Officer for Geophysics, 1987–94; Acting Director, Seismological Laboratory, 1989, 2008–09; Deputy Director, 1989–90; Academic Officer, 2008–.

Kieran A. Cleary, Ph.D., Senior Research Fellow in Astronomy M.Sc., University College Dublin, 1993; Ph.D., University of Manchester, 2003. Caltech, 2007–10.

Simon L. Clegg, Ph.D., Visiting Associate in Environmental Science and Engineering B.S., University of East Anglia (United Kingdom), 1982; Ph.D., 1987. Reader, 1993—. Caltech, 2002; 2004—08.

William M. Clemons Jr., Ph.D., Assistant Professor of Biochemistry B.S., Virginia Polytechnic Institute and State University, 1995; Ph.D., University of Utah, 2000. Assistant Professor of Chemistry, Caltech, 2005–07; Assistant Professor of Biochemistry, 2007–.

Donald S. Cohen, Ph.D., Charles Lee

Powell Professor of Applied Mathematics, Emeritus
Sc.B., Brown University, 1956; M.S.,
Cornell University, 1959; Ph.D., New York
University (Courant Institute), 1962.
Assistant Professor of Mathematics,
Caltech, 1965–67; Associate Professor of
Applied Mathematics, 1967–71; Professor,
1971–98; Powell Professor, 1998–2003;
Powell Professor Emeritus, 2003–.
Executive Officer for Applied Mathematics,
1988–93; Chairman, Division of
Engineering and Applied Science, 1990.

Judith G. Cohen, Ph.D., Kate Van Nuys Page Professor of Astronomy B.A., Radcliffe College, 1967; M.S., Caltech, 1969; Ph.D., 1971; B.S., University of Arizona, 1978. Associate Professor, Caltech, 1979–88; Professor, 1988–2005; Page Professor, 2005–. Executive Officer for Astronomy, 1995–96.

Marshall Harris Cohen, Ph.D., Professor of Astronomy, Emeritus B.E.E., Ohio State University, 1948; M.S., 1949; Ph.D., 1952. Visiting Associate Professor, Caltech, 1965; Professor of Radio Astronomy, 1968–90; Professor of Astronomy, 1990–95; Professor Emeritus, 1995–, Executive Officer for Astronomy, 1981–85.

Donald Earl Coles, Ph.D., Professor of Aeronautics, Emeritus B.S., University of Minnesota, 1947; M.S., Caltech, 1948; Ph.D., 1953. Research Fellow, 1953–55; Senior Research Fellow, 1955–56; Assistant Professor, 1956–59; Associate Professor, 1959–64; Professor, 1964–96; Professor Emeritus, 1996–.

Andres Collazo, Ph.D., Visiting Associate in Biology
B.S., Cornell University, 1985; Ph.D.,
University of California, 1990. Scientist II,
Section Chief, House Ear Institute, 2000–.
Research Fellow, Caltech, 1991–94; Senior
Research Fellow, 1994–96; Visiting
Associate, 2005–08.

Curtis L. Collins, Ph.D., Lecturer in Mechanical Engineering
B.S., University of California (San Diego), 1990; M.S., University of California (Irvine), 1993; Ph.D., 1997. Instructor, Caltech, 1997–98; Visiting Associate, 2002–03; Lecturer, 2003–08.

Michael Collins, Ph.D., Visiting Associate in Biology M.S.P., University of Missouri (Columbia), 1981; Ph.D., 1982. Professor, University of California (Los Angeles), 2002–. Caltech, 2008–09

Timothy E. Colonius, Ph.D., Professor of Mechanical Engineering
B.S., University of Michigan (Ann Arbor), 1987; M.S., Stanford University, 1988; Ph.D., 1994. Assistant Professor, Caltech, 1994–2000; Associate Professor, 2000–05; Professor, 2005–.

Agustin J. Colussi, Ph.D., Senior Research Associate in Environmental Science and Engineering Lic., University of Buenos Aires, 1968; Ph.D., 1972. Visiting Associate, Caltech, 1997–98; Senior Research Fellow, 1998–2004; Senior Research Associate, 2004–08.

R. Dale Conner, Ph.D., Visiting Associate in Materials Science
B.S., California State Polytechnic
University, 1989; M.S., Caltech, 1994;
Ph.D., 1998. Assistant Professor, California
State University (Northridge), 2006–
Visiting Associate, Caltech, 2001–02;
2006–09; Lecturer, 2002–04; Senior
Research Fellow, 2003–06.

Matthew Makonnen Cook, Ph.D., Visiting Associate in Computation and Neural Systems Ph.D., Caltech, 2005. Assistant Professor, Swiss Federal Institute of Technology, 2006—Caltech, 2006—09. Asantha Cooray, Ph.D., Visiting Associate in Physics

B.Ś., Massachusetts Institute of Technology, 1997; M.S., 1997; M.S., University of Chicago, 1998; Ph.D., 2001. Assistant Professor, University of California (Irvine), 2005. Sherman Fairchild Senior Research Fellow, Caltech, 2001–05; Visiting Associate, 2005–08.

Bradford Cornell, Ph.D., Visiting Professor of Finance

Á.B., Stanford University, 1970; M.S., 1974; Ph.D., 1975. Professor, Anderson School of Management, University of California (Los Angeles); Director, Bank of America Research Center, University of California (Los Angeles), 1987. Visiting Associate Professor, Caltech, 1984; Visiting Professor, 2006–07; 2008.

Noel Robert Corngold, Ph.D., Professor of Applied Physics, Emeritus

A.B., Columbia College, 1949; A.M., Harvard University, 1950; Ph.D., 1954. Professor of Applied Science, Caltech, 1966–74; Professor of Applied Physics, 1974–2002; Professor Emeritus, 2002–

Eugene Woodville Cowan, Ph.D., Professor of Physics, Emeritus B.S., University of Missouri, 1941; S.M., Massachusetts Institute of Technology, 1943; Ph.D., Caltech, 1948. Research Fellow, 1948–50; Assistant Professor, 1950–54; Associate Professor, 1954–61; Professor, 1961–86; Professor Emeritus, 1986–.

Fiona Cowie, Ph.D., Associate Professor of Philosophy

B.A., University of Sydney, 1987; M.A., Princeton University, 1991; Ph.D., 1993. Instructor, Caltech, 1992–93; Assistant Professor, 1993–98; Associate Professor, 1998–.

Brendan Patrick Crill, Ph.D., Visiting Associate in Physics
Ph.D., Caltech, 2001. Senior Technical Staff, Jet Propulsion Laboratory, 2008–Visiting Associate, Caltech, 2008–09.

Bruno Crosignani, Lib.Doc., Visiting Professor of Applied Physics
Laurea, University of Rome, 1962;
Lib.Doc., 1971. Professor, University of
Aquila, 1987–. Research Fellow, Caltech,
1970–71; Visiting Associate in Electrical
Engineering, 1976–78; 1980; 1982–84;
Visiting Associate in Applied Physics,
1985–87; 1988–2004; Visiting Professor,
2001–08.

Michael Clifford Cross, Ph.D., Professor of Theoretical Physics B.A., University of Cambridge, 1972; Ph.D., 1975. Caltech, 1984-. Fred E. C. Culick, Ph.D., Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering and Professor of Jet Propulsion, **Emeritus** S.B., S.M., Massachusetts Institute of Technology, 1957; Ph.D., 1961. Research Fellow in Jet Propulsion, Caltech, 1961-63; Assistant Professor, 1963-66; Associate Professor, 1966-71; Professor, 1971-78; Professor of Applied Physics and Jet Propulsion, 1978-88; Professor of Mechanical Engineering and Jet Propulsion, 1988-97; Hayman Professor, 1997-2004; Professor of Jet Propulsion, 1997-2004; Hayman Professor and Professor, Emeritus, 2004-.

Curt J. Cutler, Ph.D., Senior Faculty Associate in Physics B.S., Yale University, 1983; Ph.D., 1989. Visiting Associate, Caltech, 1999–2006; Senior Faculty Associate, 2006–.

Jaksa Cvitanic, Ph.D., Professor of Mathematical Finance B.A., University of Zagreb (Croatia), 1985; M.S., 1988; M.Phil., Columbia University, 1991; Ph.D., 1992. Caltech, 2005—.

John O. Dabiri, Ph.D., Associate Professor of Aeronautics and Bioengineering B.S., Princeton University, 2001; M.S., Caltech, 2003; Ph.D., 2005. Assistant Professor, 2005–2009; Associate Professor, 2009–.

Christine M. Daley, Ph.D., Lecturer in Writing B.A., Boston College, 1991; M.A., Loyola Marymount University, 1997; Ph.D., City University of New York Graduate School, 2006. Caltech, 2007–09.

Shtefan L. Danilishin, Ph.D., Visiting Associate in Theoretical Astrophysics Ph.D., Moscow State University, 2004. Associate Professor, Research Fellow, 2006—. Caltech, 2008.

Chiara Daraio, Ph.D., Assistant Professor of Aeronautics and Applied Physics B.S., M.S., University of California (Sand Diego), 2003; Ph.D., 2006. Caltech, 2006—

Nicolas Dauphas, Ph.D., Moore Distinguished Scholar B.Sc., Institute National Polytechnique de Lorraine (France), 1998; M.S., 1998; Ph.D., 2002. Caltech, 2009.

John M. D'Auria, M.A., Coach A.A., Pasadena City College, 1972; B.A., California State University, 1974; M.A., Azusa Pacific University, 1988. Caltech, 1989...

Eric Harris Davidson, Ph.D., Norman Chandler Professor of Cell Biology B.A., University of Pennsylvania, 1958; Ph.D., Rockefeller University, 1963. Visiting Assistant Professor of Biology, Caltech, 1970; Associate Professor, 1971–74; Professor, 1974–81; Chandler Professor, 1982–.

Gregory L. Davis, Ph.D., Lecturer in Aeronautics B.S., University of Akron, 1982; M.S., 1982; Ph.D., Rice University, 1998. Caltech, 2006–08.

Lance Edwin Davis, Ph.D., Mary Stillman Harkness Professor of Social Science, Emeritus B.A., University of Washington, 1950; Ph.D., Johns Hopkins University, 1956. Professor of Economics, Caltech, 1968–80; Harkness Professor, 1980–2005; Harkness Professor Emeritus, 2005–. Executive Officer for the Social Sciences, 1982–85.

Mark E. Davis, Ph.D., Warren and Katbarine Schlinger Professor of Chemical Engineering B.S., University of Kentucky, 1977; M.S., 1978; Ph.D., 1981. Professor, Caltech, 1991–93; Schlinger Professor, 1993–. Executive Officer for Chemical Engineering, 1999–2004.

Michael William Day, Ph.D., Lecturer in Chemistry
B.S., California State University
(Northridge), 1988; M.S., 1991; Ph.D.,
Caltech, 1995. Lecturer, 1995–2000;
2002–07; 2008–09.

Peter K. Day, Ph.D., Visiting Associate in Physics
B.S., University of California, 1988; Ph.D., Caltech, 1993. Senior Engineer, Jet
Propulsion Laboratory, 2003—Lecturer,
Caltech, 1993; Research Fellow, 1993—04;
Visiting Associate, 2005—09.

Charles de Bedts, Ph.D., Lecturer in French

A.A., Pasadena City College, 1980; B.A., University of California (Los Angeles), 1982; M.A., 1985; Ph.D., 1994. Caltech, 1996–99; 2001–10.

Luigi De Nardo, Ph.D., Visiting Associate in Aeronautics M.S., Politecnico di Milano, 2003; Ph.D., 2007. Assistant Professor, 2007.. Caltech, 2008–09.

Richard Albert Dean, Ph.D., Professor of Mathematics, Emeritus B.S., Caltech, 1945; A.B., Denison University, 1947; M.S., Ohio State University, 1948; Ph.D., 1953. Harry Bateman Research Fellow, Caltech, 1954–55; Assistant Professor, 1955–59; Associate Professor, 1959–66; Professor, 1966–86; Professor Emeritus, 1987–.

Marios Demetri Demetriou, Ph.D., Senior Research Fellow in Materials Science B.S., University of Arizona, 1995; M.S., University of California (Los Angeles), 1997; Ph.D., 2001. Caltech, 2007–09.

Tracy K. Dennison, Ph.D., Associate Professor of Social Science History B.A., Bucknell University, 1992; M.Phil., University of Oxford, 1999; Ph.D., University of Cambridge, 2004. Caltech, Assistant Professor of History, 2006–2009; Associate Professor of Social Science History, 2009–.

Peter B. Dervan, Ph.D., D.Sc.h.c., Bren Professor of Chemistry
B.S., Boston College, 1967; Ph.D., Yale
University, 1972; D.Sc.h.c., Boston College.
Assistant Professor, Caltech, 1973–79;
Associate Professor, 1979–82; Professor,
1982–88; Bren Professor, 1988–. Chair,
Division of Chemistry and Chemical
Engineering, 1994–99.

Mathieu Desbrun, Ph.D., Associate Professor of Computer Science
M.Eng., National Engineering School of Computer Science and Applied
Mathematics (Grenoble), 1994; M.S.,
University of Grenoble, 1994; Ph.D.,
National Polytechnic Institute of Grenoble, 1997. Visiting Associate, Caltech, 2000–04;
Associate Professor, 2004—.

Stanley Deser, Ph.D., Visiting Associate in Theoretical Physics M.A., Harvard University, 1950; Ph.D., 1953. Ancell Professor, Brandeis University, 1980-. Caltech, 2005–08.

Raymond Deshaies, Ph.D., Professor of Biology; Investigator, Howard Hughes Medical Institute; Executive Officer for Molecular Biology B.S., Cornell University, 1983: Ph.D.

B.S., Cornell University, 1983; Ph.D., University of California, 1988. Assistant Professor, Caltech, 1994–1999; Associate Professor, 2000–05; Professor, 2005–. Assistant Investigator, Howard Hughes Medical Institute, 2000–05; Investigator, 2005–; Executive Officer, 2006–.

Michael H. Dickinson, Ph.D., Esther M. and Abe M. Zarem Professor of Bioengineering Sc.B., Brown University, 1984; Ph.D., University of Washington, 1989. Visiting Associate, Caltech, 2001–02; Professor, 2002–03; Zarem Professor, 2003–.

William B. Dickson, Ph.D., Senior Research Fellow in Bioengineering B.A., University of Wisconsin (Madison), 1992, Ph.D., University of Glasgow, 1999. Caltech, 2007–. Paul Emmanuel Dimotakis, Ph.D., John K. Northrop Professor of Aeronautics and Professor of Applied Physics; Chief Technologist, Jet Propulsion Laboratory
B.S., Caltech, 1968; M.S., 1969; Ph.D., 1973. Research Fellow, 1973–74; Research Fellow and Lecturer, 1974–75; Assistant Professor, 1975–81; Associate Professor, 1981–85; Professor, 1986–; Northrop Professor, 1995–. Chief Technologist, 2006–.

S. George Djorgovski, Ph.D., Professor of Astronomy

B.A., University of Belgrade, 1979; M.A., University of California, 1981; Ph.D., 1985. Assistant Professor, Caltech, 1987–90; Associate Professor, 1990–97; Professor, 1997–.

Clinton Dean Dodd, B.A., Coach B.A., Humboldt State University, 1978. Caltech, 1980–.

Dennis A. Dougherty, Ph.D., George Grant Hoag Professor of Chemistry B.S., M.S., Bucknell University, 1974; Ph.D., Princeton University, 1978. Assistant Professor, Caltech, 1979–85; Associate Professor, 1985–89; Professor, 1989–2001; Hoag Professor, 2002–. Executive Officer for Chemistry, 1994–99.

Kimberly Douglas, M.S., University Librarian
M.A., Freie Universität (Germany), 1976;
M.S., Long Island University, 1977.
Caltech, 2003–.

C. Darren Dowell, Ph.D., Visiting Associate in Physics; Lecturer in Physics
B.S., Rice University, 1991; M.S.,
University of Chicago, 1992; Ph.D., 1997.
Scientist, Jet Propulsion Laboratory, 2003–.
Visiting Associate, Caltech, 2003–09;
Lecturer, 2007.

John C. Doyle, Ph.D., John G Braun Professor of Control and Dynamical Systems, Electrical Engineering, and Bioengineering B.S., M.S., Massachusetts Institute of Technology, 1977; Ph.D., University of California, 1984. Visiting Assistant Professor of Electrical Engineering, Caltech, 1985; Visiting Associate Professor, 1986; Visiting Associate Professor of Electrical Engineering, 1987–91; Professor, 1991–2001; Professor of Control and Dynamical Systems, Electrical Engineering, and Bioengineering, 2002–04; Braun Professor, 2004–08, 2009–; Braun Professor Emeritus, 2008–2009.

Aaron Drake, Ph.D., Visiting Associate in Aeronautics

B.S., San Jose State University, 1993; M.S., Stanford University, 1994; Ph.D.,

Washington State University, 1998. Manager, Flight Analysis, Northrop Grumman Integrated Systems, 2001–. Caltech, 2007–09.

Ronald William Prest Drever, Ph.D., Professor of Physics, Emeritus B.Sc., Glasgow University, 1953; Ph.D., 1958. Visiting Associate, Caltech, 1977; Professor, 1979–2002; Professor Emeritus, 2002–.

Maurice Duits, M.Sc., Olga Taussky and John Todd Instructor in Mathematics M.Sc., Eindhoven University of Technology, 2004; Caltech, 2008–.

Robert V. Duncan, Ph.D., Visiting Associate in Physics

B.S., Massachusetts Institute of Technology, 1982; Ph.D., University of California (Santa Barbara), 1988. Associate Dean for Research and Professor of Physics, University of New Mexico, 2002–. Visiting Associate, Caltech, 1998–2004; 2005–09; Moore Distinguished Scholar, 2004–05.

William G. Dunphy, Ph.D., Professor of Biology

A.B., Harvard College, 1980; Ph.D., Stanford University, 1985. Assistant Professor, Caltech, 1989–95; Associate Professor, 1995–2001; Professor, 2001–. Assistant Investigator, Howard Hughes Medical Institute, 1994–98; Associate Investigator, 1998–2004.

Federico Echenique, Ph.D., Associate Professor of Economics M.A., University of the Republic (Uruguay), 1995; Ph.D., University of California, 2000. Instructor, Caltech, 2002–03; Assistant

Professor, 2004; Associate Professor, 2004.

Matthew Eddy, Ph.D., Mellon Visiting
Assistant Professor of History
B.A., Samford University, 1995; M.Div.,
Princeton Theological Seminary, 1998;
M.A. Debe Libertinia 1009, B.P.

M.A., Durham University, 1999; Ph.D., 2003. Lecturer, Durham University, 2004.. Caltech, 2007–08.

Michelle Effros, Ph.D., Professor of

Electrical Engineering B.S., Stanford University, 1989; M.S., 1990; Ph.D., 1994. Assistant Professor, Caltech, 1994–2000; Associate Professor, 2000–05; Professor, 2005–.

Gerald Eigen, Ph.D., Visiting Associate in Physics

Dipl., University of Freiburg (Germany), 1980; Ph.D., University of Munich, 1985. Professor, University of Bergen (Norway), 1995. Research Fellow, Caltech, 1984–87; Senior Research Fellow, 1987–94; Lecturer, 1991; 1993; Visiting Associate, 1994–2008. John M. Eiler, Ph.D., Robert P. Sharp Professor of Geology and Professor of Geochemistry B.S., University of Iowa, 1989; M.S., University of Wisconsin (Madison), 1991; Ph.D., 1994. Research Fellow in Geochemistry, Caltech, 1994–97; Senior Research Fellow, 1997–98; Assistant Professor, 1998–2003; Associate Professor, 2003–06; Professor, 2006–; Sharp Professor, 2008–.

James P. Eisenstein, Ph.D., Frank J. Roshek Professor of Physics and Applied Physics A.B., Oberlin College, 1974; Ph.D., University of California, 1980. Professor of Physics, Caltech, 1996–2004; Roshek Professor, 2004–05; Roshek Professor of Physics and Applied Physics, 2005–.

Tamer Magdy El Sayed, Ph.D., Visiting Associate in Aeronautics B.S., California Polytechnic University (Pomona), 2002; M.S., Caltech, 2004; Ph.D., 2007. Visiting Associate, Caltech, 2009.

Charles Elachi, Ph.D., Vice President,

Director of the Jet Propulsion Laboratory;
Professor of Electrical Engineering and
Planetary Science
B.Sc., University of Grenoble, 1968;
Dipl.Ing., National Polytechnic Institute
(Grenoble), 1968; M.S., Caltech, 1969;
Ph.D., 1971; M.B.A., University of
Southern California, 1978. Research Fellow,
Caltech, 1971–73; Lecturer in Electrical
Engineering, 1982–88; Lecturer in
Electrical Engineering and Planetary
Science, 1988–2001; Professor, 2002–. Vice
President and Director, 2001–.

James Bradley Elder, Ph.D., Visiting Associate in Chemical Engineering B.S., Massachuserts Institute of Technology, 1997; M.D., Columbia University, 2002. Neurological Surgery Internship, University of Southern California, 2003–. Caltech, 2007–08.

Matthew P. Elgart, D.M.A., Lecturer in Guitar
B.F.A., University of California (Los
Angeles) 1983: M.F.A. 1985: D.M.A.

B.F.A., University of California (Los Angeles), 1983; M.F.A., 1985; D.M.A., Claremont Graduate School, 1996. Caltech, 2007–09.

Heinz E. Ellersieck, Ph.D., Associate Professor of History, Emeritus A.B., University of California (Los Angeles), 1942; M.A., 1948; Ph.D., 1955. Instructor, Caltech, 1950–55; Assistant Professor, 1955–60; Associate Professor, 1960–88; Associate Professor Emeritus, 1988–.

Richard S. Ellis, D.Phil., D.Sc.h.c., Steele Family Professor of Astronomy
B.Sc., University College London, 1971;

D.Phil., University of Oxford, 1974; D.Sc.h.c., University of Durham. Visiting Associate, Caltech, 1997–98; Professor, 1999–2002; Steele Professor, 2002–. Deputy Director, Palomar Observatory, 1999–2000; Director, 2000–02; Director, Caltech Optical Observatories, 2002–05.

Michael Elowitz, Ph.D., Associate Professor of Biology and Applied Physics; Bren Scholar B.A., University of California, 1992; M.A., Ph.D., Princeton University, 1999. Assistant Professor, Caltech, 2003–2009; Bren Scholar, 2003–09; Associate Professor, 2009–.

Azita Emami-Neyestanak, Ph.D., Assistant Professor of Electrical Engineering B.S., Sharif University of Technology, 1996; M.S., Stanford University, 1999; Ph.D., 2004. Caltech, 2007—.

Stuart Alan Ende, Ph.D., Faculty Associate in Literature
A.B., Cornell University, 1965; M.A., New York University, 1966; Ph.D., Cornell University, 1970. Assistant Professor of English, Caltech, 1970–74; Associate Professor, 1974–80; Associate Professor of Literature, 1980–90; Faculty Associate, 1990–.

Hermann Engelhardt, Dr.rer.Nat., Senior Research Associate in Geophysics, Emeritus Dipl., Technical University of Munich, 1960; Dr.rer.Nat., 1974. Senior Research Fellow, Caltech, 1976–79; Visiting Associate, 1981; Senior Research Associate, 1988–2002; Senior Research Associate Emeritus, 2002–.

Jean E. Ensminger, Ph.D., Edie and Lew Wasserman Professor of Anthropology B.A., Cornell University, 1974; M.A., Northwestern University, 1976; Ph.D., 1984. Professor, Caltech, 2000–07; Wasserman Professor, 2007–. Chair, Division of the Humanities and Social Sciences, 2002–06.

Jonathan Erez, Ph.D., Visiting Associate in Environmental Science and Engineering B.A., Hebrew University, 1970; M.Sc., 1972; Ph.D., Woods Hole Ocean Institute, 1978. Profesesor, Hebrew University of Jerusalem, 1997.— Caltech, 2008.

Susan Ernst, Ph.D., Visiting Associate in Biology

B.S., Louisiana State University, 1968; Ph.D., University of Massachusetts, 1975. Professor, Tufts University, 1994.. Research Fellow, Caltech, 1975–79; Visiting Associate, 2007–09.

Mary Esteve, Ph.D., Visiting Associate Professor of English B.S., Willamette University, 1981; M.A.,

University of Washington, 1990; Ph.D., 1995. Associate Professor, Concordia University, 2005—. Caltech, 2007–08.

Jeffrey D. Evanseck, Ph.D., Visiting Associate in Chemistry B.S. (Chemistry), Purdue University, 1986; B.S. (Computer Science), 1986; Ph.D., University of California (Los Angeles), 1990. Professor, Chair, Duquesne University, 2005–. Caltech, 2007–08.

Thomas Eugene Everhart, Ph.D., D.L.h.c., D.h.c., President Emeritus; Professor of Electrical Engineering and Applied Physics, Emeritus
A.B., Harvard College, 1953; M.Sc., University of California (Los Angeles), 1955; Ph.D., University of Cambridge, 1958; D.L.h.c., Illinois Wesleyan University; Pepperdine University; D.h.c., Colorado School of Mines. Professor, Caltech, 1987–99; Professor Emeritus, 1999–. President, 1987–97; President Emeritus, 1997–.

Yeshaiahu Fainman, Ph.D., Visiting Associate in Electrical Engineering B.S., M.Sc., Lvov Polytech Institute (USSR), 1970; M.Sc., Technion—Israel Institute of Technology, 1979; Ph.D., 1983. Professor, University of California (San Diego), 1995— Caltech, 2007–08.

Kenneth A. Farley, Ph.D., W. M. Keck Foundation Professor of Geochemistry; Chair, Division of Geological and Planetary Sciences B.S., Yale University, 1986; Ph.D., University of California (San Diego), 1991. Assistant Professor, Caltech, 1993–96; Associate Professor, 1996–98; Professor, 1998–2003; Keck Foundation Professor, 2003 – Director, Tectonics Observatory, 2003–04. Chair, 2004–.

Mordechai Feingold, D.Phil., Professor of History

B.A., Hebrew University of Jerusalem, 1972; M.A., 1976; D.Phil., University of Oxford, 1980. Visiting Associate Professor, Caltech, 1994; Professor, 2002–.

Antony R. H. Fender, B.S., Lecturer in Engineering

B.S., University of California (Los Angeles), 1970. Caltech, 1996–2008.

Bradley Ward Filippone, Ph.D., Professor of Physics

M.S., Pennsylvania State University, 1977; M.S., University of Chicago, 1979; Ph.D., 1982. Research Fellow, Caltech, 1983–84; Assistant Professor, 1984–90; Associate Professor, 1990–95; Professor, 1995–.

Vladimir Filkov, Ph.D., Visiting Associate in Biology

B.S., La Roche College, 1997; M.S., Stony Brook University, 1999; Ph.D., 2003. Assistant Professor, University of California (Davis), 2002–. Caltech, 2009.

Caleb Finch, Ph.D., Visiting Associate in Biology B.S., Yale University, 1961; Ph.D., 1969. Professor, University of Southern California, 1989—. Caltech, 2007–08.

Igor Fineman, M.D., Visiting Associate in Biology B.S., University of California (Los Angeles), 1990; M.D., 1994. Neurosurgery Residency, 1995.— Caltech, 2000–09.

Wolfgang Fink, Ph.D., Visiting Associate in Physics
Ph.D., University of Tübingen, 1997.
Senior Member of the Technical Staff, Jet
Propulsion Laboratory, 2000–. Caltech,
2001–09.

Woodward Fischer, Ph.D., Assistant Professor of Geobiology B.A., Colorado College, 2000; Ph.D., Harvard University, 2007. Caltech, 2009.

Matthew Fisher, Ph.D., Earle C. Anthony Professor of Theoretical Physics B.S., Cornell University, 1981; Ph.D., University of Illinois Urbana-Champaign, 1986. Caltech, 2009—.

Matthias Flach, Ph.D., Professor of Mathematics
Dipl., Johann-Wolfgang von Goethe
University (Frankfurt), 1986; Ph.D., St.
John's College, 1991. Associate Professor,
Caltech, 1995–99; Professor, 1999–.
Executive Officer, 2006–2009.

Richard Charles Flagan, Ph.D., Irma and Ross McCollum-William H. Corcoran Professor of Chemical Engineering and Professor of Environmental Science and Engineering; Executive Officer for Chemical Engineering B.S.E., University of Michigan, 1969; S.M., Massachusetts Institute of Technology, 1971; Ph.D., 1973. Assistant Professor of Environmental Engineering Science, Caltech, 1975-81; Associate Professor, 1981-84; Associate Professor of Environmental Engineering and Mechanical Engineering, 1984-85; Professor, 1986-90; Professor of Chemical Engineering, 1990-2000; McCollum Professor of Chemical Engineering, 2000-03; McCollum Professor of Chemical Engineering and Professor of Environmental Science and Engineering, 2003-04; McCollum-Corcoran Professor of Chemical Engineering and Professor of Environmental Science and Engineering, 2004-. Acting Executive Officer, 1996; Executive Officer, 1997; 2004-

Stephen J. Forman, M.D., Visiting Associate in Chemical Engineering B.A., St. John's College, 1970; M.D.,

University of Southern California, 1974. Staff Physician and Chairman of the Board of Directors, City of Hope, 2001–. Caltech, 2005–08.

Joel N. Franklin, Ph.D., Professor of Applied Mathematics, Emeritus B.S., Stanford University, 1950; Ph.D., 1953. Associate Professor of Applied Mechanics, Caltech, 1957–65; Professor of Applied Science, 1965–69; Professor of Applied Mathematics, 1969–2000; Professor Emeritus, 2000–.

Iain D. C. Fraser, Ph.D., Senior Research Associate in Biology B.Sc., Heriot-Watt University, 1990; Ph.D., University of London 1995, Senior

University of London, 1995. Senior Research Fellow, Caltech, 2002; Senior Research Associate, 2002–08.

Scott E. Fraser, Ph.D., Anna L. Rosen Professor of Biology and Professor of Bioengineering

B.S., Harvey Mudd College, 1976; Ph.D., Johns Hopkins University, 1979. Professor of Biology, Caltech, 1991; Rosen Professor, 1991-; Professor of Bioengineering, 2005–. Director, Magnetic Resonance Imaging Center, 2002–08.

Fernando Fraternali, M.S., Visiting Associate in Aeronautics B.S., University of Salerno (Italy), 1986; M.S., 1986. Associate Professor, 2001–. Caltech, 2005–09.

Steven Clark Frautschi, Ph.D., Professor of Theoretical Physics, Emeritus
A.B., Harvard College, 1954; Ph.D.,
Stanford University, 1958. Assistant
Professor, Caltech, 1962–64; Associate
Professor, 1964–66; Professor, 1966–2006;
Professor Emeritus, 2006– Executive
Officer for Physics, 1988–97; Master of
Student Houses, 1997–2002.

Winrich Freiwald, Ph.D., Visiting Associate in Chemical Engineering Diplom, Tubingen University, 1993; Ph.D., 1997. Assistant Professor, Rockefeller University, 2009.. Caltech, 2009.

Elmar Matthias Fuchs, Ph.D., Visiting Associate in Chemical Engineering Ph.D., Freunde de TU-Munchen, 1993. Professor, University of Konstanz, 2004—. Caltech, 2008–09.

Francis Brock Fuller, Ph.D., Professor of Mathematics, Emeritus
A.B., Princeton University, 1949; M.A., 1950; Ph.D., 1952. Research Fellow, Caltech, 1952–55; Assistant Professor, 1955–59; Associate Professor, 1959–66; Professor, 1966–94; Professor Emeritus, 1994–.

Brent Thomas Fultz, Ph.D., Professor of Materials Science and Applied Physics B.Sc., Massachusetts Institute of Technology, 1975; M.Sc., University of California, 1978; Ph.D., 1982. Assistant Professor of Materials Science, Caltech, 1985–90; Associate Professor, 1990–97; Professor, 1997–2003; Professor of Materials Science and Applied Physics, 2003–.

Todd C. Gaier, Ph.D., Senior Faculty Associate in Astronomy Ph.D., University of California (Santa Barbara), 1993. Principal Staff, Jet Propulsion Laboratory, 1996–. Caltech, 2004–09.

Avishay Gal-Yam, Ph.D., Visiting Associate in Astronomy Ph.D., Tel Aviv University, 2003. Senior Scientist, Weizmann Institute of Science, 2007—. Caltech, 2007—.

Mandy Gamble, M.A., Coach B.A., California State University, 1995; M.A., 1997. Caltech, 2002–.

Daniel A. Garcia, M.A., Lecturer in Spanish Lic., National University of Colombia, 1988; M.A., University of Southern California, 1991. Caltech, 1996–97; 1997–.

Jorge Garcia-Ojalvo, Ph.D., Visiting Associate in Biology M.Sc., University of Barcelona, 1991; Ph.D., 1995. Associate Professor, Technical University of Catalonia, 2003–. Caltech, 2006–10.

Robin Gasser, Ph.D., Visiting Associate in Biology Ph.D., University of Melbourne, 1989; D.VSc., 2000; Dip E.V.P., European Veterinary Parasitology College, 2004. Professor, University of Melbourne, 2005—. Caltech, 2009.

George Rousetos Gavalas, Ph.D., Professor of Chemical Engineering, Emeritus B.S., Technical University of Athens, 1958; M.S., University of Minnesota, 1962; Ph.D., 1964- Assistant Professor, Caltech, 1964-67; Associate Professor, 1967-75; Professor,

John B. Geasland, B.S.F.S., Lecturer in English as a Second Language B.S.F.S., Georgetown University, 1966. Caltech, 2001–09.

1975–2002; Professor Emeritus, 2002–.

Murray Gell-Mann, Ph.D., Sc.D.h.c., D.Sc.h.c., Nobel Laureate, Robert Andrews Millikan Professor of Theoretical Physics, Emeritus B.S., Yale University, 1948; Ph.D., Massachusetts Institute of Technology, 1950; Sc.D.h.c., Columbia University;

University of Cambridge; University of Chicago; University of Illinois; University of Utah; Wesleyan University; Yale University; D.Sc.h.c., University of Turin (Italy). Associate Professor, Caltech, 1955–56; Professor, 1956–67; Millikan Professor, 1967–93; Millikan Professor Emeritus, 1993–.

Glen Arthur George, M.S., Lecturer in Computer Science and Electrical Engineering B.S. (Engineering and Applied Science), Caltech, 1981; B.S. (Electrical Engineering), 1982; M.S., University of California (Los Angeles), 1984. Lecturer in Applied Science, Caltech, 1986–91; Lecturer in Computer Science and Electrical Engineering, 1992–2010.

Merrill Joan Gerber, M.A., Lecturer in Creative Writing B.A., University of Florida, 1959; M.A., Brandeis University, 1980. Caltech, 1989–2010.

Alireza Ghaffari, B.S., Lecturer in Applied Physics B.S., California State University, 1986. Caltech, 2005–09.

Morteza Gharib, Ph.D., Hans W. Liepmann Professor of Aeronautics and Professor of Aeronautics and Professor of Bioinspired Engineering B.S., Teheran University, 1976; M.S., Syracuse University, 1978; Ph.D., Caltech, 1983. Professor of Aeronautics, 1992–2001; Professor of Aeronautics and Bioengineering, 2001–02; Liepmann Professor of Aeronautics and Bioengineering, 2002–06; Professor of Bioengineering, 2006–09; Professor of Bioengineering, 2006–09; Professor of Brofessor, 2006–09; Liepmann Professor, 2006

Amin Gholampour, Ph.D., Olga Taussky and John Todd Instructor in Mathematics M.S., Sharif University of Technology (Iran), 2002; Ph.D., University of British Columbia, 2007. Caltech, 2008–10.

Konstantinos P. Giapis, Ph.D., Associate Professor of Chemical Engineering Dipl., National Technical University of Athens, 1984; Ph.D., University of Minnesota, 1989. Lacey Instructor, Caltech, 1992–93; Assistant Professor, 1993–98; Associate Professor, 1999–.

Kevin Michael Gilmartin, Ph.D., Professor of English
B.A., Oberlin College, 1985; M.A.,
University of Chicago, 1986; Ph.D., 1991.
Assistant Professor of Literature, Caltech,
1991–97; Associate Professor, 1997–2004;
Associate Professor of English, 2004–07;
Professor, 2007–.

Dehn Gilmore, Ph.D., Assistant Professor of English
B.A., Harvard University, 2002; M.Phil.,
Cambridge University, 2003; M.Phil.,
Columbia University, 2005; Ph.D.,
Columbia University, 2009. Caltech, 2009—.

Jacqueline G. Gish, Ph.D., Visiting Associate in Aeronautics B.A., University of California (Los Angeles), 1972; Ph.D., Caltech, 1976; M.B.A., University of Southern California, 2003. Director, Directed Energy Technology, Northrop Grumman Space Technology, 2001.— Visiting Associate, Caltech, 2008–10.

Philip L. Gleckman, Ph.D., Visiting Associate in Materials Science B.S., Massachusetts Institute of Technology, 1984; Ph.D., University of Chicago, 1988. Chief Scientist, eSolar, 2008–. Visiting Associate, Caltech, 2009–10.

M. Michael Glovsky, M.D., Visiting Associate in Chemical Engineering B.S., Tufts University, 1957; M.D., Tufts Medical School, 1962. Head, Asthma and Allergy Center, Huntington Memorial Hospital, 1989.— Caltech, 1999–2009.

William Andrew Goddard III, Ph.D.,
Charles and Mary Ferkel Professor of
Chemistry, Materials Science, and Applied
Physics
B.S., University of California (Los Angeles),
1960; Ph.D., Caltech, 1965. Noyes
Research Fellow in Chemistry, 1964–66;
Noyes Research Instructor, 1966–67;
Assistant Professor of Theoretical
Chemistry, 1967–71; Associate Professor,
1971–74; Professor, 1974–78; Professor of
Chemistry and Applied Physics, 1978–84;
Ferkel Professor of Chemistry, 1984–2001;
Ferkel Professor of Chemistry, Materials
Science, and Applied Physics, 2001–.

Jacob K. Goeree, Ph.D., Professor of Economics
B.S., Utrecht University (Netherlands),
1989; Ph.D. (Theoretical Physics), 1993;
B.A., University of Amsterdam, 1994; Ph.D.
(Economics), 1997. Visiting Associate,
Caltech, 1999; Visiting Professor, 2003;
Professor, 2004—.

Shana Goffredi, Ph.D., Visitor in Geobiology B.S., University of San Diego, 1993; Ph.D., University of California (Santa Barbara), 1998. Caltech, 2004–09.

Marvin Leonard Goldberger, Ph.D., Sc.D.h.c., D.H.L.h.c., LL.D.h.c., President Emeritus

B.S., Carnegie Institute of Technology, 1943; Ph.D., University of Chicago, 1948; Sc.D.h.c., Carnegie Mellon University; University of Notre Dame; D.H.L.h.c.,

Hebrew Union College; University of Judaism; LL.D.h.c., Occidental College. President and Professor of Theoretical Physics, Caltech, 1978–87; President Emeritus, 1991–.

Peter Martin Goldreich, Ph.D., Lee A. DuBridge Professor of Astrophysics and Planetary Physics, Emeritus
B.S., Cornell University, 1960; Ph.D., 1963. Associate Professor of Planetary Science and Astronomy, Caltech, 1966–69; Professor, 1969–81; DuBridge Professor of Astrophysics and Planetary Physics, 1981–2002; DuBridge Professor Emeritus, 2002–. Acting Chairman, Division of Geological and Planetary Sciences, 1989.

Paul F. Goldsmith, Ph.D., Visiting Associate in Physics

A.B., University of California, 1969; Ph.D., 1975. Principal Scientist, Jet Propulsion Laboratory, 2005–. Caltech, 2006–08.

Sunil Golwala, Ph.D., Assistant Professor of Physics

B.A., University of Chicago, 1993; M.A., University of California, 1995; Ph.D., 2000. Caltech, 2003–.

Frank A. Gomez, Ph.D., Visiting Associate in Applied Physics

B.S., California State University, 1986; Ph.D., University of California (Los Angeles), 1991. Professor, California State University, 2002–. Caltech, 2003–09.

David Louis Goodstein, Ph.D., Frank J. Gilloon Distinguished Teaching and Service Professor and Professor of Physics and Applied Physics, Emeritus

Physics, Emeritus
B.S., Brooklyn College, 1960; Ph.D.,
University of Washington, 1965. Research
Fellow in Physics, Caltech, 1966–67;
Assistant Professor, 1967–71; Associate
Professor, 1971–75; Associate Professor of
Physics and Applied Physics, 1975–76;
Professor, 1976–2009; Professor Emeritus,
2009–. Gilloon Professor, 1995–2009. Vice
Provost, 1987–2007.

Judith R. Goodstein, Ph.D., Faculty Associate in History; University Archivist; Lecturer

B.A., Brooklyn College, 1960; Ph.D., University of Washington, 1969. Faculty Associate, Caltech, 1982-; Lecturer, 1989; 2001; 2002; 2007. Registrar, 1989–2003; Institute Archivist, 1968–95; University Archivist, 1995–.

David George Goodwin, Ph.D., Professor of Mechanical Engineering and Applied Physics B.S., Harvey Mudd College, 1979; M.S., Stanford University, 1980; Ph.D., 1986. Assistant Professor of Mechanical Engineering, Caltech, 1988–93; Associate Professor of Mechanical Engineering and

Applied Physics, 1993–2000; Professor, 2000–.

Krzysztof Marian Gorski, Ph.D., Visiting Associate in Physics M.Sc., Nicolaus Copernicus University

(Poland), 1975; Ph.D., Warsaw University, 1987. Senior Research Scientist, Jet Propulsion Laboratory, 2003–. Caltech, 2003–10.

Thomas D. Gottschalk, Ph.D., Lecturer in Physics

B.Ś., Michigan State University, 1973; Ph.D., University of Wisconsin, 1978. Research Fellow, Caltech, 1980–84; Senior Research Fellow, 1984–85; Senior Research Associate, 1985–87; Lecturer, 1992–97; 2004–06; 2008; 2009.

Roy Walter Gould, Ph.D., Simon Ramo Professor of Engineering, Emeritus B.S., Caltech, 1949; M.S., Stanford University, 1950; Ph.D., Caltech, 1956. Assistant Professor of Electrical Engineering, 1955–58; Associate Professor, 1958–60; Associate Professor of Electrical Engineering and Physics, 1960–62; Professor, 1962–74; Professor of Applied Physics, 1974–80; Ramo Professor of Engineering, 1980–96; Ramo Professor Emeritus, 1996–. Executive Officer for Applied Physics, 1973–79; Chairman, Division of Engineering and Applied Science, 1979–85.

Thomas Graber, Ph.D., Professor of Mathematics

A.B., Harvard University, 1994; M.A., University of California (Los Angeles), 1995; Ph.D., 1998. Associate Professor, Caltech, 2005–2008; Professor, 2008–.

Keith J. B. Grainge, Ph.D., Visiting Associate in Physics

Ph.D., University of Cambridge, 1996. Senior Research Associate, 2004—. Caltech, 2008–10.

Harry Barkus Gray, Ph.D., D.Sc.h.c., Laurea h.c., Fil.Dr.h.c., D.L.h.c., Arnold O. Beckman Professor of Chemistry; Founding Director, Beckman Institute B.S., Western Kentucky College, 1957; Ph.D., Northwestern University, 1960; D.Sc.h.c., Northwestern University; University of Rochester; University of Chicago; Göteborg University; University of Pennsylvania; Bowling Green State University; University of Arizona; Laurea h.c., University of Florence; D.L.h.c., Illinois Wesleyan University. Visiting Professor of Inorganic Chemistry, Caltech, 1965; Professor of Chemistry, 1966-81; William R. Kenan Professor, 1976-81; Beckman Professor, 1981-. Chairman, Division of Chemistry and Chemical Engineering, 1978-84; Director, Beckman

Institute, 1986–2001; Founding Director, 2001–.

Julia R. Greer, Ph.D., Assistant Professor of Materials Science B.S., Massachusetts Institute of Technology, 1997; M.S., Stanford University, 2000; Ph.D., 2005. Caltech, 2007.

David M. Grether, Ph.D., Frank J. Gilloon Professor of Economics B.S., University of California, 1960; Ph.D., Stanford University, 1969. Associate Professor, Caltech, 1970–75; Professor, 1975–2009; Gilloon Professor, 2009–. Executive Officer for Social Sciences, 1978–82; Chairman, Division of the Humanities and Social Sciences, 1982–92; Interim Chair, Division of the Humanities and Social Sciences, 2006–07.

Fred J. Grieman, Ph.D., Visiting Associate in Chemistry A.B., University of California (Irvine), 1974; M.A., University of California, 1976; Ph.D., 1979. Moss Professor, Pomona College, 2007.— Caltech, 2008–09.

Alex D. Groce, Ph.D., Lecturer in Computer Science B.S. (Computer Science), B.S. (Multidisciplinary Studies), North Carolina State University, 1999; Ph.D., Carnegie Mellon University, 2003. Caltech, 2008; 2009.

Allen R. Gross, D.M.A., Lecturer in Symphony Orchestra A.B., Queens College, 1965; M.A., University of California, 1967; D.M.A., Stanford University, 1978. Caltech, 1999–2009.

John P. Grotzinger, Ph.D., Fletcher Jones Professor of Geology B.S., Hobart College, 1979; M.S., University of Montana, 1981; Ph.D., Virginia Polytechnic Institute and State University, 1985. Visiting Associate Professor, Caltech, 1996; Moore Distinguished Scholar, 2004; Jones Professor, 2005—.

Robert H. Grubbs, Ph.D., Nobel Laureate, Victor and Elizabeth Atkins Professor of Chemistry B.S., University of Florida, 1963; M.S., 1965; Ph.D., Columbia University, 1968. Professor, Caltech, 1978–90; Atkins Professor, 1990–

Sergei Gukov, Ph.D., Professor of Theoretical Physics and Mathematics B.S., Moscow Institute of Physics and Technology, 1997; M.S., Princeton University, 2001; Ph.D., 2001. Associate Professor, Caltech, 2005–07; Professor, 2007–. Chin-Lin Guo, Ph.D., Assistant Professor of Bioengineering and Applied Physics B.S., National Taiwan University, 1994; M.S., 1996; Ph.D., University of California (San Diego), 2001. Caltech, 2006—

Ming Guo, M.D., Ph.D., Visiting Associate in Biology M.D., Shanghai Medical University, 1989; Ph.D., University of California (San Francisco), 1996. Assistant Professor, University of California (Los Angeles), 2002.— Caltech, 2005–10.

Michael C. Gurnis, Ph.D., John E. and Hazel S. Smits Professor of Geophysics; Director, Siesmological Laboratory B.S., University of Arizona, 1982; Ph.D., Australian National University, 1987. Associate Professor, Caltech, 1994–96; Professor, 1996–2005; Smits Professor, 2005–. Associate Director, Seismological Laboratory, 1995–2003; Director, 2009–

Herold Richard Gustafson, Ph.D., Visiting Associate in Physics B.S., Caltech, 1959; M.S., University of Washington, 1961; Ph.D., 1968. Senior Research Scientist, University of Michigan, 1968–. Visiting Associate, Caltech, 1997–2009.

Inseob Hahn, Ph.D., Visiting Associate in Physics
B.Sc., Seoul National University, 1984;
Ph.D., University of Southern California, 1993. Principal Scientist, Jet Propulsion Laboratory, 2007—. Caltech, 2008–09.

Sossina M. Haile, Ph.D., Professor of Materials Science and Chemical Engineering B.S., Massachusetts Institute of Technology, 1986; M.S., University of California, 1988; Ph.D., Massachusetts Institute of Technology, 1992. Assistant Professor of Materials Science, Caltech, 1996–2001; Associate Professor, 2001–02; Associate Professor of Materials Science and Chemical Engineering, 2003–06; Professor, 2006–.

Seyed-Ali Hajimiri, Ph.D., Professor of Electrical Engineering B.S., Sharif University of Technology, 1994; M.S., Stanford University, 1996; Ph.D., 1998. Assistant Professor, Caltech, 1998–2003; Associate Professor, 2003–06; Professor, 2006–.

John Franklin Hall, Ph.D., Professor of Civil Engineering; Dean of Students B.S., West Virginia University, 1972; M.S., University of Illinois, 1973; Ph.D., University of California, 1980. Research Fellow, Caltech, 1980–83; Lecturer, 1981–83; Assistant Professor, 1983–89; Associate Professor, 1989–97; Professor, 1997. Executive Officer for Civil Engineering and Applied Mechanics,

1998–2005; Dean, 2005–; Acting Vice President for Student Affairs, 2006–07.

Judith Hall, M.A., Lecturer in Creative Writing
A.B., Clark University, 1973; M.A.,
Johns Hopkins University, 1979. Caltech,
1999–2006; 2008; 2009.

Sang-Kyou Han, Ph.D., Visiting Associate in Biology B.S., Korea University, 1988; M.S., 1990;

B.S., Korea University, 1988; M.S., 1990; Ph.D., University of Chicago, 1999. Senior Research Fellow, Caltech, 2005–08; Visiting Associate, 2008–.

Anders Christian Hansen, Ph.D., Von Kármán Instructor in Applied and Computational Mathematics Siv.ing., Norwegian Unviersity of Science and Technology, 2002; M.A., University of California, 2005. Caltech, 2008–09.

David Garrison Harkrider, Ph.D.,

Professor of Geophysics, Emeritus
B.A., Rice University, 1953; M.A., 1957;
Ph.D., Caltech, 1963. Associate Professor,
1970–79; Professor, 1979–95; Professor
Emeritus, 1995–. Associate Director,
Seismological Laboratory, 1977–79.

Cecily Jill Harrison, Ph.D., Visiting Associate in Biology B.Sc., University of St. Andrews (Scotland), 1996; M.Sc., 1998; Ph.D., Edinburgh University, 2002. Postdoctoral Researcher, University of Oxford, 2003–. Caltech, 2007; 2009.

Fiona A. Harrison, Ph.D., Professor of Physics and Astronomy A.B., Dartmouth College, 1985; Ph.D., University of California, 1993. Robert Millikan Research Fellow, Caltech, 1993–99; Assistant Professor of Physics, 1996–99; Assistant Professor of Physics and Astronomy, 1999–2001; Associate Professor, 2001–05; Professor, 2005–.

Babak Hassibi, Ph.D., Professor of Electrical Engineering; Executive Officer for Electrical Engineering B.S., University of Tehran, 1989; M.S., Stanford University, 1993; Ph.D., 1996. Assistant Professor, Caltech, 2001–03; Associate Professor, 2003–08; Professor,

Kristine Haugen, Ph.D., Assistant Professor of English
B.A., University of Chicago, 1996; M.A.,
Princeton University, 1998; Ph.D., 2001.
Caltech, 2005-.

2008-; Executive Officer, 2008-.

Egill Hauksson, Ph.D., Senior Research Associate in Geophysics M.S., University of Trondheim (Norway), 1974; M.A., Columbia University, 1978; M.Phil., 1980; Ph.D., 1981. Research Fellow, Caltech, 1989–92; Senior Research Associate, 1992–.

Bruce A. Hay, Ph.D., Professor of Biology B.A., Claremont McKenna College, 1982; Ph.D., University of California (San Francisco), 1989. Assistant Professor, Caltech, 1996–2002; Associate Professor, 2002–08; Professor, 2008–.

James R. Heath, Ph.D., Elizabeth W. Gillon Professor and Professor of Chemistry B.Sc., Baylor University, 1984; M.A., Rice University, 1988; Ph.D., 1988. Caltech, 2003—.

Thomas Harrison Heaton, Ph.D., Professor of Engineering Seismology B.S., Indiana University, 1972; Ph.D., Caltech, 1978. Visiting Associate in Geophysics, Caltech, 1980–91; Faculty Associate, 1991–95; Lecturer in Geophysics, 1993–94; Lecturer in Engineering Seismology, 1995; Professor, 1995–.

Jeremy Heidel, Ph.D., Visiting Associate in Chemical Engineering B.S., Massachusetts Institute of Technology, 1999; Ph.D., Caltech, 2005. Chief Scientific Officer, Calando Pharmaceuticals, 2005–. Visiting Associate, Caltech, 2006–09.

Marcus G. B. Heisler, Ph.D., Senior Research Associate in Biology B.Sc., University of Melbourne, 1990; Ph.D., Monash University, 2000. Caltech, 2007–11.

Donald Vincent Helmberger, Ph.D., Smits Family Professor of Geological and Planetary Sciences B.S., University of Minnesota, 1961; M.S., University of California (San Diego), 1965; Ph.D., 1967. Assistant Professor, Caltech, 1970–74; Associate Professor, 1974–79; Professor, 1979–2000; Smits Family Professor, 2000–. Director, Seismological Laboratory, 1998–2003.

George Helou, Ph.D., Senior Research Associate in Physics; Executive Director of the Infrared Processing and Analysis Center B.S., American University of Beirut, 1975; Ph.D., Cornell University, 1980. Senior Research Associate, Caltech, 1998—. Executive Director, 1999—.

Janet G. Hering, Ph.D., Visiting Associate in Environmental Science and Engineering A.B., Cornell University, 1979; A.M., Harvard University, 1981; Ph.D., Massachusetts Institute of Technology, 1988. Visiting Associate, Caltech, 1995–96; Associate Professor of Environmental Engineering Science, 1996–2002; Professor of Environmental Science and Engineering, 2002–08; Visiting Associate, 2009–10. Executive Officer for Keck Laboratories, 2002–08.

Matthew C. Heverly, M.S., Lecturer in Mechanical Engineering B.S., California Polytechnic State University (San Luis Obispo), 1999; M.S., Boston University, 2005. Caltech, 2008; 2009.

David J. Hill, Ph.D., Senior Research Fellow in Aeronautics B.S., Reed College, 1991; Ph.D., Caltech, 1998. Lecturer, 2007; 2008; Senior Research Fellow, 2007–10.

Michael G. Hill, Ph.D., Visiting Associate in Chemistry

B.A., Macalester College, 1987; Ph.D., University of Minnesota, 1992. Assistant Professor, Occidental College, 1994.— Research Fellow, Caltech, 1992–94; Visiting Associate, 1995–2010; Lecturer, 2008.

Lynne Anne Hillenbrand, Ph.D., Associate Professor of Astronomy; Executive Officer for Astronomy

A.B., Princeton University, 1989; M.S., 1989; Ph.D., University of Massachusetts, 1995. Assistant Professor, Caltech, 2000–06; Associate Professor, 2006–. Executive Officer, 2007–.

Christopher M. Hirata, Ph.D., Assistant Professor of Astrophysics B.S., Caltech, 2001; Ph.D., Princeton University, 2005. Caltech, 2007–.

Kayoko Hirata, Ph.D., Lecturer in Japanese B.A., Kitakyushu University (Japan), 1966; M.A., University of Oregon, 1978; M.A., University of Arizona (Tucson), 1987; Ph.D., 1989. Caltech, 1990–.

Christopher Read Hitchcock, Ph.D., Professor of Philosophy

Professor of Philosophy A.B., Princeton University, 1986; M.A. (Philosophy), M.A. (Mathematics), University of Pittsburgh, 1990; Ph.D., 1993. Associate Professor, Caltech, 1998–2002; Professor, 2002–.

David George Hitlin, Ph.D., Professor of Physics

B.A., Columbia University, 1963; M.A., 1965; Ph.D., 1968. Associate Professor, Caltech, 1979–85; Professor, 1986–.

Tracey C. Ho, Ph.D., Assistant Professor of Electrical Engineering and Computer Science S.B., Massachusetts Institute of Technology, 1999; M.Eng., 1999; Ph.D., 2004. Caltech, 2004.

Philip Thomas Hoffman, Ph.D., Rea A. and Lela G. Axline Professor of Business Economics and Professor of History
A.B., Harvard College, 1969; M.A.,
University of California, 1971; Ph.D., Yale
University, 1979. Lecturer in History,
Caltech, 1980–81; Instructor, 1981–82;
Assistant Professor, 1982–84; Associate

Professor of History and Social Science, 1984–95; Professor, 1995–2003; Richard and Barbara Rosenberg Professor of History and Social Science, 2003–08; Axline Professor, 2008–. Executive Officer for the Humanities, 1995–2000.

Michael Robert Hoffmann, Ph.D., James Irvine Professor of Environmental Science
B.A., Northwestern University, 1968;
Ph.D., Brown University, 1974. Research
Fellow, Caltech, 1973–76; Associate
Professor, 1980–85; Professor of
Environmental Engineering Science,
1986–90; Professor of Environmental
Chemistry, 1990–96; Irvine Professor of
Environmental Science, 1996–. Executive
Officer for Environmental Engineering
Science, 1996–2002; Dean of Graduate
Studies, 2002–08.

Susan Hojnacki, Ph.D., Visiting Associate in

Chemistry
M.S., Rochester Institute of Technology,
2000; Ph.D., 2005. Senior Member,
Engineering and Space Directorate, Jet
Propulsion Laboratory, 2007–. Caltech,
2008–10.

Gerard J. Holzmann, Ph.D., Faculty Associate in Computer Science; Lecturer in Computer Science B.S., Delft University of Technology (Netherlands), 1973; M.S., 1976; Ph.D., 1979. Lecturer, Caltech, 2003–06; 2008; 2009; Faculty Associate, 2007–10.

Narimon Honarpour, Ph.D., M.D., Visiting Associate in Biology
B.S., University of Texas (Austin), 1996;
Ph.D., University of Texas Southwestern
Medical Center, 2001; M.D., University of
California (Los Angeles), 2003. STAR
Postdoctoral Fellow, 2005–. Caltech,
2006–10.

John J. Hopfield, Ph.D., Roscoe G. Dickinson Professor of Chemistry and Biology, Emeritus

A.B., Swarthmore College, 1954; Ph.D., Cornell University, 1958. Dickinson Professor, Caltech, 1980–97; Dickinson Professor Emeritus, 1997–.

Hans G. Hornung, Ph.D., C. L. "Kelly" Johnson Professor of Aeronautics, Emeritus B.S., University of Melbourne, 1960; M.S., 1962; Ph.D., University of London (Imperial College), 1965. Johnson Professor, Caltech, 1987–2005; Johnson Professor Emeritus, 2005—. Director, Graduate Aeronautical Laboratories, 1987–2004.

Yizhao Thomas Hou, Ph.D., Charles Lee Powell Professor of Applied and Computational Mathematics B.S., South China University of Technology, 1982; M.S., University of

California (Los Angeles), 1985; Ph.D., 1987. Associate Professor of Applied Mathematics, Caltech, 1993–98; Professor, 1998–2000; Professor of Applied and Computational Mathematics, 2000–04; Powell Professor, 2004–. Executive Officer for Applied and Computational Mathematics, 2000–06.

James Morrow House, M.D., Visiting Associate in Chemical Engineering; Chief Administrator, Jacobs Institute for Molecular Engineering for Medicine
B.S., University of Kansas, 1962; M.D., 1966. Staff Physician, Huntington Memorial Hospital, 1971–. Assistant Professor, University of California (Los Angeles), 1973–. Caltech, 2002–09; Chief Administrator, 2008–.

James B. Howard, Ph.D., Visiting Associate in Chemistry

B.A., DePauw University, 1964; Ph.D., University of California (Los Angeles), 1968. Professor, University of Minnesota, 1982–. Caltech, 1996–2009.

Linda C. Hsieh-Wilson, Ph.D., Associate Professor of Chemistry; Investigator, Howard Hugbes Medical Institute B.S., Yale University, 1990; Ph.D., University of California, 1996. Assistant Professor, Caltech, 2000–06; Associate Professor, 2006–. Investigator, 2005–.

Rong-gui Hu, Ph.D., Senior Research Fellow in Biology B.S., Anhui Normal University, 1995; Ph.D., Shanghai Institute of Biochemistry and Cell Biology, 2001. Caltech, 2007–09.

Alice Shih-hou Huang, Ph.D., M.A.h.c., D.Sc.h.c., Sentor Faculty Associate in Biology B.A., Johns Hopkins University, 1961; M.S., 1963; Ph.D., 1966. M.A.h.c., Harvard University; D.Sc.h.c., Wheaton College; Mt. Holyoke College; Medical College of Pennsylvania. Faculty Associate, Caltech, 1997–2007; Senior Faculty Associate, 2007–09.

Michael Hucka, Ph.D., Senior Research Fellow in Control and Dynamical Systems B.S., University of Utah, 1987; M.S., University of Michigan, 1991; Ph.D., 1989. Caltech, 2005—.

Kenneth W. Hudnut, Ph.D., Visiting Associate in Geophysics

A.B., Dartmouth College, 1983; M.A., Columbia University, 1986; Ph.D., 1989. Geophysicist and Project Chief, U.S. Geological Survey, 1992— Research Fellow, Caltech, 1989–92; Visiting Associate, 1997–2010.

Emlyn W. Hughes, Ph.D., Visiting Associate in Physics B.S., Stanford University, 1982; M.A., Columbia University, 1984; M.Phil., 1985; Ph.D., 1987. Associate Professor, Caltech, 1995–99; Professor, 1999–2008; Visiting Associate, 2008–.

Melany L. Hunt, Ph.D., Professor of Mechanical Engineering; Vice Provost B.S., University of Minnesota, 1983; M.S., University of California, 1985; Ph.D., 1987. Assistant Professor, Caltech, 1988–95; Associate Professor, 1995–2001; Professor, 2001–. Executive Officer for Mechanical Engineering, 2002–07; Vice Provost, 2007–.

Matthew C. Hunter, Ph.D., Weisman Postdoctoral Instructor in Art History B.A., Reed College, 1997; M.A., University of Chicago, 1999; Ph.D., 2007. Caltech, 2008–10.

Fazle Hussain, Ph.D., Moore Distinguished Scholar in Engineering and Applied Science B.S., University of Cambridge, 1992; M.A., 1996; Ph.D., Caltech, 1998. Chair, Imperial College, London, 2006—. Caltech, 2009.

Sonjong Hwang, Ph.D., Lecturer in Chemistry
B.S., Sogang University (Korea), 1987;
Ph.D., Iowa State University, 1994. Caltech, 2001–09.

Matias Jose Iaryczower, Ph.D., Assistant Professor of Economics and Political Science B.A., University of Buenos Aires, 1997; M.A., University of San Andres (Buenos Aires), 1997; Ph.D., University of California (Los Angeles), 2005. Caltech, 2005–.

Jozsef Illy, Ph.D., Visiting Associate in

Ph.D., Szeged University and Hungarian Academy of Sciences, 1982. Contributing Editor of Collected Papers of Albert Einstein, Princeton University Press, 1991–. Senior Research Associate, Retired, Hungarian Academy of Sciences (Institute of Isotopes), 1993–. Caltech, 2000–09.

Andrew Perry Ingersoll, Ph.D., Earle C. Anthony Professor of Planetary Science B.A., Amherst College, 1960; A.M., Harvard University, 1961; Ph.D., 1966. Assistant Professor, Caltech, 1966–71; Associate Professor, 1971–76; Professor, 1976–2003; Anthony Professor, 2003–Executive Officer for Planetary Science, 1987–94.

Adrian Ioana, Ph.D., Olga Taussky and John Todd Instructor in Mathematics B.S., University of Bucharest, 2003; Ph.D., University of California (Los Angeles), 2007. Caltech, 2007-10.

Sandra S. Irani, Ph.D., Visiting Associate in Computer Science B.S., Princeton University, 1986; Ph.D., University of California, 1991. Chair,

Computer Science Department, University of California (Irvine), 2004–. Caltech, 2008–10.

Takeo Ito, Ph.D., Visiting Associate in Geophysics B.S., Ehime University, 1998; M.S., Kyushu University, 2000; Ph.D., 2003. Assistant

B.S., Ehime University, 1998; M.S., Kyushu University, 2000; Ph.D., 2003. Assistant Professor, Nagoya University, 2004.. Caltech, 2009–11.

Wilfred Dean Iwan, Ph.D., Professor of Applied Mechanics, Emeritus B.S., Caltech, 1957; M.S., 1958; Ph.D., 1961. Assistant Professor, 1964–67; Associate Professor, 1967–72; Professor, 1972–2004; Professor Emeritus, 2004–. Executive Officer for Civil Engineering and Applied Mechanics, 1980–86.

Wendell P. Jack, Ed.D., Director of Atbletics and Physical Education B.A., California State University (Long Beach), 1979; M.A., 1982; Ed.D., Concordia University, 2004. Coach, Caltech, 1989–92; Director, 2005–.

Jennifer Mae Jackson, Ph.D., Assistant Professor of Mineral Physics
B.S., University of Illinois (Urbana-Champaign), 1999; M.S., University of Notre Dame, 2000; Ph.D., University of Illinois, 2005. Caltech, Assistant Professor of Geophysics, 2007–2009; Assistant Professor of Mineral Physics, 2009–.

Paul Christian Jennings, Ph.D., Professor of Civil Engineering and Applied Mechanics, Emeritus

B.S., Colorado State University, 1958; M.S., Caltech, 1960; Ph.D., 1963. Research Fellow in Civil Engineering, 1965; Assistant Professor of Applied Mechanics, 1966–68; Associate Professor, 1968–72; Professor, 1972–77; Professor of Civil Engineering and Applied Mechanics, 1977–2002; 2004–07; Professor Emeritus, 2002–04; 2007–. Executive Officer for Civil Engineering and Applied Mechanics, 1975–80; Chairman, Division of Engineering and Applied Science, 1985–89; Vice President and Provost, 1989–95; Acting Vice President for Business and Finance, 1995; 1998–99; Provost, 2004–07.

Grant J. Jensen, Ph.D., Associate Professor of Biology; Investigator, Howard Hughes Medical Institute

B.S., Brigham Young University, 1994; Ph.D., Stanford University, 1999. Assistant Professor, Caltech, 2002–08; Associate Professor, 2008–. Investigator, 2008–.

Lee K. Johnson, Ph.D., Visiting Associate in Aeronautics

B.S., Harvey Mudd College, 1982; M.S., Rice University, 1985; Ph.D., 1987. Senior Research Engineer, Jet Propulsion Laboratory, 2000–. Caltech, 2007–09. John A. Johnson, Ph.D., Assistant Professor of Astronomy M.A., University of California, 2002; Ph.D., 2007. Caltech, 2009—

William Lewis Johnson, Ph.D., Ruben E. and Donna Mettler Professor of Engineering and Applied Science
B.A., Hamilton College, 1970; Ph.D.,
Caltech, 1975. Assistant Professor of
Materials Science, 1977–80; Associate
Professor, 1980–84; Professor, 1984–89;
Mettler Professor, 1989–.

Alexander Raymond Jones, Ph.D., Francis Bacon Visiting Professor of History B.A., University of British Columbia, 1981; Ph.D., Brown University, 1985. Professor, University of Toronto, 1997—. Caltech, 2008.

Lucile Merrill Jones, Ph.D., Visiting Associate in Geophysics A.B., Brown University, 1976; Ph.D., Massachusetts Institute of Technology, 1981. Research Associate, U.S. Geological Survey, 1984. Caltech, 1984-2009.

Rajeev Joshi, Ph.D., Lecturer in Computer Science B.S., Indian Institute of Technology (Bombay), 1990; M.S., University of Texas (Austin), 1994; Ph.D., 1999. Caltech,

2008-09.

Catherine Jurca, Ph.D., Associate Professor of English
B.A., University of California, 1987; M.A.,
Johns Hopkins University, 1992; Ph.D.,
1995. Instructor in Literature, Caltech,
1995; Assistant Professor, 1995–2001;
Associate Professor, 2001–04; Associate
Professor of English, 2004–. Master of
Student Houses, 2002–09.

Daniel Kahn, Ph.D., M.D., Visiting Associate in Biology B.S., Ohio State University, 1994; Ph.D., University of California (San Diego), 2001; M.D., 2002. Residency, University of California (Los Angeles), 2003–. Caltech, 2008–10.

W. Barclay Kamb, Ph.D., Barbara and Stanley R. Rawn fr. Professor of Geology and Geophysics, Emeritus B.S., Caltech, 1952; Ph.D., 1956. Assistant Professor of Geology, 1956–60; Associate Professor, 1960–62; Professor, 1962–63; Professor of Geology and Geophysics, 1963–90; Rawn Professor, 1990–99; Rawn Professor Emeritus, 1999–, Chairman, Division of Geological and Planetary Sciences, 1972–83; Vice President and Provost, 1987–89.

Marc Kamionkowski, Ph.D., Robinson Professor of Theoretical Physics and Astrophysics B.A., Washington University (St. Louis), 1987; Ph.D., University of Chicago, 1991. Professor, Caltech, 1999–2006; Robinson Professor, 2006–.

Hiroo Kanamori, Ph.D., John E. and Hazel S. Smits Professor of Geophysics, Emeritus B.S., University of Tokyo, 1959; M.S., 1961; Ph.D., 1964. Research Fellow, Caltech, 1965–66; Professor, 1972–89; Smits Professor, 1989–2005; Smits Professor Emeritus, 2005–. Director, Seismological Laboratory, 1990–98.

Keiko Kanamori, Ph.D., Visiting Associate in Chemistry B.A., University of Tokyo, 1962; B.S., California State University, 1976; Ph.D., Caltech, 1981. Postdoctoral Research Chemist, University of California (Los Angeles), 1982. Visiting Associate, Caltech, 1984...

Nam-Gyu Kang, Ph.D., Olga Taussky and John Todd Instructor in Mathematics B.S., Seoul National University, 1993; Ph.D., Yale University, 2004. Caltech, 2007–10.

Anton Kapustin, Ph.D., Associate Professor of Theoretical Physics
M.S., Moscow State University, 1993;
Ph.D., Caltech, 1997. Assistant Professor, 2001–04; Associate Professor, 2004–.

Emil P. Kartalov, Ph.D., Visiting Associate in Electrical Engineering B.S., Caltech, 1998; M.S., 2004; Ph.D., 2004. Assistant Professor, University of Southern California, 2007–. Visiting Associate, Caltech, 2008–10.

Jonathan N. Katz, Ph.D., Professor of Social Sciences and Statistics, Chair, Division of the Humanities and Social Sciences S.B., Massachusetts Institute of Technology, 1990; M.A., University of California (San Diego), 1992; Ph.D., 1995. Assistant Professor, Caltech, 1995–98; Associate Professor, 1998; 1999–2003; Professor of Political Science, 2003–2009; Professor of Social Sciences and Statistics, 2009–. Executive Officer for the Social Sciences, 2007; Chair, 2007–.

Ralph William Kavanagh, Ph.D., Professor of Physics, Emeritus
B.A., Reed College, 1950; M.A., University of Oregon, 1952; Ph.D., Caltech, 1956.
Research Fellow, 1956–58; Senior Research Fellow, 1958–60; Assistant Professor, 1960–65; Associate Professor, 1965–70; Professor, 1970–2000; Professor Emeritus, 2000–.

Alexander Sotirios Kechris, Ph.D., D.h.c., Professor of Mathematics M.S., National Technological University (Athens), 1969; Ph.D., University of California (Los Angeles), 1972; D.h.c., University of Athens. Assistant Professor, Caltech, 1974–76; Associate Professor, 1976–81; Professor, 1981–. Executive Officer for Mathematics, 1994–97.

Mary B. Kennedy, Ph.D., Allen and Lenabelle Davis Professor of Biology B.S., St. Mary's College, 1969; Ph.D., Johns Hopkins University, 1975. Assistant Professor, Caltech, 1981–84; Associate Professor, 1984–92; Professor, 1992–2002; Davis Professor, 2002–.

Daniel Jerome Kevles, Ph.D., J. O. and Juliette Koepfli Professor of the Humanities, Emeritus
A.B., Princeton University, 1960; Ph.D., 1964. Assistant Professor of History, Caltech, 1964–68; Associate Professor, 1968–78; Professor, 1978–86; Koepfli Professor of the Humanities, 1986–2001; Koepfli Professor Emeritus, 2001–. Executive Officer for the Humanities, 1978–81.

Farid Ya Khalili, Ph.D., Visiting Associate in Physics Ph.D., Moscow State University, 1979. Professor, 1997—. Caltech, 2001–09.

Ali Khoshnan, Ph.D., Senior Research Fellow in Biology M.A., California State University, 1988; Ph.D., University of Texas Health Science Center (San Antonio), 1995. Caltech, 2002–09.

Haseo Ki, Ph.D., Visiting Associate in Mathematics Ph.D., Caltech, 1995. Professor, Yonsei University, 2007–. Visiting Associate, Caltech, 2008–09.

D. Roderick Kiewiet, Ph.D., Professor of Political Science B.A., University of Iowa, 1974; Ph.D., Yale University, 1980. Assistant Professor, Caltech, 1979–82; Associate Professor, 1982–89; Professor, 1989–. Dean of Students, 1992–96; Dean of Graduate Studens, 2000–02.

Paul Choong Kim, Ph.D., Visiting Associate in Materials Science
B.S., University of South Florida, 1992;
Ph.D., Caltech, 2001. Vice President,
Liquidmetal Technologies, 2002–. Visiting
Associate, Caltech, 2006–09.

JaiSam Kim, Ph.D., Visiting Associate in Physics
Ph.D., Caltech, 1982. Professor, Pohang University of Science and Technology, 2001–. Research Fellow, Caltech, 1982–83; Visiting Associate, 2009.

H. Jeff Kimble, Ph.D., William L. Valentine Professor and Professor of Physics B.S., Abilene Christian University, 1971;

M.S., University of Rochester, 1973; Ph.D., 1978; D.Sc.h.c., Niels Bohr Institute, University of Copenhagen. Professor, Caltech, 1989–; Valentine Professor, 1997–.

Richard R. King, Ph.D., Visiting Associate in Applied Physics B.S., Stanford University, 1985; M.S., 1987; Ph.D., 1990. Principal Scientist/Technical Fellow, Spectrolab, 1997—. Caltech,

2008-09.

Joseph Lynn Kirschvink, Ph.D., Nico and Marilyn Van Wingen Professor of Geobiology B.S., M.S., Caltech, 1975; M.A., Princeton University, 1978; Ph.D., 1979. Assistant Professor, Caltech, 1981–87; Associate Professor, 1987–92; Professor, 1992–2004; Van Wingen Professor, 2004–.

Alexei Kitaev, Ph.D., Professor of Theoretical Physics and Computer Science Dipl., Moscow Institute of Physics and Technology, 1986; Ph.D., Landau Institute for Theoretical Physics, 1989. Visiting Associate, Caltech, 1998–99; Lecturer, 1998–99; Senior Research Associate, 2001–02; Professor, 2002–.

Burton H. Klein, Ph.D., Professor of Economics, Emeritus A.B., Harvard College, 1940; Ph.D., Harvard University, 1948. Professor, Caltech, 1967–83; Professor Emeritus, 1983–.

Daniel M. Klerman, J.D., Ph.D., Visiting Professor of Law Professor of Law B.A., Yale University, 1988; J.D., University of Chicago Law School, 1991; Ph.D., University of Chicago, 1998. Professor, University of Southern California, 2001–. Caltech, 2003–08.

Wolfgang Gustav Knauss, Ph.D., Theodore von Kármán Professor of Aeronautics and Applied Mechanics, Emeritus
B.S., Caltech, 1958; M.S., 1959; Ph.D., 1963. Research Fellow in Aeronautics, 1963–65; Assistant Professor, 1965–69; Associate Professor, 1969–78; Professor, 1978–82; Professor of Aeronautics and Applied Mechanics, 1982–2001; von Kármán Professor, 2001–04; von Kármán Professor Emeritus, 2004–.

James Kenyon Knowles, Ph.D., D.Sc.h.c., William R. Kenan Jr. Professor and Professor of Applied Mechanics, Emeritus B.S., Massachusetts Institute of Technology, 1952; Ph.D., 1957; D.Sc.h.c., National University of Ireland. Assistant Professor of Engineering and Applied Science, Caltech, 1958–61; Associate Professor, 1961–65; Professor of Applied Mechanics, 1965–; Kenan Professor, 1991–97; Kenan Professor Emeritus, 1997. Academic Officer for Applied Mechanics, 1971–75; Executive Officer for Civil Engineering and Applied

Mechanics, 1986–93; Acting Chairman, Division of Engineering and Applied Science, 1989–90.

Christof Koch, Ph.D., Lois and Victor Troendle Professor of Cognitive and Behavioral Biology and Professor of Computation and Neural Systems; Executive Officer for Neurobiology

M.S., University of Tübingen, 1980; Ph.D., 1982. Assistant Professor of Computation and Neural Systems, Caltech, 1986–91; Associate Professor, 1991–94; Professor, 1994–; Troendle Professor, 2000–. Executive Officer for Computation and Neural Systems, 1997–2005; Executive Officer for Neurobiology, 2006–.

Monica D. Kohler, Ph.D., Visiting Associate in Civil Engineering; Lecturer in Civil Engineering; Lecturer in Civil Engineering A.B., Harvard University, 1988; Ph.D., Caltech, 1995. Assistant Research Engineer, University of California (Los Angeles), 1998. Visiting Associate, Caltech, 2007–11; Lecturer, 2009.

Masakazu Konishi, Ph.D., Bing Professor of Behavioral Biology B.S., Hokkaido University (Japan), 1956; M.S., 1958; Ph.D., University of California, 1963. Professor of Biology, Caltech, 1975–80; Bing Professor, 1980.– Executive Officer for Biology, 1977–80.

David S. Koos, Ph.D., Senior Research Fellow in Biology B.S., University of Connecticut, 1989; Ph.D., Princeton University, 2000. Lecturer, Caltech, 2003–06; Senior Research Fellow, 2006–09.

Diana Lena Kormos-Buchwald, Ph.D., Professor of History B.Sc., Technion—Israel Institute of Technology, 1981; M.Sc., Tel Aviv University, 1983; A.M., Harvard University, 1985; Ph.D., 1990. Instructor, Caltech, 1989–90; Assistant Professor, 1990–96;

Associate Professor, 1996-2005; Professor,

2005-.

Julia A. Kornfield, Ph.D., Professor of Chemical Engineering B.S., Caltech, 1983; M.S., 1984; Ph.D., Stanford University, 1988. Assistant Professor, Caltech, 1990–95; Associate Professor, 1995–2001; Professor, 2001–.

Petros D. Koumoutsakos, Ph.D., Clark B. Millikan Visiting Professor of Aeronautics
Dipl., National Technical University of Athens, 1986; B.S., University of Michigan, 1987; M.S., Caltech, 1988; Ph.D., 1992.
Director, Institute of Scientific Computing, ETH Zurich, 2003—. Research Fellow, Caltech, 1992–1994; Millikan Visiting Professor, 2009–10.

2007-.

Joseph Morgan Kousser, Ph.D., Professor of History and Social Science
A.B., Princeton University, 1965; M.Phil.,
Yale University, 1968; Ph.D., 1971.
Instructor in History, Caltech, 1969–71;
Assistant Professor, 1971–74; Associate
Professor, 1974–79; Professor, 1979–80;
Professor of History and Social Science,
1980–.

Anne Jacob Kox, Ph.D., Visiting Associate in History

M.S., University of Amsterdam, 1972; Ph.D., 1976. Pieter Zeeman Professor, 1998–. Visiting Professor, Caltech, 2003; Visiting Associate, 2005–09.

Rainer Andreas Krause, Ph.D., Assistant Professor of Computer Science M.Sc., Technische Universitat Munchen, 2004; Ph.D., Carnegie Mellon University, 2008. Caltech, 2009-.

Swaminathan Krishnan, Ph.D., Assistant Professor of Civil Engineering and Geophysics B.S., Indian Institute of Technology, 1992; M.S., Rice University, 1994; Ph.D., Caltech, 2003. Assistant Professor of Civil Engineering, 2006–07; Assistant Professor of Civil Engineering and Geophysics, 2007–.

Shrinivas R. Kulkarni, Ph.D., John D. and Catherine T. MacArthur Professor of Astronomy and Planetary Science; Director, Caltech Optical Observatories
M.S., Indian Institute of Technology, 1978; Ph.D., University of California, 1983. Millikan Research Fellow in Radio Astronomy, Caltech, 1985–87; Assistant Professor of Astronomy, 1987–90; Associate Professor, 1990–92; Professor, 1992–96; Professor of Astronomy and Planetary Science, 1996–2001; MacArthur Professor, 2001.— Executive Officer for Astronomy, 1997–2000; Director, 2006—

Akiko Kumagai, Ph.D., Senior Research Associate in Biology B.S., Kyoto University (Japan), 1979; Ph.D., 1986. Senior Research Fellow, Caltech, 1989–95; Senior Research Associate, 1996–.

Aron Kuppermann, Ph.D., Professor of Chemical Physics
M.Sc., University of São Paulo, 1948;
Ph.D., University of Notre Dame, 1956.
Caltech, 1963—.

Jenijoy La Belle, Ph.D., Professor of English, Emeritus B.A., University of Washington, 1965; Ph.D., University of California (San Diego), 1969. Assistant Professor of English, Caltech, 1969–76; Associate Professor, 1977–80; Associate Professor of Literature, 1980–88; Professor, 1988–2004; Professor of English, 2004–07; Professor Emeritus, Jay A. Labinger, Ph.D., Faculty Associate in Chemistry; Lecturer in Chemistry B.S., Harvey Mudd College, 1968; Ph.D., Harvard University, 1974. Lecturer, Caltech, 1988–1996; Faculty Associate, 2006-; Lecturer in Chemistry, 2008–11.

Michael P. Lamb, Ph.D., Assistant Professor of Geology B.S., University of Minnesota, 2001; M.S., University of Washington, 2004; Ph.D., University of California, 2008. Caltech, 2009—

Andrew E. Lange, Ph.D., Marvin L.
Goldberger Professor of Physics, Senior Research
Scientist, Jet Propulsion Laboratory; Chair,
Division of Physics, Mathematics and
Astronomy
B.A., Princeton University, 1980; Ph.D.,
University of California, 1987. Visiting
Associate, Caltech, 1993–94; Professor,

1994-2001; Goldberger Professor, 2001-.

Senior Research Scientist, 2006-. Chair,

2008-.

Ralf Langen, Ph.D., Visiting Associate in Chemistry
B.S., University of Hannover (Germany), 1988; M.S., University of Southern California, 1994; Ph.D., Caltech, 1995. Assistant Professor, University of Southern California, 1999.- Visiting Associate,

Thomas A. Langer, Ph.D., Visiting Associate in Economics B.A., University of Kiel, 1993; Ph.D., University of Mannheim, 1998. Professor, University of Münster, 2004–. Caltech, 2008–09.

Caltech, 1995-2000; 2003-09.

Russell Lansford, Ph.D., Lecturer in Bioengineering A.B., University of California, 1986; M.A., Columbia University, 1989; M.S., 1990; Ph.D., 1996. Senior Research Fellow in Biology, Caltech, 1999–2002; Lecturer in Bioengineering, 2003–09.

Nadia Lapusta, Ph.D., Associate Professor of Mechanical Engineering and Geophysics Dipl., Kiev State University, 1994; M.S., Harvard University, 1996; Ph.D., 2001. Assistant Professor of Mechanical Engineering, Caltech, 2002–03; Assistant Professor of Mechanical Engineering and Geophysics, 2003–2009; Associate Professor of Mechanical Engineering and Geophysics, 2008–2008.

Gilles J. Laurent, Ph.D., D.V.M., Lawrence A. Hanson Jr. Professor of Biology and Computation and Neural Systems B.A., University of Toulouse, 1978; Ph.D., 1985; D.V.M., National School of Veterinary Medicine of Toulouse, 1985. Associate Professor, Caltech, 1990–95; Associate Professor, 1996–2000; Professor, 2000–02; Hanson Professor, 2002– **Desiree LaVertu, M.M.,** Lecturer in Choral Music

B.M., California State University (Fullerton), 1988; M.M., University of Nevada, 1998. Caltech, 2000–.

Jared Renton Leadbetter, Ph.D., Associate Professor of Environmental Microbiology B.S., Goucher College, 1991; Ph.D., Michigan State University, 1997. Assistant Professor, Caltech, 2000–06; Associate Professor, 2006–.

John O. Ledyard, Ph.D., D.Lit.h.c., Allen and Lenabelle Davis Professor of Economics and Social Sciences
A.B., Wabash College, 1963; M.S., Purdue University, 1965; Ph.D., 1967; D.Lit.h.c., Purdue University. Professor, Caltech, 1985–2002; Davis Professor, 2002–. Executive Officer for the Social Sciences, 1989–92; Chair, Division of the Humanities and Social Sciences, 1992–2002.

Joon-Hyung Lee, Ph.D., Visiting Associate in Materials Science B.S., Yeungnam University, 1989; M.S., Kyungpook National University, 1991; Ph.D., 1995. Associate Professor, 2004–. Caltech, 2008–10.

Reginald K. Lee, Ph.D., Visiting Associate in Applied Physics B.S., University of Toronto, 1994; M.S., Caltech, 1996; Ph.D., 2000. Scientist, Orbits Lightwave Inc., 2001– Visiting Associate, Caltech, 2004–09.

Richard A. M. Lee, Ph.D., Visiting Associate in Physics Ph.D., Lancaster University, 1994. Senior Member, Technical Staff, Jet Propulsion Laboratory, 2007–. Caltech, 2007–10.

Melvin B. T. Leok, Ph.D., Visiting Assistant Professor of Control and Dynamical Systems

B.S., M.S., Caltech, 2000; Ph.D., 2004. Assistant Professor, Purdue University, 2006–. Caltech, 2009.

Anthony Leonard, Ph.D., Theodore von Kármán Professor of Aeronautic, Emeritus B.S., Caltech, 1959; M.S., Stanford University, 1960; Ph.D., 1963. Professor, Caltech, 1985–2000; von Kármán Professor, 2000–05; von Kármán Professor Emeritus, 2005–.

Henry Allen Lester, Ph.D., Bren Professor of Biology

A.B., Harvard College, 1966; Ph.D., Rockefeller University, 1971. Assistant Professor, Caltech, 1973–76; Associate Professor, 1976–83; Professor, 1983–2000; Bren Professor, 2000–.

Henry Levenson, M.D., Visiting Associate in Chemistry
B.A., West Virginia University, 1972; M.D.,

West Virginia School of Medicine, 1976. Pasadena Rehabilitation Institute, 1998–. Caltech, 2006–09.

Julie Levesque, M.S., Assistant Atbletic Director; Coach B.S., California Polytechnic State University (San Luis Obispo), 1994; M.S., 1996. Caltech, 1997–2007; Assistant Athletic Director, 2007–.

Nathan S. Lewis, Ph.D., George L. Argyros Professor and Professor of Chemistry B.S., Caltech, 1977; M.S., 1977; Ph.D., Massachusetts Institute of Technology, 1981. Associate Professor, Caltech, 1988–91; Professor, 1991–; Argyros Professor, 2002–.

Henri J. Lezec, Ph.D., Visiting Associate in Applied Physics B.S., Massachusetts Institute of Technology, 1984; Ph.D., 1992. Senior Researcher, National Institute of Standards and Technology, 2007—. Caltech, 2004–09.

Feifei Li, Ph.D., Lecturer in Finance B.A., Tsinghua University, 2000; Ph.D., University of California (Los Angeles), 2005. Caltech, 2008.

Tiecheng Li, Ph.D., Visiting Associate in Engineering and Applied Science B.S., Peking University, 1984; M.S., 1987; Ph.D., Tsinghua University, 1999. Associate Professor, 1998. Caltech, 2008–09.

Kenneth George Libbrecht, Ph.D.,
Professor of Physics; Executive Officer for
Physics
B.S., Caltech, 1980; Ph.D., Princeton
University, 1984. Visiting Associate in Solar
Astronomy, Caltech, 1984; Assistant
Professor of Astrophysics, 1984–89;
Associate Professor, 1989–95; Professor of
Physics, 1995–. Executive Officer, 1997–.

Daniel Lidar, Ph.D., Visiting Associate in Theoretical Physics Ph.D., Hebrew University, 1997. Associate Professor, University of Southern California, 2005.— Caltech, 2008–09.

Michael Liebling, Ph.D., Visiting Associate in Biology; Lecturer in Biology
M.Sc., Swiss Federal Institute of Technology, 2000; Ph.D., 2003. Acting Assistant Professor, University of California (Santa Barbara), 2007–. Visiting Associate, Caltech, 2007–08; Lecturer, 2007.

Associate in Theoretical Astrophysics; Lecturer in Physics
B.S., Caltech, 1972; M.S., University of Maryland, 1975; Ph.D., 1978. Visiting Associate, Caltech, 1992; 1996–2002; Lecturer, 2000–01; 2003–06; 2008. Senior Research Associate, 2002–.

Lee A. Lindblom, Ph.D., Senior Research

Valentina A. Lindholm, M.A., Lecturer in Russian, Emeritus M.A., Moscow State University, 1971. Lecturer, Caltech, 1974–2000; Lecturer Emeritus, 2000–.

Dariusz C. Lis, Ph.D., Senior Research Associate in Physics Ph.D., University of Massachusetts (Amherst), 1989. Research Fellow, Caltech, 1989–92; Senior Research Fellow, 1992–98; Senior Research Associate, 1998–

E. John List, Ph.D., Professor of Environmental Engineering Science, Emeritus B.E., University of Auckland, 1961; M.E., 1962; Ph.D., Caltech, 1965. Research Fellow, 1965–66; Assistant Professor, 1969–72; Associate Professor, 1972–78; Professor, 1978–97; Professor Emeritus, 1997. Executive Officer for Environmental Science, 1980–85.

Charles Y. Liu, Ph.D., M.D., Visiting Associate in Chemical Engineering B.S.E., University of Michigan (Ann Arbor), 1987; Ph.D., Rice University, 1993; M.D., Yale University School of Medicine, 1996. Resident Physician, University of Southern California, Keck School of Medicine, 1996—. Caltech, 2002–09.

Minghsun Liu, Ph.D., M.D., Visiting Associate in Biology Ph.D., University of California (Los Angeles), 2002; M.D., University of California School of Medicine (Los Angeles), 2002. Postdoctoral Fellow, Stanford University School of Medicine, Stanford Hospital and Clinic, 2004–.

Caltech, 2007-09.

Martin W. Lo, Ph.D., Visiting Associate in Computer Science, B.S., Caltech, 1975; M.S., Cornell University, 1978; Ph.D., 1981. Member of the Technical Staff, Jet Propulsion Laboratory, 1986–. Visiting Associate, Caltech, 2003–09.

Jose Carlos Lopez Vasquez, Ph.D., Visiting Associate in Applied and Computational Mathematics Ph.D., Universidad de Vigo, 1997; M.Phil. (Mathematics, Physics), 2006. Assistant Professor, 1999.. Caltech, 2008.

Gary Allen Lorden, Ph.D., Professor of Mathematics, Emeritus B.S., Caltech, 1962; Ph.D., Cornell University, 1966. Assistant Professor, Caltech, 1968-71; Associate Professor, 1971-77; Professor, 1977-2009; Professor Emeritus, 2009-. Dean of Students, 1984-88; Vice President for Student Affairs, 1989-98; Acting Vice President, 2002; Executive Officer for Mathematics, 2003-06.

Steven H. Low, Ph.D., Professor of Computer Science and Electrical Engineering B.S., Cornell University, 1987; M.S., University of California, 1989; Ph.D., 1992. Associate Professor, Caltech, 2000–06; Professor, 2006–.

Jonathan Lubin, Ph.D., Visiting Associate in Mathematics Ph.D., Harvard University, 1963. Professor Emeritus, Brown University, 2000–. Caltech, 2003–09.

Wilhelmus A. J. Luxemburg, Ph.D., Professor of Mathematics, Emeritus B.A., University of Leiden, 1950; M.A., 1953; Ph.D., Delft Institute of Technology, 1955. Assistant Professor, Caltech, 1958–60; Associate Professor, 1960–62; Professor, 1962–2000; Professor Emeritus, 2000–. Executive Officer for Mathematics, 1970–85.

Hideo Mabuchi, Ph.D., Associate Professor of Physics and Control and Dynamical Systems A.B., Princeton University, 1992; Ph.D., Caltech, 1998. Assistant Professor of Physics, 1998–2001; Associate Professor, 2001–02; Associate Professor of Physics and Control and Dynamical Systems, 2002–.

Chris Mach, B.S., Lecturer in Physics B.S., California State University (Northridge), 1993. Caltech, 2001–09.

Douglas G. MacMynowski, Ph.D., Senior Research Associate in Control and Dynamical Systems; Lecturer in Control and Dynamical Systems

B.A.Sc., University of Toronto, 1987; S.M., Massachusetts Institute of Technology, 1990; Ph.D., 1992. Visiting Associate, Caltech, 2000–02; Lecturer, 2001; 2004; 2005; Senior Research Fellow, 2002–08; Senior Research Associate, 2008–

Carol Magun, M.A., Lecturer in Creative Writing B.A., Hebrew University of Jerusalem, 1972; M.A., 1976; M.A., Boston University, 1987. Caltech, 2003–09.

Nikolai G. Makarov, Ph.D., Professor of Mathematics B.A., Leningrad University, 1982; Ph.D., LOMI Mathematics Institute (Leningrad), 1986. Visiting Professor, Caltech, 1991; Professor, 1991–.

Fabien Malbet, Ph.D., Visiting Associate in Astronomy Ph.D., Universite D., Diderot (Paris 7), 1992; Charge de Recherche, Center National de la Recherche Scientifique, 1995-. Caltech, 2008–09. Oscar Mandel, Ph.D., Professor of Literature, Emeritus

B.A., New York University, 1947; M.A., Columbia University, 1948; Ph.D., Ohio State University, 1951. Visiting Associate Professor of English, Caltech, 1961–62; Associate Professor, 1962–68; Professor, 1968–80; Professor of Literature, 1980–2003; Professor Emeritus, 2003–.

Gideon Manning, Ph.D., Assistant Professor of Philosophy A.B., Harvard University, 1974; Ph.D., University of Chicago, 2006. Caltech,

Jason F. Manning, Ph.D., Visiting Assistant Professor of Mathematics
B.A., University of Texas (Austin), 1996;
B.S., 1996; Ph.D., University of California (Santa Barbara), 2003. Assistant Professor, University of Buffalo, 2006—. Olga Taussky and John Todd Instructor, Caltech, 2004—05; Visiting Assistant Professor, 2009.

Elena Mantovan, Ph.D., Assistant Professor of Mathematics
Laurea, University of Padua, 1995; M.A.,
Harvard University, 1998; Ph.D., 2002.
Caltech, 2005—.

Frank Earl Marble, Ph.D., Richard L. and

Dorothy M. Hayman Professor of Mechanical

Engineering and Professor of Jet Propulsion, Emeritus
B.S., Case Institute of Technology, 1940;
M.S., 1942; A.E., Caltech, 1947; Ph.D.,
1948. Instructor in Aeronautics, 1948–49;
Assistant Professor of Jet Propulsion and
Mechanical Engineering, 1949–53;
Associate Professor, 1953–57; Professor,
1957–80; Hayman Professor of Mechanical
Engineering and Professor of Jet
Propulsion, 1980–89; Hayman Professor
and Professor Emeritus, 1989–.
Administrator, Industrial Relations Center,
1986–89.

Sandra E. Marbut, B.A., *Coach* B.A., Sheldon Jackson College, 1991. Caltech, 2003–.

Matilde Marcolli, Ph.D., Professor of Mathematics Laurea, University Degli Studi, 1993; M.Sc., University of Chicago, 1994; Ph.D., 1997. Caltech, 2008–.

Rudolph Arthur Marcus, Ph.D., D.Sc.h.c., Fil.Dr.h.c., D.h.c., Nobel Laureate, Arthur Amos Noyes Professor of Chemistry B.Sc., McGill University, 1943; Ph.D., 1946; D.Sc.h.c., University of Chicago; McGill University; Polytechnic University;

University of Oxford; University of New

Brunswick; Queen's University; University

of North Carolina (Chapel Hill); University

of Illinois; Technion—Israel Institute of Technology; Universidad Politecnica de Valencia; University of Waterloo; Fil.Dr.h.c., Gothenburg University; D.h.c., Yokohama National University; Northwestern University. Caltech, 1978—.

Shirley A. Marneus, M.A., Lecturer in Theater Arts, Emeritus
B.A., San Jose State College, 1959; M.A.,
State University of Iowa, 1962. Lecturer in
Literature, Caltech, 1999–2005; Lecturer in
English, 2005–07; Lecturer in Theater Arts,
1999–2008; Lecturer in Theater Arts
Emeritus, 2008–.

Jerrold E. Marsden, Ph.D., Carl F Braun Professor of Engineering, Control and Dynamical Systems, and Applied and Computational Mathematics
B.S., University of Toronto, 1965; Ph.D., Princeton University, 1968. Sherman Fairchild Distinguished Scholar, Caltech, 1992; Professor, Control and Dynamical Systems, 1995–2003; Braun Professor of Applied and Computational Mathematics and Computer Science, 2003–09; Braun Professor, 2009–.

Richard E. Marsh, Ph.D., Senior Research Associate in Chemistry, Emeritus B.S., Caltech, 1943; Ph.D., University of California (Los Angeles), 1950. Research Fellow, Caltech, 1950–55; Senior Research Fellow, 1955–73; Research Associate, 1973–81; Senior Research Associate, 1981–90; Senior Research Associate Emeritus, 1990–.

Hardy Cross Martel, Ph.D., Professor of Electrical Engineering, Emeritus
B.S., Caltech, 1949; M.S., Massachusetts
Institute of Technology, 1950; Ph.D.,
Caltech, 1956. Instructor, 1953–55;
Assistant Professor, 1955–58; Associate
Professor, 1958–82; Professor, 1982–90;
Professor Emeritus, 1990–. Executive
Assistant to the President, 1969–83;
Secretary of the Board of Trustees,
1973–83; Executive Officer for Electrical
Engineering, 1981–86.

Alain Jean Martin, Ing., Professor of Computer Science B.S., University of Marseille, 1965; Ing., Polytechnic Institute (Grenoble), 1969. Visiting Assistant Professor, Caltech, 1981–83; Visiting Associate Professor, 1983; Associate Professor, 1983–86; Professor, 1986–. Executive Officer for Computer Science, 1994–97.

D. Christopher Martin, Ph.D., Professor of Physics B.A., Oberlin College, 1978; Ph.D., University of California, 1986. Caltech, 1993—.

Jay N. Marx, Ph.D., Senior Research Associate in Physics; Executive Director, LIGO M.S., Columbia University, 1969; Ph.D., 1970. Senior Research Associate, Caltech, 2006-; Executive Director, 2006-.

Sotiris Masmanidis, Ph.D., Broad Senior Research Fellow in Brain Circuitry B.Sc., University College London, 2001; M.S., Caltech, 2003; Ph.D., 2006. Broad Senior Research Fellow, Caltech, 2006–

Peter V. Mason, Ph.D., Visiting Associate in Physics

B.Ś., Caltech, 1951; M.S., 1952; Ph.D., 1962. Technical Staff, Retired, Jet Propulsion Laboratory, 1997–. Assistant Professor, Caltech, 1962–66; Visiting Associate, 1997–2009.

Kenji Matsumoto, Ph.D., Visiting Associate in Neuroscience B.V.M., Obihiro University of Agriculture and Veterinary Medicine, 1991; M.Sc., Kyoto University, 1993; Ph.D., 1996. Staff Scientist, RiKEN Brain Science Institute,

2004—. Caltech, 2007–08.

Andrea Mattozzi, Ph.D., Assistant Professor of Economics

of Economics B.A., Bocconi University (Italy), 1997; Ph.D., University of Pennsylvania, 2004. Caltech, 2004–.

Stephen Leon Mayo, Ph.D., Bren Professor of Biology and Chemistry; Vice Provost B.S., Pennsylvania State University, 1983; Ph.D., Caltech, 1988. Senior Research Fellow, 1991–92; Assistant Professor, 1992–98; Associate Professor, 1998–2003; Professor, 2003–07; Bren Professor, 2007–Assistant Investigator, Howard Hughes Medical Institute, 1994–2000; Associate Investigator, 2000–05; Investigator, 2005–07. Executive Officer for Biochemistry and Molecular Biophysics, 2004–07; Vice Provost, 2007–

Sarkis Mazmanian, Ph.D., Assistant Professor of Biology B.S., University of California (Los Angeles), 1995; Ph.D., 2002. Caltech, 2006–.

Edward J. McCaffery, J.D., Visiting Professor in Law B.A., Yale University, 1980; J.D., Harvard Law School, 1985. Associate Professor, University of Southern California, 1991–. Visiting Associate Professor, Caltech, 1996–97; Visiting Professor, 1997–2008; 2009–; Visiting Associate, 2008–09.

Daniel McCleese, D.Phil., Visiting Associate in Planetary Science B.S., Antioch College, 1972; D.Phil., University of Oxford, 1976. Chief Scientist, Jet Propulsion Laboratory, 1994.. Caltech, 2002–09. Robert James McEliece, Ph.D., Allen E. Puckett Professor and Professor of Electrical Engineering, Emeritus B.S., Caltech, 1964; Ph.D., 1967. Professor, 1982–2007; Puckett Professor, 1997–2007; Puckett Professor and Professor, Emeritus, 2007. Executive Officer for Electrical Engineering, 1990–99.

Garrett Brian McGuinness, Ph.D., Visiting Associate in Chemistry B.E., National University of Ireland, 1991; Ph.D., 1996. Lecturer, Dublin City University, 2000–. Caltech, 2008–09.

Stephen Craig McGuire, Ph.D., Visiting Associate in Physics B.S., Southern University and A&M College, 1970; M.S., University of Rochester, 1974; Ph.D., Cornell University, 1979. Professor and Chair, Southern University and A&M College, 1999–. Caltech, 2000–10.

Beverley J. McKeon, Ph.D., Assistant Professor of Aeronautics B.A., University of Cambridge, 1995; M.Eng., 1996; M.A. (Mechanical and Aerospace Engineering), M.A., (Engineering), Princeton University, 1999; Ph.D., 2003. Caltech, 2006—

Robert D. McKeown, Ph.D., Professor of

Physics
B.S., State University of New York (Stony Brook), 1974; Ph.D., Princeton University, 1979. Assistant Professor, Caltech, 1980–86; Associate Professor, 1986–92; Professor, 1992–.

Basil Vincent McKoy, Ph.D., Professor of Theoretical Chemistry
B.S., Nova Scotia Technical University,
1960; Ph.D., Yale University, 1964. Noyes
Research Instructor in Chemistry, Caltech,
1964–66; Assistant Professor of Theoretical
Chemistry, 1967–69; Associate Professor,
1969–75; Professor, 1975–.

Carver Andress Mead, Ph.D., D.Sc.h.c., D.h.c., D.Hon., Gordon and Betty Moore Professor of Engineering and Applied Science, Emeritus B.S., Caltech, 1956; M.S., 1957; Ph.D., 1960; D.Sc.h.c., University of Lund (Sweden); D.h.c., University of Southern California. Instructor in Electrical Engineering, Caltech, 1958-59; Assistant Professor, 1959-62; Associate Professor, 1962-67; Professor, 1967-77; Professor of Computer Science and Electrical Engineering, 1977-80; Moore Professor of Computer Science, 1980-92; Moore Professor of Engineering and Applied Science, 1992-99; Moore Professor Emeritus, 1999-.

Barry B. Megdal, Ph.D., Lecturer in Electrical Engineering B.S., Caltech, 1977; M.S., 1978; Ph.D., 1983. Lecturer, 1992–2009.

Simona Mei, Ph.D., Visiting Associate in Astronomy Ph.D., University of Strasbourg, 1999. Associate Professor, University of Paris, 2006— Caltech, 2006—10.

Daniel I. Meiron, Sc.D., Fletcher Jones Professor of Aeronautics and Applied and Computational Mathematics; Associate Director, Graduate Aerospace Laboratories S.B., Massachusetts Institute of Technology, 1976; Sc.D., 1981. Research Fellow in Applied Mathematics, Caltech, 1981–83; Visiting Associate, 1984–85; Assistant Professor, 1985-89; Associate Professor, 1989-94; Professor, 1994-2000; Professor of Applied and Computational Mathematics, 2000; Professor of Applied and Computational Mathematics and Computer Science, 2001-06; Jones Professor, 2006-. Executive Officer for Applied Mathematics, 1994-98; Associate Provost for Information and Information Technology, 2000-04. Associate Director, 2009-.

Jane E. Mendel, Ph.D., Senior Research Associate in Biology; Lecturer in Biology B.A., B.S., University of Mississippi, 1975; Ph.D., University of Tennessee, 1987. Research Fellow, Caltech, 1988–91; Senior Research Fellow, 1991–97; Lecturer, 1996–2007; 2008; 2009; Senior Research Associate, 1997–2008.

Richard A. Mewaldt, Ph.D., Senior Research Associate in Physics B.A., Lawrence University, 1965; M.A., Washington University (St. Louis), 1967; Ph.D., 1971. Research Fellow, Caltech, 1971–75; Senior Research Fellow, 1975–81; Lecturer, 1987; Senior Research Associate, 1981–.

Elliot M. Meyerowitz, Ph.D., George W. Beadle Professor of Biology; Chair, Division of Biology
A.B., Columbia University, 1973; M.Phil., Yale University, 1975; Ph.D., 1977.
Assistant Professor, Caltech, 1980–85; Associate Professor, 1985–89; Professor, 1989–2002; Beadle Professor, 2002–.
Executive Officer for Biology, 1995–2000.

Georges Meylan, Ph.D., Visiting Associate in Astronomy

Ph.D., University of Coneye, 1985

Chair, 2000-.

Ph.D., University of Geneva, 1985. Director, École Polytechnique Fédérale de Lausanne, 2004–. Caltech, 2001–09.

R. David Middlebrook, Ph.D., Professor of Electrical Engineering, Emeritus B.A., University of Cambridge, 1952; M.S., Stanford University, 1953; Ph.D., 1955; M.A., University of Cambridge, 1956. Assistant Professor, Caltech, 1955–58; Associate Professor, 1958–65; Professor, 1965–97; Professor Emeritus, 1998–. Executive Officer for Electrical Engineering, 1987–90.

Andrei Yuryevich Mikhailov, Ph.D., Sherman Fairchild Senior Research Fellow in Physics; Lecturer in Physics Ph.D., Princeton University, 2000. Sherman Fairchild Senior Research Fellow, Caltech, 2003–09; Lecturer, 2007.

Carol Ann Miller, M.D., Visiting Associate in Biology

M. Moord Mount Holyoke College, 1961; M.D., Jefferson Medical College, 1965. Professor, University of Southern California School of Medicine, 1990-; Chief, Cajal Laboratory of Neuropathology, University of Southern California Medical Center, 1982–. Caltech, 1982–2003; 2005–10.

Thomas F. Miller III, Ph.D., Assistant Professor of Chemistry B.S., Texas A&M University, 2000; Ph.D., University of Oxford, 2005. Caltech, 2008—.

Feng-Ying Ming, Ph.D., Lecturer in Chinese B.A., Tamkang University (Taiwan), 1978; M.A., California State University, 1984; M.A., University of California (Los Angeles), 1991; Ph.D., 1999. Caltech, 2000–10.

Julie Miwa, Ph.D., Senior Research Fellow in Biology B.A., University of California, 1987; Ph.D., Rockefeller University, 1997. Caltech, 2009.

Valery P. Mitrofanov, Visiting Associate in Physics M.Sc., Moscow State University, 1971; Kandidat, 1975. Assistant Professor, 1981–. Caltech, 1995–2009.

Naoki Mitsumoto, Ph.D., Visiting Associate in Mechanical Engineering B.S., Mie University (Japan), 1991; M.S., Nagoya University, 1993; Ph.D., 1996. Research Scientist, Denso Corporation Research Laboratories, 2000–. Caltech, 2005–09.

Eric Mjolsness, Ph.D., Visiting Associate in Biology A.B., Washington University, 1980; Ph.D.,

A.B., Washington University, 1980; Ph.D. Caltech, 1986. Associate Professor, University of California (Irvine), 2002–. Faculty Associate, 2000–02; Visiting Associate, 2002–09.

Leonard Mlodinow, Ph.D., Lecturer in Computation and Neural Systems B.A., M.A., Brandeis University, 1976; Ph.D., University of California, 1981.

Bantrell Research Fellow, Caltech, 1980–82; Lecturer in Statistics and Computation and Neural Systems, 2006–07; Lecturer in Computation and Neural Systems, 2008–09.

Bahram Mobasher, Ph.D., Visiting Associate in Astronomy M.Sc., University of Durham, 1983; Ph.D., 1988. Professor, University of California (Riverside), 2007—. Caltech, 2008—.

Alain Molinari, Ph.D., Visiting Associate in Aeronautics B.S., Strasbourg University, 1970; M.S., 1972; Ph.D., University of Metz (France), 1979. Professor, 1987–. Millikan Visiting Professor, Caltech, 1996; 2002–03; 2005; Visiting Associate, 2004–05; 2007; 2008–11.

Elena Montovan, Ph.D., Assistant Professor of Mathematics
M.A., Harvard University, 1998; Ph.D., 2002. Caltech, 2005—.

Farshad Moradi, Ph.D., Visiting Associate in Biology M.S., Tehran University of Medical Sciences, 2000; Ph.D., Caltech, 2006. Postdoctoral Scholar, New York University, 2006. Visiting Associate, Caltech, 2007–09.

James John Morgan, Ph.D., D.Sc.h.c., Marvin L. Goldberger Professor of Environmental Engineering Science, Emeritus B.C.E., Manhattan College, 1954; M.S.E., University of Michigan, 1956; M.A., Harvard University, 1962; Ph.D., 1964; D.Sc.h.c., Manhattan College. Associate Professor of Environmental Health Engineering, Caltech, 1965-69; Professor, 1969-87; Goldberger Professor of Environmental Engineering Science, 1987-2000; Goldberger Professor Emeritus, 2000-. Academic Officer for Environmental Engineering Science, 1971-72; Dean of Students, 1972-75; Executive Officer for Environmental Engineering Science, 1974-80, 1993-96; Acting Dean of Graduate Studies, 1981-84; Vice President for Student Affairs, 1980-89.

Baptiste J. Morin, Ph.D., Harry Bateman Research Instructor in Mathematics M.S., Universite de Bordeaux 1, 2004. Caltech, 2006—.

Olexei I. Motrunich, Ph.D., Assistant Professor of Theoretical Physics B.S., University of Missouri (Columbia), 1996; Ph.D., Princeton University, 2001. Caltech, 2006—.

Duane Owen Muhleman, Ph.D., Professor of Planetary Science, Emeritus
B.S., University of Toledo, 1953; Ph.D.,
Harvard University, 1963. Associate
Professor, Caltech, 1967–71; Professor,
1971–97; Professor Emeritus, 1997–.

Edwin Stanton Munger, Ph.D., Professor of Geography, Emeritus
M.S., University of Chicago, 1948; Ph.D., 1951. Visiting Lecturer, American Universities Field Staff, Caltech, 1954; 1957; 1960; Professor, 1961–88; Professor Emeritus, 1988–.

Bruce Churchill Murray, Ph.D., Professor of Planetary Science and Geology, Emeritus S.B., Massachusetts Institute of Technology, 1953; S.M., 1954; Ph.D., 1955. Research Fellow in Space Science, Caltech, 1960–63; Associate Professor of Planetary Science, 1963–68; Professor, 1968–92; Professor of Planetary Science and Geology, 1992–2001; Professor Emeritus, 2001–. Director, 1976–82.

Richard Martin Murray, Ph.D., Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering B.S., Caltech, 1985; M.S., University of California, 1988; Ph.D., 1990. Assistant Professor of Mechanical Engineering, Caltech, 1991-97; Associate Professor, 1997-2000; Professor, 2000-05; Professor of Control and Dynamical Systems, 2005-06; Everhart Professor, 2006-; Professor of Dynamical Systems and Bioengineering, 2009-; Chair, Division of Engineering and Applied Science, 2000-05; Interim Chair, Engineering and Applied Science, 2008-09; Director, Information Science & Technology, 2006-2009.

Ehud Nakar, Ph.D., Sberman Fairchild Senior Research Fellow in Astrophysics B.Sc., Hebrew University of Jerusalem, 1998; M.Sc., 2000; Ph.D., 2004. Caltech, 2004–10.

Thomas A. Neenan, M.F.A., Lecturer in Music
B.F.A., California State University
(Northridge), 1977; M.F.A., University of California (Los Angeles), 1982. Caltech, 1991–98; 1998–2010.

Gerry Neugebauer, Ph.D., Robert Andrews Millikan Professor of Physics, Emeritus A.B., Cornell University, 1954; Ph.D., Caltech, 1960. Assistant Professor, 1962–65; Associate Professor, 1965–70; Professor, 1970–96; Howard Hughes Professor, 1985–96; Millikan Professor, 1998–98; Millikan Professor Emeritus, 1998–. Acting Director, Palomar Observatory, 1980–81; Director, 1981–94; Chairman, Division of Physics, Mathematics and Astronomy, 1988–93.

Dianne K. Newman, Ph.D., Professor of Geobiology and Professor of Biology B.A., Stanford University, 1993; Ph.D., Massachusetts Institute of Technology, 1997. Clare Booth Luce Assistant Professor of Geobiology and Environmental Science

and Engineering, Caltech, 2000–05; Associate Professor of Geobiology and Environmental Science and Engineering, 2005; Associate Professor of Geobiology, 2005–06; Professor of Geobiology, 2006–; Professor of Biology, 2006–. Investigator, Howard Hughes Medical Institute, 2005–07.

Harvey B. Newman, Sc.D., Professor of Physics

B.S., Massachusetts Institute of Technology, 1968; Sc.D., 1973. Associate Professor, Caltech, 1982–90; Professor, 1990–.

Hien Trong Nguyen, Ph.D., Visiting Associate; Lecturer in Physics Ph.D., Princeton University, 1993. Visiting Associate, Caltech, 2007–09; Lecturer, 2007; 2008; 2009.

Yi Ni, Ph.D., Assistant Professor of Mathematics B.S., Peking University, 2001; M.S., 2003; Ph.D. Princeton University, 2007, C.L.F.

B.S., Peking University, 2001; M.S., 2003; Ph.D., Princeton University, 2007. C.L.E. Moore Instructor, Massachusetts Institute of Technology, 2007–2009. Caltech, 2009–.

Marc-Aurele Nicolet, Ph.D., Professor of Electrical Engineering and Applied Physics, Emeritus

Ph.D., University of Basel, 1958. Assistant Professor of Electrical Engineering, Caltech, 1959–65; Associate Professor, 1965–73; Professor, 1973–88; Professor of Electrical Engineering and Applied Physics, 1988–98; Professor Emeritus, 1998–.

Mika Nystroem, Ph.D., Visiting Associate in Computer Science; Lecturer in Computer Science S.B. (Physics), S.B. (Electrical Engineering), Massachusetts Institute of Technology, 1994; M.S., Caltech, 1997; Ph.D., 2001.

1994; M.S., Caltech, 1997; Ph.D., 2001. Research Scientist, Situs Logic of Pasadena, 2005— Instructor, Caltech, 2001–03; Visiting Associate, 2005–06; 2008–09; Lecturer, 2009.

John P. O'Doherty, D.Phil., Associate Professor of Psychology

B.Á., University of Dublin (Trinity College), 1996; D.Phil., University of Oxford, 2000. Assistant Professor, Caltech, 2004–07; Associate Professor, 2007–.

Hiroshi Oguri, Ph.D., Fred Kavli Professor of Theoretical Physics

B.A., Kyoto University (Japan), 1984; M.A.,
1986; Ph.D., University of Tokyo, 1989.
Visiting Associate, Caltech, 1999–2000;
Professor, 2000–07; Kavli Professor, 2007–.

Mitchio Okumura, Ph.D., Professor of Chemical Physics; Executive Officer for Chemistry B.S., Yale University, 1979; M.S., 1979; C.P.G.S., University of Cambridge, 1980; Ph.D., University of California, 1986. Assistant Professor, Caltech, 1988–94; Associate Professor, 1994–2003; Professor, 2003–. Executive Officer, 2006–.

Onno Heinrich Tilmann Oncken, Ph.D., Moore Distinguisbed Scholar in Geology B.S., Cologne University, 1980; Ph.D., 1982. Director, GFZ, Potsdam University, 2003—. Caltech, 2007–08.

Christiane H. Orcel, Ph.D., Lecturer in French
M.A., Princeton University, 1987; Ph.D., 1992. Instructor, Caltech, 1990–93;
Lecturer, 1993–.

Peter C. Ordeshook, Ph.D., Mary Stillman Harkness Professor of Political Science B.S., Massachusetts Institute of Technology, 1964; Ph.D., University of Rochester, 1969. Professor, Caltech, 1987–2009; Harkness Professor, 2009—. Executive Officer for the Social Sciences, 1992–95.

Victoria Orphan, Ph.D., Assistant Professor of Geobiology B.A., University of California (Santa

B.A., University of California (Santa Barbara), 1994; Ph.D., 2001. Caltech, 2004–.

Michael Ortiz, Ph.D., Dotty and Dick Hayman Professor of Aeronautics and Mechanical Engineering
B.S., Polytechnic University of Madrid, 1977; M.S., University of California, 1978; Ph.D., 1982. Sherman Fairchild Distinguished Scholar, Caltech, 1994–95; Professor of Aeronautics and Applied Mechanics, 1995–2000; Professor of Aeronautics and Mechanical Engineering, 2000–04; Hayman Professor, 2004–.

Pietro S. T. Ortoleva, Ph.D., Assistant Professor of Economics B.A., University of Turin, 2004; Ph.D., New York University, 2009. Caltech, 2009—.

Christian D. Ott, D.Sc., Assistant Professor of Theoretical Astrophysics Dipl., University of Heidelberg, 2003; Dr.rer.nat, University of Postdam, 2007. Sherman Fairchild Prize Fellow, Caltech, 2008–09; Assistant Professor, 2009–.

Makoto Ouchi, Ph.D., Visiting Associate in Chemical Engineering B.S., Kyoto University, 1996; Ph.D., 2001. Assistant Professor, 2004—. Caltech, 2007—09.

Ray David Owen, Ph.D., Sc.D.h.c., Professor of Biology, Emeritus B.S., Carroll College, 1937; Ph.M., University of Wisconsin, 1938; Ph.D., 1941; Sc.D.h.c., Carroll College; University of the Pacific. Gosney Fellow, Caltech, 1946–47; Associate Professor, 1947–53; Professor,

1953–83; Professor Emeritus, 1983–. Chairman, Division of Biology, 1961–68; Vice President for Student Affairs and Dean of Students, 1975–80.

Houman Owhadi, Ph.D., Assistant Professor of Applied and Computational Mathematics and Control and Dynamical Systems
B.S., École Polytechnique (France), 1994;
M.S., École Nationale des Ponts et Chaussees, 1997; Ph.D., École
Polytechnique Fédérale de Lausanne
(Switzerland), 2001. Caltech, 2004-.

Oskar J. Painter, Ph.D., Associate Professor of Applied Physics B.S., University of British Columbia, 1994; M.S., Caltech, 1995; Ph.D., 2001. Visiting Associate, 2001–02; Assistant Professor, 2002–08; Associate Professor, 2008–.

Thomas R. Palfrey III, Ph.D., Flintridge Foundation Professor of Economics and Political Science
B.A., University of Michigan, 1975; M.A., 1976; Ph.D., Caltech, 1981. Professor, 1986–2002; Flintridge Foundation
Professor, 2003–05; 2006– Executive
Officer for the Social Sciences, 2001–02.

Dimitri A. Papanastassiou, Ph.D., Faculty Associate in Geochemistry
B.S., Caltech, 1965; Ph.D., 1970. Research Fellow in Physics, 1970–72; Senior Research Fellow in Planetary Science, 1972–76; Research Associate in Geochemistry, 1976–81; Senior Research Associate, 1981–99; Faculty Associate, 1999–.

Robert Pappalardo, Ph.D., Visiting Associate in Planetary Science B.A., Cornell University, 1986; Ph.D., Arizona State University, 1994. Principal Scientist and Director's Fellow, Jet Propulsion Laboratory, 2006–. Caltech, 2007–10.

Carl Stevens Parker, Ph.D., Professor of Biochemistry

B.A., University of Rochester, 1973; Ph.D., Washington University (St. Louis), 1977.
Assistant Professor of Chemical Biology, Caltech, 1981–87; Associate Professor, 1987–92; Professor, 1992–99; Professor of Biochemistry, 1999. Executive Officer for Biochemistry and Molecular Biophysics, 2000–04.

Jay M. Pasachoff, Ph.D., Visiting Associate in Planetary Science A.B., Harvard University, 1965; A.M., 1965; Ph.D., 1969. Chair, Astronomy Department, Hopkins Observatory, Williams College, 1984. Caltech, 2008–09.

Paul H. Patterson, Ph.D., Anne P. and Benjamin F. Biaggini Professor of Biological Sciences B.A., Grinnell College, 1965; Ph.D., Johns Hopkins University, 1970. Professor, Caltech, 1983–2005; Biaggini Professor, 2005. Executive Officer for Neurobiology, 1989–2000.

Michael T. Pauken, Ph.D., Lecturer in Mechanical Engineering B.S., Vanderbilt University, 1983; M.S., Washington University, 1990; Ph.D., Georgia Institute of Technology, 1994. Caltech, 2001; 2008; 2009.

Lynn K. Paul, Ph.D., Senior Research Fellow in Psychology; Lecturer in Psychology
B.A., Wheaton College, 1992; M.A., Fuller
Graduate School of Psychology, 1994; M.A.,
Fuller Theological Seminary, 1996; Ph.D.,
Fuller Graduate School of Psychology,
1998. Visiting Associate, Caltech, 2004–07;
Senior Research Fellow, 2007–09; Lecturer,
2008–09.

Timothy John Pearson, Ph.D., Senior Research Associate in Radio Astronomy B.A., University of Cambridge, 1972; M.A., 1976; Ph.D., 1977. Research Fellow, Caltech, 1977–80; Senior Research Associate, 1988–.

Charles William Peck, Ph.D., Professor of Physics, Emeritus
B.S., New Mexico College of Agricultural and Mechanical Arts, 1956; Ph.D., Caltech, 1964. Research Fellow, 1964–65; Assistant Professor, 1965–69; Associate Professor, 1967–204; Professor Emeritus, 2004. Executive Officer for Physics, 1983–86; Chair, Division of Physics, Mathematics and Astronomy, 1993–98.

Sergio Pellegrino, Ph.D., Professor of Aeronautics and Civil Engineering; Jet Propulsion Laboratory Senior Research Scientist Laurea, University of Naples, 1982; Ph.D., University of Cambridge, 1986. Caltech, 2007—. Senior Research Scientist, 2009—.

Leora Peltz, Ph.D., Visiting Associate in Electrical Engineering
B.S., University of Negev, 1975; B.S., 1976;
M.S., Case Western Reserve University,
1995; Ph.D., 2005. Scientist, Boeing, 2003—.
Caltech, 2007–09.

Bryan E. Penprase, Ph.D., Visiting Associate in Astronomy M.S., Stanford University, 1985; Ph.D., University of Chicago, 1992. Associate Professor, Pomona College, 2000–. Caltech, 2007–09.

Pietro Perona, D.Eng., Ph.D., Allen E. Puckett Professor of Electrical Engineering D.Eng., University of Padua (Italy), 1985; Ph.D., University of California, 1990. Assistant Professor, Caltech, 1991–96; Professor, 1996–2008; Puckett Professor,

2008–. Director, Center for Neuromorphic Systems Engineering, 1999–2004. Executive Officer, 2006–2009.

Jonas C. Peters, Ph.D., Professor of Chemistry B.S., University of Chicago, 1993; Ph.D., Massachusetts Institute of Technology, 1998. Assistant Professor, Caltech, 1999–2004; Associate Professor, 2004–06; Professor, 2006–.

Danny Petrasek, M.D., Ph.D., Visiting Associate in Applied and Computational Mathematics and Bioengineering; Lecturer in Bioengineering
B.S., University of California (Los Angeles), 1980; M.D., Chicago Medical School, 1985; Ph.D., Caltech, 2002. Senior Research Fellow, 2002-08; Lecturer, 2005-09; Visiting Associate, 2008-10.

Robert Phillips, Ph.D., Professor of Applied Physics and Mechanical Engineering B.S., University of Minnesota, 1986; Ph.D., Washington University, 1989. Clark Millikan Visiting Assistant Professor, Caltech, 1997; Professor, 2000–.

Thomas G. Phillips, D.Phil., Altair Professor of Physics; Director, Caltech Submillimeter Observatory
B.A., University of Oxford, 1961; M.A., 1964; D.Phil., 1964. Visiting Associate in Radio Astronomy, Caltech, 1978–79; Professor of Physics, 1979–2004; Altair Professor, 2004–. Staff Member, Owens Valley Radio Observatory, 1978–85; Associate Director, Owens Valley Radio Observatory, 1981–85; Director, Caltech Submillimeter Observatory, 1986–.

E. Sterl Phinney III, Ph.D., Professor of Theoretical Astrophysics B.S., Caltech, 1980; Ph.D., University of Cambridge, 1983. Assistant Professor, Caltech, 1985–91; Associate Professor, 1991–95; Professor, 1995–.

Kenneth A. Pickar, Ph.D., Visiting Professor of Mechanical Engineering B.S., City University of New York, 1961; Ph.D., University of Pennsylvania, 1966. Senior Vice President, Retired, Allied Signal Aerospace, 1993.— Visiting Professor of Engineering, Caltech, 1998; Visiting Professor of Mechanical Engineering, 1998–99; 2003–10; J. Stanley Johnson Visiting Professor, 1999–2003.

Gillian Pierce, B.A., Lecturer in Engineering B.A., Oxford University, 1997. Caltech, 2009.

James R. Pierce, M.D., Lecturer in Biology B.S., Caltech, 1998; M.D., Jefferson Medical College, 2002. Lecturer, Caltech, 2002–03; 2005–09. Niles A. Pierce, D.Phil., Associate Professor of Applied and Computational Mathematics and Bioengineering; Executive Officer for Bioengineering
B.S.E., Princeton University, 1993; D.Phil., University of Oxford, 1997. Assistant
Professor of Applied Mathematics, Caltech, 2000; Assistant Professor of Applied and Computational Mathematics, 2000–04; Assistant Professor of Applied and Computational Mathematics and Bioengineering, 2004–06; Associate
Professor, 2006–; Acting Executive Officer, 2007; Executive Officer, 2007.

Elena Pierpaoli, Ph.D., Visiting Associate in Astrophysics Ph.D., International School for Advanced Studies (Italy), 1998. Assistant Professor, University of Southern California, 2006–. Senior Research Fellow, Caltech, 2004–06; Visiting Associate, 2006–09.

George Wood Pigman, Ph.D., Professor of English A.B., Harvard College, 1973; M.Phil., Yale University, 1975; Ph.D. (Comparative Literature), 1977; Ph.D. (Psychoanalysis), Southern California Psychoanalytic Institute, 1989. Assistant Professor of English, Caltech, 1977–80; Assistant Professor of Literature, 1980–83; Associate Professor, 1983–93; Professor, 1993–2004; Professor of English, 2004–. Executive Officer for the Humanities, 2003–08.

Jerome Pine, Ph.D., Professor of Physics A.B., Princeton University, 1949; M.S., Cornell University, 1952; Ph.D., 1959. Associate Professor, Caltech, 1963–67; Professor, 1967–.

Donald Pinkston III, B.S., *Lecturer in Computer Science* B.S., Caltech, 1998. Lecturer, 2005–09.

Charles Raymond Plott, Ph.D., D.Lit.h.c., D.h.c., Edward S. Harkness Professor of Economics and Political Science B.S., Oklahoma State University, 1961; M.S., 1964; Ph.D., University of Virginia, 1965; D.Lit.h.c., Purdue University; D.h.c., Université Pierre Mendès. Professor of Economics, Caltech, 1971–87; Harkness Professor, 1987–.

Hugh David Politzer, Ph.D., Nobel Laureate, Richard Chace Tolman Professor of Theoretical Physics B.S., University of Michigan, 1969; Ph.D., Harvard University, 1974. Visiting Associate, Caltech, 1975–76; Associate Professor, 1976–79; Professor, 1979–2004;

James E. Polk, Ph.D., Visiting Associate in Aeronautics, Lecturer in Aeronautics B.S., Georgia Institute of Technology, 1984; M.S., Princeton University, 1986; Ph.D.,

Tolman Professor, 2004-. Executive Officer

for Physics, 1986-88.

1996. Lecturer, Caltech, 1999–2002; 2005–08; Visiting Associate, 2007–11.

Adrian Ponce, Ph.D., Visiting Associate in Chemistry
B.S., Michigan State University, 1993;
Ph.D., Caltech, 1999. Research Scientist,
Jet Propulsion Laboratory, 2001–. Visiting
Associate, Caltech, 2000–09.

Nicholas S. Popper, Ph.D., Instructor in

B.A., Haverford College, 1999; M.A., Princeton University, 2003. Caltech, 2008–09.

Frank Clifford Porter, Ph.D., Professor of Physics

B.Ś., Caltech, 1972; Ph.D., University of California, 1977. Research Fellow, Caltech, 1977–78; Weizmann Research Fellow, 1978–80; Senior Research Fellow, 1980–82; Assistant Professor, 1982–88; Associate Professor, 1988–94; Professor, 1994–.

John P. Preskill, Ph.D., John D. MacArthur Professor of Theoretical Physics A.B., Princeton University, 1975; A.M., Harvard University, 1976; Ph.D., 1980. Associate Professor, Caltech, 1983–90; Professor, 1990–2002; MacArthur Professor, 2002–

Thomas Allen Prince, Ph.D., Professor of Physics; Senior Research Scientist, 7et Propulsion Laboratory; Director, W. M. Keck Institute for Space Studies B.S., Villanova University, 1970; M.S., University of Chicago, 1972; Ph.D., 1978. Research Fellow, Caltech, 1979-80; Robert A. Millikan Research Fellow, 1980–82; Senior Research Fellow, 1982-83; Assistant Professor, 1983-86; Associate Professor, 1986-92; Professor, 1992-. Associate Director, Center for Advanced Computer Research, 1995-2001; Director, 2005-; Director, Keck Institute, 2008-. Chief Scientist, Jet Propulsion Laboratory, 2001-06; Senior Research Scientist, 2006-.

David Prober, Ph.D., Assistant Professor of Biology B.Sc., University of Manitoba, 1995; Ph.D.,

University of Washington, 2002. Caltech, 2009–.

Demetri Psaltis, Ph.D., Visiting Associate in Electrical Engineering
B.Sc., Carnegie Mellon University, 1974;
M.Sc., 1975; Ph.D., 1977. Assistant
Professor, Caltech, 1980–85; Associate
Professor, 1985–90; Professor, 1990–97;
Myers Professor, 1997–2008; Visiting
Associate, 2009–. Executive Officer for
Computation and Neural Systems, 1992–96;
Director, Center for Neuromorphic
Systems Engineering, 1996–99.

Carmie Puckett Robinson, M.D., Visiting Associate in Biology B.S., Michigan State University, 1970; M.D., 1975. Professor, University of Southern California, 2000—, Senior Research Fellow, Caltech, 1986–92; Visiting Associate, 2006–09.

Pierre Puget, Ph.D., Visiting Associate in Physics
M.Sc., School of Applied Mathematics and Computer Sciences of Grenoble, 1985;
Ph.D., Grenoble Institute of Technology,

Ph.D., Grenoble Institute of Technology, 1989. Senior Scientist and Program Portfolio Manager, CEA/LETI, 2004–. Caltech, 2008–09.

Dale Ian Pullin, Ph.D., Theodore von Kármán Profesor of Aeronautics B.Sc., University of Melbourne, 1966; B.E., University of Sydney, 1968; Ph.D., University of London (Imperial College), 1974. Visiting Associate, Caltech, 1990; Professor, 1991–2006; von Kármán Professor, 2006–.

Marco B. Quadrelli, Ph.D., Lecturer in Aeronautics
B.S., University of Padua, 1987; M.S., Georgia Institute of Technology, 1992; Ph.D., 1996. Caltech, 2007–09.

Steven R. Quartz, Ph.D., Associate Professor of Philosophy

B.A., University of Western Ontario (Huron College), 1986; M.A., 1988; Ph.D., University of California (San Diego), 1993. Instructor, Caltech, 1998–99; Assistant Professor, 1999–2002; Associate Professor, 2002–.

Kevin J. Quirk, Ph.D., Lecturer in Electrical Engineering B.S., University of California (San Diego), 1993; M.S., 1997; Ph.D., 2000. Caltech, 2006–09.

Rodrigo Cesar Quian Quiroga, Ph.D., Visiting Associate in Biology
M.S., University of Buenos Aires, 1993;
Ph.D., University of Lubeck, 1998.
Lecturer, University of Leicester, 2004.
Caltech, 2004–09.

Andreas Quirrenbach, Ph.D., Visiting Associate in Astronomy Ph.D., University of Bonn, 1990. Professo

Ph.D., University of Bonn, 1990. Professor, University of Heidelberg, 2002–. Caltech, 2006–10.

Frank Raes, Ph.D., Visiting Professor of Environmental Science and Engineering M.S., University of Ghent, 1978; Ph.D., 1985. Unit Head, Institute for Environment and Sustainability, 2002—. Caltech, 2009.

Fredric Raichlen, Sc.D., Professor of Civil and Mechanical Engineering, Emeritus

B.E., Johns Hopkins University, 1953; S.M., Massachusetts Institute of Technology, 1955; Sc.D., 1962. Assistant Professor of Civil Engineering, Caltech, 1962–67; Associate Professor, 1967–72; Professor, 1972–97; Professor of Civil and Mechanical Engineering, 1997–2001; Professor Emeritus, 2001–.

Ronald T. Raines, Ph.D., Visiting Associate in Chemistry

Sc.B., Massachusetts Institute of Technology, 1980; A.M., Harvard University, 1982; Ph.D., 1986. Lardy Professor, University of Wisconsin (Madison), 2006.. Caltech, 2009.

Eric M. Rains, Ph.D., Professor of Mathematics

B.A., Case Western Reserve University, 1991; B.S., 1991; M.S., 1991; Ph.D., Harvard University, 1995. Visiting Associate and Lecturer, Caltech, 2002; Professor, 2007–.

Dinakar Ramakrishnan, Ph.D., Taussky-Todd-Lonergan Professor of Mathematics B.E., University of Madras, 1970; M.S., Brooklyn Polytech, 1973; M.A., Columbia University, 1977; Ph.D., 1980. Professor, Caltech, 1988–2007; Taussky-Todd-Lonergan Professor, 2007–.

Michael Ramsey-Musolf, Ph.D., Visiting Associate in Physics Ph.D., Princeton University, 1989. Visiting Associate, Caltech, 2001; 2007–09; Senior Research Associate, 2001–07; Lecturer, 2005–06.

Lisa Randall, Ph.D., Moore Distinguished Scholar B.A., Harvard University, 1983; Ph.D., 1987. Professor, 2001–. Caltech, 2008; 2009

Antonio Rangel, Ph.D., Associate Professor of Economics
B.Sc., Caltech, 1993; M.S., Harvard
University, 1996; Ph.D., 1997. Assistant
Professor, Stanford University, 1998.
Laterstate Caltech 1007, 1993 Noticing

Professor, Stanford University, 1998... Instructor, Caltech, 1997–98; Visiting Associate, 2005–06; Associate Professor, 2006...

Vilupanur A. Ravi, Ph.D., Visiting Professor of Bioengineering and Materials Science B.S., University of Madras, 1980; B.E., Indian Institute of Science, 1983; M.S., Ohio State University, 1986; Ph.D., 1988. Associate Professor, California State Polytechnic University, 1996-; Adjunct Professor, Drexel University, 1996-. Visiting Associate in Aeronautics, Caltech, 2001–04; Visiting Associate Professor, 2004–06; Visiting Professor, 2006–09.

Guruswami Ravichandran, Ph.D., John E. Goode Jr. Professor of Aeronautics and Mechanical Engineering; Director, Graduate Aerospace Laboratories
B.E., University of Madras (Regional Engineering College), 1981; Sc.M. (Solid Mechanics and Structures), Brown University, 1983; Sc.M. (Applied Mathematics), 1984; Ph.D., 1986. Assistant Professor of Aeronautics, Caltech, 1990–95; Associate Professor, 1995–99; Professor, 1999–2000; Professor of Aeronautics and Mechanical Engineering, 2000–05; Goode Professor, 2005–; Director, 2009–.

Anthony C. S. Readhead, Ph.D., Barbara and Stanley R. Rawn Jr. Professor of Astronomy; Director, Chajnantor Observatory; Senior Research Scientist, Jet Propulsion Laboratory; Director, Owens Valley Radio Observatory B.Sc., University of Witwatersrand (South Africa), 1968; Ph.D., University of Cambridge, 1972. Research Fellow, Caltech, 1974-75; Senior Research Fellow, 1976-79; Research Associate, 1979-81; Professor of Radio Astronomy, 1981-90; Professor of Astronomy, 1990-2000; Rawn Professor, 2000-. Director, Owens Valley Radio Observatory, 1981-86; 2007-; Executive Officer for Astronomy, 1990-92; Director, 2006-; Senior Research Scientist, 2006-.

Carol Readhead, Ph.D., Lecturer in Engineering
B.Sc., University of Witwatersrand (South Africa), 1969; Ph.D., University of
Cambridge, 1976. Research Fellow in
Biology, Caltech, 1977–79; Senior Research
Fellow, 1980–83; Senior Research Associate,
1998–2002; Lecturer in Engineering,
2006–09.

Douglas C. Rees, Ph.D., Roscoe Gilkey
Dickinson Professor of Chemistry; Investigator,
Howard Hughes Medical Institute; Executive
Officer for Biochemistry and Molecular
Biophysics
B.S., Yale University, 1974; Ph.D., Harvard
University, 1980. Professor, Caltech,
1898–2004; Dickinson Professor, 2004—.
Investigator, 2002–002; 2005—; Full
Investigator, 2002–06; Executive Officer for
Chemistry, 2002–06; Executive Officer,
2007—.

Gil Refael, Ph.D., Associate Professor of Theoretical Physics B.S., Tel Aviv University, 1997; M.S., 1998; Ph.D., Harvard University, 2003. Assistant Professor, Caltech, 2005–08; Associate Professor, 2008–.

Sarah E. Reisman, Ph.D., Assistant Professor of Chemistry B.A., Connecticut College, 2001; Ph.D., Yale University, 2006. Caltech, 2008–.

David H. Reitze, Ph.D., Visiting Associate in LIGO

B.A., Northwestern University, 1983; Ph.D., University of Texas (Austin), 1993. Professor, University of Florida, 1998–. Visiting Associate, Caltech, 1996–97; 2000; 2003; 2007–10.

Paul Renteln, Ph.D., Visiting Associate in Mathematics

A.B., University of California, 1981; Ph.D., Harvard University, 1988. Assistant Professor, California State University (San Bernardino), 1991–. Caltech, 1998–2009.

Jean-Paul Revel, Ph.D., Albert Billings Ruddock Professor of Biology, Emeritus B.Sc., University of Strasbourg, 1949; Ph.D., Harvard University, 1957. Professor of Biology, Caltech, 1971–78; Ruddock Professor, 1978–2006; Ruddock Professor Emeritus, 2006–. Dean of Students, 1996–2005.

Jason Rhodes, Ph.D., Visiting Associate in Astronomy

B.S., Harvey Mudd College, 1994; Ph.D., Princeton University, 1999. Staff Scientist, Jet Propulsion Laboratory, 2004.. Caltech, 2004–09.

Frank R. Rice, M.S., Lecturer in Physics M.S., Caltech, 1996. Lecturer, 2001–09.

John Hall Richards, Ph.D., Professor of Organic Chemistry and Biochemistry
B.A., University of California, 1951; B.Sc.,
University of Oxford, 1953; Ph.D.,
University of California, 1955. Assistant
Professor of Organic Chemistry, Caltech,
1957–61; Associate Professor, 1961–70;
Professor, 1970–99; Professor of Organic
Chemistry and Biochemistry, 1999–.

Mark I. Richardson, Ph.D., Assistant Professor of Planetary Science B.Sc., University of London (Imperial College), 1992; M.S. (Geophysics and Space Science), University of California (Los Angeles), 1995; M.S. (Atmospheric Science), 1996; Ph.D., 1999. Caltech, 2001–.

Jose Luis Riechmann, Ph.D., Visiting Associate in Biology
B.S., Madrid Autonomous University, 1987;
Ph.D., 1991. Research Fellow, Caltech, 1993–96; Senior Research Fellow, 1996–98;
Senior Research Associate, 2004–08:

Visiting Associate, 2008–09.

John Keith Riles, Ph.D., Visiting Associate in LIGO B.A., University of California, 1982; Ph.D., Stanford University, 1989. Associate

Stanford University, 1989. Associate Professor, University of Michigan, 1992–. Visiting Associate in Physics, Caltech, 1998–99; Visiting Associate in LIGO, 2005–09. Robert C. Ritchie, Ph.D., Visiting Associate in History

A.B., Occidental College, 1960; Ph.D., University of California (Los Angeles), 1970. W. M. Keck Foundation Director of Research, Huntington Library and Art Gallery, 1992— Visiting Associate, Caltech, 1993–2009; Lecturer, 1995; 1997; 1999: 2001; 2005.

Daniel Rittel, Ph.D., Visiting Associate in Aeronautics

B.S., Ben-Gurion University of the Negev, 1979; M.S., Hebrew University (Jerusalem), 1983; Ph.D., 1988. Associate Professor, Technion—Israel Institute of Technology, 2000—. Visiting Professor, Caltech, 2000; Visiting Associate, 2001–06; 2007–09; Clark B. Millikan Visiting Professor, 2006–07.

John D. Roberts, Ph.D., Dr.rer.Nat.h.c., Sc.D.h.c., D.Sc.h.c., Institute Professor of Chemistry, Emeritus

Coemstry, Emerius
B.A., University of California (Los Angeles),
1941; Ph.D., 1944; Dr.rer.Nat.h.c.,
University of Munich, Sc.D.h.c., Temple
University of Notre Dame; Scripps
Research Institute. Research Associate,
Caltech, 1952–53; Professor, 1953–72;
Institute Professor, 1972–88; Institute
Professor Emeritus, 1988–; Lecturer,
1988–92. Chairman, Division of Chemistry
and Chemical Engineering, 1963–68; Acting
Chairman, 1972–73; Provost and Vice
President, Dean of the Faculty, 1980–83.

Alonso P. Rodriguez, Ph.D., Visiting Associate in Engineering and Applied Science B.S., University of Arizona, 1979; M.S., 1977; Ph.D., University of Southern California, 1981. Adjunct Professor, 1985—. Caltech, 2004–09.

Ares J. Rosakis, Ph.D., Theodore von Kármán Professor of Aeronautics and Mechanical Engineering; Chair, Division of Engineering and Applied Science; Director, Graduate Aerospace Laboratories B.Sc., University of Oxford, 1978; Sc.M., Brown University, 1980; Ph.D., 1982. Assistant Professor of Aeronautics and Applied Physics, Caltech, 1982-88; Associate Professor, 1988-93; Professor of Aeronautics and Applied Mechanics, 1993-2000; Professor of Aeronautics and Mechanical Engineering, 2000-04; von Kármán Professor, 2004-; Chair, 2009-. Director, Graduate Aeronautical Laboratories, 2004-08; Director, Graduate Aerospace Laboratories, 2008-09.

Paul A. Rosen, Ph.D., Visiting Associate in Geophysics

B.S., University of Pennsylvania, 1981; M.S., 1982; Ph.D., Stanford University, 1989. Technical Group Supervisor, Jet Propulsion Laboratory, 1992–. Visiting Associate, Caltech, 1998–2009; Lecturer, 2000–03; 2005.

Robert Allan Rosenstone, Ph.D., Professor of History

B.A., University of California (Los Angeles), 1957; Ph.D., 1965. Visiting Assistant Professor, Caltech, 1966–68; Assistant Professor, 1968–69; Associate Professor, 1969–75; Professor, 1975–. Executive Officer for the Humanities, 1983–86.

Jean-Laurent Rosenthal, Ph.D., Rea A. and Lela G. Axline Professor of Business Economics; Executive Officer for the Social Sciences
B.A., Reed College, 1984; Ph.D., Caltech, 1988. Professor of Economics, 2006–08; Axline Professor, 2008–. Executive Officer, 2007–.

Anatol Roshko, Ph.D., Theodore von Kármán Professor of Aeronautics, Emeritus B.Sc., University of Alberta, 1945; M.S., Caltech, 1947; Ph.D., 1952. Research Fellow, 1952–54; Senior Research Fellow, 1954–55; Assistant Professor, 1955–58; Associate Professor, 1958–62; Professor, 1962–85; von Kármán Professor Emeritus, 1994–Acting Director, Graduate Aeronautical Laboratories, 1985–87.

Ian Ross, Ph.D., Visiting Associate in Biology B.Sc., McGill University, 1981; M.D., Queens University, 1985; M.Sc., University of Toronto, 1992. Provisional Staff, Huntington Memorial Hospital, 2005–. Caltech, 2008–09.

George Robert Rossman, Ph.D., Eleanor and John R. McMillan Professor of Mineralogy B.S., Wisconsin State University, 1966; Ph.D., Caltech, 1971. Instructor, 1971; Assistant Professor, 1971–77; Associate Professor, 1977–83; Professor, 1983–2008; McMillan Professor, 2008–. Divisional Academic Officer for Geological and Planetary Sciences, 1999–2008.

Paul W. K. Rothemund, Ph.D., Senior Research Associate in Bioengineering, Computer Science, and Computation and Neural Systems B.S., Caltech, 1994; Ph.D., University of Southern California, 2001. Visiting Associate, Caltech, 2001; Beckman Senior Research Fellow, 2001–04; Senior Research Fellow in Computation and Neural Systems and Computer Science, 2004–08; Senior Research Associate, 2008–

Ellen Rothenberg, Ph.D., Albert Billings Ruddock Professor of Biology A.B., Harvard University, 1972; Ph.D., Massachusetts Institute of Technology, 1977. Assistant Professor, Caltech, 1982–88; Associate Professor, 1988–94; Professor, 1994–2007; Ruddock Professor, 2007–. Michael L. Roukes, Ph.D., Professor of Physics, Applied Physics, and Bioengineering; Codirector, Kavli Nanoscience Institute B.A., University of California (Santa Cruz), 1978; Ph.D., Cornell University, 1985. Associate Professor of Physics, Caltech, 1992–96; Professor, 1996–2002; Professor of Physics, Applied Physics, and Bioengineering, 2002–. Director, 2004–06; Codirector, 2008–.

David B. Rutledge, Ph.D., Kiyo and Eiko Tomiyasu Professor of Electrical Engineering; B.A., Williams College, 1973; M.A., University of Cambridge, 1975; Ph.D., University of California, 1980. Assistant Professor, Caltech, 1980–84; Associate Professor, 1984–89; Professor, 1989–2001; Tomiyasu Professor, 2001–. Executive Officer for Electrical Engineering, 1999–2002; Chair, 2005–2008.

Alberto Vazquez Saa, Ph.D., Visiting Associate in Control and Dynamical Systems B.S., University of Sao Paulo, 1989; M.S., 1991; Ph.D., 1994. Associate Professor, State University of Campinas, 1997—. Caltech, 2009.

Rolf Heinrich Sabersky, Ph.D., Professor of Mechanical Engineering, Emeritus B.S., Caltech, 1942; M.S., 1943; Ph.D., 1949. Assistant Professor, 1949c55; Associate Professor, 1955–61; Professor, 1961–88; Professor Emeritus, 1988–.

Inge-Juliana Sackmann, Ph.D., Faculty Associate in Physics
B.A., University of Toronto, 1963; M.A., 1965; Ph.D., 1968. Research Fellow, Caltech, 1971–74; Visiting Associate, 1974–76; Senior Research Fellow, 1976–81; Faculty Associate, 1981.

John Elie Sader, Ph.D., Visiting Associate in Physics B.S., University of New South Wales, 1989; Ph.D., 1993. Professor, University of Melbourne, 2008–. Caltech, 2009.

Hossein Saidi, Ph.D., Visiting Associate in Electrical Engineering B.S., Isfahan University of Technology, 1986; M.S., 1989; Ph.D., Washington University (St. Louis), 1994. Associate Professor, Isfahan University of Technology, 1995.—Caltech, 2008–09.

Jason Brian Saleeby, Ph.D., Professor of Geology B.S., California State University

Northridge), 1972; Ph.D., University of California (Santa Barbara), 1975. Associate Professor, Caltech, 1978–88; Professor, 1988–.

Konrad H. Samwer, Ph.D., Visiting Associate in Materials Science Ph.D., University of Göttingen (Germany),

1981. Professor, 1990–. Research Fellow, Caltech, 1981–82; Visiting Associate, 1987; 1994; 1998–2000; 2004–05; 2007; 2009–10.

Toshiyuki Sanada, Ph.D., Visiting Associate in Mechanical Engineering B.S., Kyushu University, 2000; M.S., 2002; Ph.D., 2005. Assistant Professor, Shizuoka University, 2007.— Caltech, 2008–09.

Stanley P. Sander, Ph.D., Visiting Associate in Planetary Science
B.A., Pomona College, 1974; M.S., Caltech, 1975; Ph.D., 1980. Senior Research
Scientist, Jet Propulsion Laboratory, 1996–. Visiting Associate in Planetary Science and Environmental Engineering Science,
Caltech, 1998–2005; Lecturer in Geology and Planetary Sciences and Environmental Engineering Science, 1998–2004; Visiting Associate in Planetary Science and Environmental Engineering and Science, 2005; Visiting Associate in Planetary Science, 2006–10.

Virginio Sannibale, Ph.D., Lecturer in Physics

Ph.D., University of Savoy (France), 1998. Caltech, 2001–09.

Anneila I. Sargent, Ph.D., Benjamin M. Rosen Professor of Astronomy; Vice President for Student Affairs B.Sc., University of Edinburgh, 1963; M.S., Caltech, 1967; Ph.D., 1977. Research Fellow in Astronomy, 1977-79; Member of the Professional Staff, 1979-88; Senior Research Fellow, 1988-90; Senior Research Associate, 1990-98; Professor, 1998-2004; Rosen Professor, 2004-. Associate Director, Owens Valley Radio Observatory, 1992-96; Executive Director, 1996-98; Director, 1998-2007; Director, Interferometry Science Center, 2000-03; Director, Michelson Science Center, 2003; Vice President, 2007-.

Wallace L. W. Sargent, Ph.D., Ira S. Bowen Professor of Astronomy
B.Sc., University of Manchester, 1956;
M.Sc., 1957; Ph.D., 1959. Research Fellow,
Caltech, 1959–62; Assistant Professor,
1966–68; Associate Professor, 1968–71;
Professor, 1971–81; Bowen Professor,
1981– Executive Officer for Astronomy,
1975–81; 1996–97; Staff Member, Owens
Valley Radio Observatory, 1978–88;
Director, Palomar Observatory, 1997–2000.

Re'em Sari, Ph.D., Associate Professor of Astrophysics and Planetary Science B.Sc. (Physics), Ben-Gurion University of the Negev, 1991; B.Sc. (Mathematics), 1992; M.Sc., Hebrew University of Jerusalem, 1994; Ph.D., 1998. Fairchild Senior Research Fellow in Astrophysics, Caltech, 1998–2003; Lecturer in Physics, 2001; Lecturer in Planetary Science, 2001; Associate Professor, 2003–.

Tilman Sauer, Ph.D., Senior Research Associate in History; Lecturer in History Dipl., Free University (Berlin), 1990; Ph.D., 1994. Visiting Associate, Caltech, 2001–03; Senior Research Fellow, 2003–05; Senior Research Associate, 2005–10; Lecturer, 2006; 2008; 2009.

William P. Schaefer, Ph.D., Senior Research Associate in Chemistry, Emeritus B.S., Stanford University, 1952; M.S., University of California (Los Angeles), 1954; Ph.D., 1960. Instructor, Caltech, 1960–62; Assistant Professor, 1962–66; Senior Research Fellow, 1968–77; Research Associate, 1977–81; Senior Research Associate, 1981–94; Senior Research Associate Emeritus, 1994–. Assistant Director of Admissions, 1968–73; Registrar, 1971–77; Director of Financial Aid, 1973–77.

Janet D. Scheel, Ph.D., Visiting Associate in Physics

Ph.D., Caltech, 2006. Assistant Professor, California Lutheran University, 2006–. Visiting Associate, Caltech, 2006–09.

Mark Scheel, Ph.D., Senior Research Fellow in Physics Ph.D., Cornell University, 1996. Senior

Ph.D., Cornell University, 1996. Senior Research Fellow, Caltech, 2005–; Lecturer, 2005–06.

Axel Scherer, Ph.D., Bernard A. Neches Professor of Electrical Engineering, Applied Physics, and Physics; Codirector, Kavli Nanoscience Institute B.S., New Mexico Institute of Mining and Technology, 1981; M.S., 1982; Ph.D., 1985. Associate Professor of Electrical Engineering, Caltech, 1993–95; Professor, 1995; Professor of Electrical Engineering and Applied Physics, 1995–96; Professor of Electrical Engineering, Applied Physics, and Physics, 1996–2000; Neches Professor, 2000–. Director, 2006–08; Codirector, 2008–.

Maarten Schmidt, Ph.D., Sc.D., Francis L. Moseley Professor of Astronomy, Emeritus Ph.D., University of Leiden, 1956; Sc.D., Yale University, 1966. Associate Professor, Caltech, 1959-64; Professor, 1964-81; Institute Professor, 1981-87; Moseley Professor, 1987-96; Moseley Professor Emeritus, 1996-. Executive Officer for Astronomy, 1972-75; Chairman, Division of Physics, Mathematics and Astronomy, 1976-78; Director, Hale Observatories, 1978-80.

Tapio Schneider, Ph.D., Professor of Environmental Science and Engineering Vordipl., Freiburg University, 1993; Ph.D., Princeton University, 2001. Assistant Professor, Caltech, 2002–08; Associate Professor, 2008–2009; Professor, 2009–.

Robert Schofield, Ph.D., Visiting Associate in Physics Ph.D., University of Oregon, 1990. Senior Research Associate, 1999–. Caltech, 2000–09.

Kathrin Schrick, Ph.D., Visiting Associate in Biology

B.A., B.S., Purdue University, 1986; Ph.D., University of Washington, 1994. Adjunct Professor, Claremont Graduate University, 2005–; Research Assistant Professor, Keck Graduate Institute, 2004–. Caltech, 2006–09.

Peter Schröder, Ph.D., Professor of Computer Science and Applied and Computational Mathematics
B.S., Technical University of Berlin, 1987;
M.S., Massachusetts Institute of Technology, 1990; M.A., Princeton
University, 1992; Ph.D., 1994. Assistant
Professor of Computer Science, Caltech, 1995–98; Associate Professor, 1998–2000; Associate Professor of Computer Science and Applied and Computational
Mathematics, 2000–01; Professor, 2001–.

Leonard J. Schulman, Ph.D., Professor of Computer Science

B.S., Massachusetts Institute of Technology, 1988; Ph.D., 1992. Associate Professor, Caltech, 2000–05; Professor, 2005–.

Wolfram Schultz, M.D., Ph.D., Visiting Associate in Neuroscience

B.A., Universities of Hamburg and Heidelberg, 1971; M.D., University of Heidelberg, 1972; Ph.D., University of Fribourg, 1981. Professor, University of Cambridge, 2001-. Visiting Associate, Caltech, 2004–05; 2007; 2008; 2009; Moore Distinguished Scholar, 2005–06.

Erin M. Schuman, Ph.D., Professor of Biology; Investigator, Howard Hughes Medical Institute

B.A., University of Southern California, 1985; M.A., Princeton University, 1987; Ph.D., 1990. Assistant Professor, Caltech, 1993–99; Associate Professor, 1999–2004; Professor, 2004-. Assistant Investigator, 1997–2002; Associate Investigator, 2002–05; Investigator, 2005-. Executive Officer for Neurobiology, 2000–06.

Keith C. Schwab, Ph.D., Associate Professor of Applied Physics B.A., University of Chicago, 1990; Ph.D.,

B.A., University of Chicago, 1990; Ph.D., University of California, 1996. Caltech, 2009–.

Richard E. Schwartz, Ph.D., Visiting Associate in Mathematics

Ph.D., Princeton University, 1991. Professor, Brown University, 2005–. Caltech, 2009.

John H. Schwarz, Ph.D., Harold Brown Professor of Theoretical Physics A.B., Harvard College, 1962; Ph.D., University of California, 1966. Research Associate, Caltech, 1972–81; Senior Research Associate, 1981–85; Professor of Theoretical Physics, 1985–89; Brown Professor, 1989–.

Nicholas Zabriskie Scoville, Ph.D., Francis L. Moseley Professor of Astronomy B.A., Columbia University, 1967; Ph.D., 1972. Professor, Caltech, 1984—96; Moseley Professor, 1996—. Director, Owens Valley Radio Observatory, 1986—96. Executive Officer for Astronomy, 2000—04.

Thayer Scudder, Ph.D., Professor of Anthropology, Emeritus A.B., Harvard College, 1952; Ph.D., Harvard University, 1960. Assistant Professor, Caltech, 1964–66; Associate Professor, 1966–69; Professor, 1969–2000; Professor Emeritus, 2000–.

Michael D. Seiffert, Ph.D., Visiting Associate in Physics B.S., Stanford University, 1986; Ph.D., University of California (Santa Barbara), 1994. Group Supervisor and Lead Scientist for Cosmology, Jet Propulsion Laboratory, 2004—. Caltech, 2005–10.

John Hersh Seinfeld, Ph.D., D.Sc.h.c., Louis E. Nobl Professor and Professor of Chemical Engineering

B.S., University of Rochester, 1964; Ph.D., Princeton University, 1967; D.Sc.h.c, University of Patras (Greece); Carnegie Mellon University; Clarkson University. Assistant Professor, Caltech, 1967–70; Associate Professor, 1970–74; Professor, 1974–; Nohl Professor, 1979– Executive Officer for Chemical Engineering, 1974–90; Chair, Division of Engineering and Applied Science, 1990–2000.

Eugene Serabyn, Ph.D., Visiting Associate in Physics

B.S. Massachusetts Institute of Technology

B.S., Massachusetts Institute of Technology, 1978; M.S., University of California, 1980; Ph.D., 1984. Senior Research Scientist, Jet Propulsion Laboratory, 2001–. Research Fellow, Caltech, 1986–89; Senior Research Fellow, 1989–95; Senior Research Associate, 1995–98; Visiting Associate, 1998–2010.

Alex L. Sessions, Ph.D., Assistant Professor of Geobiology

B.A., Williams College, 1991; M.Sc., Dartmouth College, 1996; Ph.D., Indiana University (Bloomington), 2001. Caltech, 2003–.

Mona Shahgholi, Ph.D., Lecturer in Chemistry

B.S., Oklahoma State University, 1979;
M.S., University of Colorado, 1989; Ph.D.,
University of Tennessee, 1993. Caltech,
2008; 2009.

Shu-ou Shan, Ph.D., Assistant Professor of Chemistry

B.S., University of Maryland, 1994; Ph.D., Stanford University, 2000. Caltech, 2005–.

Andrew A. Shapiro, Ph.D., Visiting Associate in Mechanical Engineering B.S., University of California, 1981; M.S., University of California (Los Angeles), 1989; Ph.D., University of California (Irvine), 1998. Principal Engineer, Jet Propulsion Laboratory, 2002–. Caltech, 2008–10.

Bruce E. Shapiro, Ph.D., Visiting Associate in Biology

M.S., Johns Hopkins University, 1988; M.S., University of California (Los Angeles), 1995; Ph.D., 2000. Senior Member of Technical Staff, Jet Propulsion Laboratory, 2000—. Caltech, 2005–09.

Joseph E. Shepherd, Ph.D., C. L. "Kelly" Johnson Professor of Aeronautics and Professor of Mechanical Engineering; Dean of Graduate Studies

B.S., University of South Florida, 1976; Ph.D., Caltech, 1981. Associate Professor of Aeronautics, Caltech, 1993–99. Professor, 1999–2005; Professor of Aeronautics and Mechanical Engineering, 2006–08; Johnson Professor and Professor of Mechanical Engineering, 2008–; Dean, 2009–.

Robert P. Sherman, Ph.D., Professor of Economics and Statistics

B.A., Marquette University, 1978; M.A., University of Louisville, 1985; M.Phil., Yale University, 1987; Ph.D., 1991. Assistant Professor, Caltech, 1996–99; Associate Professor, 1999–2005; Professor, 2005–.

Drora Shevy, Ph.D., Visiting Associate in Physics

M.D., Sackler School of Graduate Biomedical Sciences, 1985; Ph.D., 1985. Director, Orbits Lightwave, Inc., 2001–. Caltech, 2007–09.

Shinsuke Shimojo, Ph.D., Professor of Biology

B.A., University of Tokyo, 1978; M.A., 1980; Ph.D., Massachusetts Institute of Technology, 1985. Associate Professor, Caltech, 1997–98; Professor, 1999–

Ken-Ichi Shimomura, Ph.D., Visiting Associate in Economics

B. A. Keio University (Japan), 1986: M.

B.A., Keio University (Japan), 1986; M.S., 1988; M.A., University of Rochester, 1992; Ph.D., 1994. Associate Professor, Kobe University, 2004–. Caltech, 1998; 2000; 2007–09.

David H. Shoemaker, Ph.D., Visiting Associate in LIGO

M.S., Massachusetts Institute of Technology, 1980; Ph.D., University of Paris (Sud), 1987. Principal Research Scientist, Massachusetts Institute of Technology, 1991–. Caltech, 2005–08.

Kirill Shtengel, Ph.D., Visiting Associate in Physics

B.Ś., St. Petersburg Technical University, 1988; M.S., University of California (Los Angeles), 1994; Ph.D., 1999. Assistant Professor, University of California (Riverside), 2005—Caltech, 2005–09.

Matthew S. Shum, Ph.D., Professor of Economics

B.A., Columbia University, 1992; Ph.D., Stanford University, 1998. Caltech, 2008-.

Athanassios G. Siapas, Ph.D., Associate Professor of Computation and Neural Systems; Bren Scholar

B.S., Massachusetts Institute of Technology, 1990; M.S., 1992; Ph.D., 1996. Assistant Professor, Caltech, 2002–2009; Associate Professor, 2008–; Bren Scholar, 2003–.

Peter H. Siegel, Ph.D., Faculty Associate in Electrical Engineering

B.A., Colgate University, 1975; M.S., Columbia University, 1983; M.Ph., 1983; Ph.D., 1983. Caltech, 2002; 2007–10.

David O. Siegmund, Ph.D., Visiting Associate in Mathematics

B.A., Southern Methodist University, 1963;
Ph.D., Columbia University, 1966.
Professor, Stanford University, 1976–.
Caltech, 2005–09.

Kerry Edward Sieh, Ph.D., Professor of Geology

A.B., University of California (Riverside), 1972; Ph.D., Stanford University, 1977. Assistant Professor, Caltech, 1977–82; Associate Professor, 1982–86; Professor, 1986–2002; 2008–; Robert P. Sharp Professor of Geology, 2003–08. Divisional Academic Officer, 1989–94.

David Silva, Ph.D., Visiting Associate in Astronomy, IPAC Ph.D., Unversity of Michigan, 1991.

Ph.D., Unversity of Michigan, 1991. Director, AURA/NOAO, 2008–. Caltech, 2008–11.

Leon Theodore Silver, Ph.D., W. M. Keck Foundation Professor for Resource Geology, Emeritus

B.S., University of Colorado, 1945; M.S., University of New Mexico, 1948; Ph.D.,

Caltech, 1955. Assistant Professor of Geology, 1955–62; Associate Professor, 1962–65; Professor, 1965–83; Keck Professor, 1983–96; Keck Professor Emeritus, 1996–.

Barry Martin Simon, Ph.D., D.Sc.h.c., International Business Machines Professor of Mathematics and Theoretical Physics; Executive Officer for Mathematics
A.B., Harvard College, 1966; Ph.D., Princeton University, 1970. D.Sc.h.c., Technion–Israel Institute of Technology. Sherman Fairchild Distinguished Scholar, Caltech, 1980–81; Professor, 1981–84; International Business Machines Professor, 1984– Executive Officer for Mathematics, 1997–2003; 2009–.

Melvin I. Simon, Ph.D., Anne P. and Benjamin F. Biaggini Professor of Biological Sciences, Emeritus B.S., City College of New York, 1959; Ph.D., Brandeis University, 1963. Professor, Caltech, 1982–86; Biaggini Professor, 1986–2005; Biaggini Professor Emeritus, 2005–. Chair, Division of Biology, 1995–2000.

Mark Simons, Ph.D., Professor of Geophysics B.S., University of California (Los Angeles), 1989; Ph.D., Massachusetts Institute of Technology, 1995. Assistant Professor, Caltech, 1997–2003; Associate Professor, 2003–07; Professor, 2007–.

Annette Jacqueline Smith, Ph.D., Professor of Literature, Emeritus B.A., University of Paris (Sorbonne), 1947; M.A., 1950; Ph.D., 1970. Visiting Assistant Professor of French, Caltech, 1970–71; Lecturer, 1971–81; Associate Professor, 1982–85; Professor, 1985–92; Professor of Literature Emeritus, 1993–.

Graham Peter Smith, Ph.D., Visiting Associate in Astronomy Ph.D., University of Durham (United Kingdom), 2002. Caltech, 2005–09.

Christina Smolke, Ph.D., Assistant Professor of Chemical Engineering B.S., University of Southern California, 1997; Ph.D., University of California, 2001. Caltech, 2003–08.

Erik Snowberg, Ph.D., Assistant Professor of Economics and Political Science
S.B., Massachusetts Institute of Technology, 1999; Ph.D., Stanford University, 2008.
Caltech, 2008–.

G. Jeffrey Snyder, Ph.D., Faculty Associate in Materials Science; Lecturer in Materials Science B.A., Cornell University, 1991; Ph.D., Stanford University, 1997. Visiting Associate, Caltech, 2000–06; Lecturer,

2003; 2007-08; Faculty Associate, 2006-12.

Baruch Thomas Soifer, Ph.D., Professor of Physics; Director, Spitzer Science Center; Deputy Chair, Division of Physics, Mathematics and Astronomy
B.S., Caltech, 1968; Ph.D., Cornell University, 1972. Senior Research Fellow, Caltech, 1978–81; Senior Research Associate, 1981–89; Professor, 1989–; Director, Space Infrared Telescope Facility (SIRTF) Science Center, 1997–2004; Director, Spitzer Science Center, 2004–; Deputy Chair, 2008–.

Michael L. Spezio, Ph.D., Visiting Associate in Psychology
B.S., Case Western Reserve University, 1998; Ph.D., Cornell University, 1994; M.Div., Pittsburgh Theological Seminary, 1996; Ph.D., University of Oregon, 2002. Assistant Professor, Scripps College, 2007—Lecturer, Caltech, 2006–07; Visiting Associate, 2007–10.

Maria Spiropulu, Ph.D., Associate Professor of Physics B.Sc., Aristotle University of Thessaloniki, 1993; M.A., Harvard University, 1995; Ph.D., 2000. Caltech, 2008–

Matthew L. Spitzer, J.D., Ph.D., Professor of Law and Social Science
B.A., University of California (Los Angeles), 1973; J.D., University of Southern
California, 1977; Ph.D., Caltech, 1979.
Visiting Professor, Caltech, 1988; 1990; 1991–92; Professor of Law and Social
Sciences, 1992–2001; 2006–; Visiting
Associate, 2001–06.

Steven W. Squyres, Ph.D., Visiting Associate in Planetary Science
B.A., Cornell University, 1978; Ph.D., 1981. Professor, 1995–. Visiting Assistant
Professor, Caltech, 1986; Visiting Associate, 2004; 2008–09.

Angelike Stathopoulos, Ph.D., Assistant Professor of Biology B.A., University of California, 1992; Ph.D., Stanford University, 1998. Caltech, 2005–.

Andrew Steele, Ph.D., Broad Senior Research Fellow in Brain Circuitry A.B., University of Chicago, 2001; Caltech, 2008–11.

Charles C. Steidel, Ph.D., Lee A. DuBridge Professor of Astronomy
A.B., Princeton University, 1984; Ph.D.,
Caltech, 1990. Assistant Professor, 1995–97;
Associate Professor, 1997–98; Professor,
1998–2004; DuBridge Professor, 2004–.
Executive Officer for Astronomy, 2004–07.

Eric D. A. Stemp, Ph.D., Visiting Associate in Chemistry
B.S., University of Denver, 1987; M.S.,
Northwestern University, 1988; Ph.D.,
1993. Assistant Professor, Mount St. Mary's

College, 1996—. Research Fellow, Caltech, 1993–96; Visiting Associate, 1996–2009.

Thomas L. Sterling, Ph.D., Faculty Associate in the Center for Advanced Computing Research B.S., Old Dominion University, 1974; M.S., Massachusetts Institute of Technology, 1983; Ph.D., 1984. Visiting Associate, Caltech, 1996–99; Faculty Associate, 1999–2008; 2008–09.

Paul Warren Sternberg, Ph.D., Thomas Hunt Morgan Professor of Biology; Investigator, Howard Hugbes Medical Institute B.A., Hampshire College, 1978; Ph.D., Massachusetts Institute of Technology, 1984. Assistant Professor, Caltech, 1987–92; Associate Professor, 1992–96; Professor, 1996–2004; Morgan Professor, 2004–. Associate Investigator, 1992–97; Investigator, 1997–

David J. Stevenson, Ph.D., George Van Osdol Professor of Planetary Science B.S., Victoria University (New Zealand), 1971; M.S., 1972; Ph.D., Cornell University, 1976. Associate Professor, Caltech, 1980–84; Professor, 1984–95; Van Osdol Professor, 1995–. Chair, Division of Geological and Planetary Sciences, 1989–94.

Joann M. Stock, Ph.D., Professor of Geology and Geophysics B.S., Massachusetts Institute of Technology, 1981; M.S., 1981; Ph.D., 1988. Visiting Assistant Professor, Caltech, 1990; Associate Professor, 1992–98; Professor, 1998–.

Edward Manin Stolper, Ph.D., Provost; William E. Leonbard Professor of Geology
A.B., Harvard College, 1974; M.Phil.,
University of Edinburgh, 1976; Ph.D.,
Harvard University, 1979. Assistant
Professor, Caltech, 1979–82; Associate
Professor, 1982–83; Professor, 1983–90;
Leonhard Professor, 1990. Acting
Executive Officer for Geochemistry, 1989;
Executive Officer, 1989–94; Chair, Division
of Geological and Planetary Sciences,
1994–2004; Acting Provost, 2004; Provost,
2007.

Brian M. Stoltz, Ph.D., Ethel Wilson Bowles and Robert Bowles Professor of Chemistry B.S., B.A., Indiana University of Pennsylvania, 1993; M.A., Yale University, 1996; Ph.D., 1997. Assistant Professor, Caltech, 2000–06; Associate Professor, 2006–07; Professor, 2007; Bowles Professor, 2007–.

Edward Carroll Stone Jr., Ph.D., D.Sc.h.c., David Morrisroe Professor of Physics; Vice Provost for Special Projects S.M., University of Chicago, 1959; Ph.D., 1964; D.Sc.h.c., Harvard University; Washington University; University of Chicago; University of Southern California. Research Fellow, Caltech, 1964–66; Senior Research Fellow, 1967; Assistant Professor, 1967–71; Associate Professor, 1971–76; Professor, 1976–94; Morrisroe Professor, 1994—. Chairman, Division of Physics, Mathematics and Astronomy, 1983–88; Vice President for Astronomical Facilities, 1988–90; Vice President and Director of the Jet Propulsion Laboratory, 1991–2001; Vice Provost, 2004—.

Evgeny Strahov, Ph.D., Visiting Associate in Mathematics
B.Sc., Moscow Institute of Physics and Technology, 1992; M.Sc., Baer-Sheva University of the Negev, 1995; Ph.D., Technion-Israel Institute of Technology, 2000. Professor, Hebrew University of Jerusalem, 2006–. Olga Taussky and John Todd Instructor, Caltech, 2003–06; Visiting Associate, 2008.

Ellen Glowacki Strauss, Ph.D., Senior Research Associate in Biology, Emeritus B.A., Swarthmore College, 1960; Ph.D., Caltech, 1966. Research Fellow, 1969–73; Senior Research Fellow, 1973–84; Senior Research Associate, 1984–2007; Senior Research Associate Emeritus, 2007–.

James Henry Strauss, Ph.D., Ethel Wilson Bowles and Robert Bowles Professor of Biology, Emeritus
B.S., Saint Mary's University, 1960; Ph.D.,
Caltech, 1967. Assistant Professor, 1969–75;
Associate Professor, 1975–83; Professor, 1983–93; Bowles Professor, 1993–2007;
Bowles Professor Emeritus, 2007–.
Executive Officer for Molecular and Cellular Biology, 1980–89.

Thomas T. Su, Ph.D., Visiting Associate in Biology
B.S., University of California (Los Angeles), 1996; Ph.D., 2002; M.D., Memorial Sloan Kettering Cancer Center, 2004. Resident, University of California (Los Angeles) Medical Center, 2005–. Caltech, 2006–09.

Yi Henry Sun, Ph.D., Visiting Associate in Biology B.S., National Taiwan University, 1978; Ph.D., Caltech, 1986. Distinguished Research Fellow, Academia Sinica, 2006—. Caltech, 2007–08.

Hwankyung Sung, Ph.D., Visiting Associate in Astronomy
Ph.D., Seoul National University, 1995.
Associate Professor, Sejong University, 2005—. Caltech, 2008–09.

Billie Swalla, Ph.D., Visiting Associate in Biology
B.S., University of Iowa, 1980; M.Sc., 1983; Ph.D., 1988. Associate Professor, University of Washington, 2001–. Caltech, 2008.

Noel M. Swerdlow, Ph.D., Visiting Associate in History; Visiting Professor in History

B.S., University of California (Los Angeles), 1964; M.A., Yale University, 1967; Ph.D., 1968. Professor, University of Chicago, 1982. Visiting Associate, Caltech, 2008; Visiting Professor, 2008–09.

Lisa E. Szechter, Ph.D., Visiting Associate in Physics

A.B., Oberlin College, 1997; M.S., Pennsylvania State University, 1999; Ph.D., 2003. Assistant Professor, Tulane University, 2005—. Caltech, 2005–09.

Yu-Chong Tai, Ph.D., Professor of Electrical Engineering and Mechanical Engineering B.S., National Taiwan University, 1981; M.S., University of California, 1986; Ph.D., 1989. Assistant Professor of Electrical Engineering, Caltech, 1989–95; Associate Professor, 1995–2000; Professor, 2000–05; Professor of Electrical Engineering and Mechanical Engineering, 2005–. Executive Officer, 2005–2008.

Hidehiko Takahashi, Ph.D., Visiting Associate in Biology

Ph.D., Tokyo Medical and Dental University, 2005. Chief Investigator, National Institute of Radiological Sciences, 2006—. Caltech, 2008–09.

Hugh Pettingill Taylor Jr., Ph.D., Robert P. Sharp Professor of Geology, Emeritus B.S., Caltech, 1954; A.M., Harvard University, 1955; Ph.D., Caltech, 1959. Assistant Professor, 1959–61; Research Fellow, 1961; Assistant Professor, 1962–64; Associate Professor, 1964–69; Professor, 1969–81; Sharp Professor, 1981–2002; Sharp Professor Emeritus, 2002–. Executive Officer for Geology, 1987–94.

Vassilios Theofilis, Ph.D., Visiting Associate in Mechanical Engineering B.S., University of Patras, 1984; M.S., University of Manchester, 1988; Ph.D., 1991. Tenured Research Professor, Technical University of Madrid, 2006–. Caltech, 2008; 2009.

Frederick Burtis Thompson, Ph.D., Professor of Applied Philosophy and Computer Science, Emeritus

A.B., University of California (Los Angeles), 1946; M.A., 1947; Ph.D., University of California, 1952. Professor of Applied Science and Philosophy, Caltech, 1965–77; Professor of Applied Philosophy and Computer Science, 1977–93; Professor Emeritus, 1993–.

Kip Stephen Thorne, Ph.D., D.Sc.h.c., D.h.c., L.H.D.h.c., Richard P. Feynman Professor of Theoretical Physics, Emeritus B.S., Caltech, 1962; Ph.D., Princeton

University, 1965; D.Sc.h.c., Illinois College; Utah State University; D.h.c., Moscow University; University of Glasgow; L.H.D.h.c., Claremont Graduate University. Research Fellow in Physics, Caltech, 1966–67; Associate Professor of Theoretical Physics, 1967–70; Professor, 1970–91; William R. Kenan Professor, 1981–91; Feynman Professor, 1991–2009; Professor Emeritus, 2009–.

Massimo Tinto, Ph.D., Visiting Associate in Physics
Ph.D., University College (Wales), 1987.
Senior Scientist, Jet Propulsion Laboratory, 1991–. Research Fellow, Caltech, 1987–89; Visiting Associate, 2001–10.

David A. Tirrell, Ph.D., D.h.c., Ross McCollum–William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering

B.S., Massachusetts Institute of Technology, 1974; M.S., University of Massachusetts, 1976; Ph.D., 1978; D.h.c., Eindhoven Technical University. McCollum-Corcoran Professor and Professor, Caltech, 1998.—Chair, 1999–2009.

Thomas Anthony Tombrello, Ph.D., Ph.D.h.c., William R. Kenan Jr. Professor and Professor of Physics; Technology Assessment Officer

Officer
B.A., Rice University, 1958; M.A., 1960;
Ph.D., 1961; Ph.D.h.c., Uppsala University.
Research Fellow, Caltech, 1961–62;
1964–65; Assistant Professor, 1965–67;
Associate Professor, 1967–71; Professor,
1971–; Kenan Professor, 1997–. Technology
Assessment Officer, 1996–. Chair, Division
of Physics, Mathematics and Astronomy,
1998–2008.

Ritsuko Hirai Toner, Ph.D., Lecturer in

Japanese B.A., Kyoto University of Foreign Studies (Japan), 1974; M.A., University of Southern California, 1979; Ph.D., 1987. Caltech, 1992–2010.

Gerald J. Toomer, Ph.D., Visiting Professor of History of Science
B.A., University of Oxford, 1959; M.A., 1962. Professor Emeritus, Brown University, 1992.—Caltech, 2009.

Geoffrey C. Toon, D.Phil., Visiting Associate in Planetary Science B.A., University of Oxford, 1978; M.A., 1981; D.Phil., 1984. Research Scientist, Jet Propulsion Laboratory, 1986–. Caltech, 2001–09.

Tony Travouillon, Ph.D., Visiting Associate in Astronomy

Ph.D., University of New South Wales, 2004. Site Testing Scientist, Thirty-Meter Telescope, 2005. Caltech, 2006–10.

Marie Treyer, Ph.D., Visiting Associate in Physics

Ph.D., University of Paris, 1994. Research Associate, Laboratoire d'Astrophysique de Marseille, 1999–. Caltech, 2003–09.

Sandra M. Troian, Ph.D., Professor of Applied Physics, Aeronautics, and Mechanical Engineering B.A., Harvard University, 1980; M.S., Cornell University, 1984; Ph.D., 1987. Moore Distinguished Scholar, Caltech, 2004–05; Professor, 2006–.

Joel A. Tropp, Ph.D., Assistant Professor of Applied and Computational Mathematics B.A., B.S., University of Texas (Austin), 1999; M.S., 2001; Ph.D., 2004. Caltech, 2007.

Doris Ying Tsao, Ph.D., Assistant Professor of Biology B.S., Caltech, 1996; Ph.D., Harvard University, 2002. Caltech, 2008–.

Oliver D. Tschauner, Ph.D., Visiting Associate in Geophysics Ph.D., University of Cologne, 1997. Assistant Research Professor, University of Nevada (Las Vegas), 2002–. Caltech, 2006–10.

Nicholas William Tschoegl, Ph.D., Professor of Chemical Engineering, Emeritus B.Sc., New South Wales University of Technology, 1954; Ph.D., University of New South Wales, 1958. Associate Professor of Materials Science, Caltech, 1965–67; Professor of Chemical Engineering, 1967–85; Professor Emeritus, 1985–.

Carol Chace Tydell, D.V.M., Visiting Associate in Biology; Lecturer in Biology; B.S., University of California (Davis), 1980; D.V.M., 1982. Adjunct Professor, Pasadena City College, 2007–. Visiting Associate, Caltech, 2007–09; Lecturer, 2008.

Atsuko Ueda, Ph.D., Visiting Associate in Economics
B.A., University of Tokyo, 1983; M.S.,
University of Wisconsin (Madison), 1992;
M.S., 1992; Ph.D., 1997. Professor, Waseda
Unversity, 2007.— Caltech, 2008–09.

Michiko Ueda, Ph.D., Assistant Professor of Political Science
B.A., International Christian University (Japan), 1996; M.A., University of Tokyo, 1999; M.A., Stanford University, 2001; Ph.D., Massachusetts Institute of Technology, 2006. Instructor, Caltech, 2006–08; Assistant Professor, 2008–.

Christopher M. Umans, Ph.D., Associate Professor of Computer Science B.A., Williams College, 1996; Ph.D., University of California, 2000. Assistant Professor, Caltech, 2002–08; Associate Professor, 2008–.

Edwin T. Upchurch, Ph.D., Visiting Associate in the Center for Advanced Computing Research B.S., University of Texas (Austin), 1964; M.S., University of Wisconsin (Madison), 1969; Ph.D., University of Texas (Austin), 1982. Staff Scientist, Jet Propulsion Laboratory, 2000—. Caltech, 2002–11.

Rolando Uribe, M.S., Coach B.S., California State University (San Bernardino), 1995; M.S., 2002. Caltech, 2001–09.

Kerry J. Vahala, Ph.D., Ted and Ginger Jenkins Professor of Information Science and Technology and Professor of Applied Physics B.S., Caltech, 1980; M.S., 1981; Ph.D., 1985; Research Fellow in Applied Physics, 1985; Assistant Professor, 1986–90; Associate Professor, 1990–96; Professor, 1996–; Jenkins Professor, 2002–.

P. P. Vaidyanathan, Ph.D., Professor of Electrical Engineering B.Sc., University of Calcutta, 1974; B.Tech., 1977; M.Tech., 1979; Ph.D., University of California (Santa Barbara), 1982. Assistant Professor, Caltech, 1983–88; Associate Professor, 1988–93; Professor, 1993–. Executive Officer for Electrical Engineering, 2002–05.

Michele Vallisneri, Ph.D., Visiting Associate in Physics
Laurea, University of Parma (Italy), 1997;
M.S., 2000; Ph.D., Caltech, 2002. Research Scientist, Jet Propulsion Laboratory, 2005–. Lecturer, Caltech, 2003–05; Visiting Associate, 2005–09.

Fokko van de Bult, Ph.D., Harry Bateman Research Instructor in Mathematics M.A., University of Amsterdam, 2003; Ph.D., 2007. Caltech, 2008–11.

Axel van de Walle, Ph.D., Assistant Professor of Materials Science B.Eng, École Polytechnique de Montreal, 1994; M.Math., University of Waterloo, 1995; Ph.D., Massachusetts Institute of Technology, 2000. Caltech, 2006–.

John P. Van Deusen, B.S., Lecturer in Mechanical Engineering A.A., El Camino College, 1978; B.S., California State University (Long Beach), 2003. Caltech, 2004–09.

Jeroen van Dongen, Ph.D., Visiting Associate in History B.Sc., University of Amsterdam, 1994; M.Sc., 1998; Ph.D., 2002. Veni Research Fellow, University of Utrecht, 2005–. Caltech, 2007–10. Steven J. van Enk, Ph.D., Visiting Associate in Physics

M.S., University of Utrecht, 1988; Ph.D., University of Leiden, 1992. Associate Professor, University of Oregon, 2006–. Caltech, 2005–09.

Jakob J. Van Zyl, Ph.D., Faculty Associate; Lecturer in Electrical Engineering and Planetary Science

B.Eng., University of Stellenbosch (South Africa), 1979; M.S., Caltech, 1983; Ph.D., 1986. Research Fellow in Electrical Engineering, 1986; Lecturer in Electrical Engineering and Planetary Science, 2001–07; 2008; Faculty Associate, 2007–09.

Michael C. Vanier, Ph.D., Lecturer in Computer Science

B.S., McGill University, 1986; M.S., 1993; Ph.D., Caltech, 2001. Lecturer, 2004–11.

Alexander J. Varshavsky, Ph.D., Howard and Gwen Laurie Smits Professor of Cell Biology

B.S., Moscow State University, 1970; Ph.D., Institute of Molecular Biology, 1973. Caltech, 1992–.

Serguei P. Viattchanine, Ph.D., Visiting Associate in Physics

Ph.D., Moscow State University, 1979. Leading Research Fellow, 2000–. Caltech, 2008–09.

Scott C. Virgil, Lecturer in Chemistry Caltech, 2008; 2009.

Petr Vogel, Ph.D., Senior Research Associate in Physics, Emeritus
Ph.D., Joint Institute of Nuclear Research (USSR), 1966. Senior Research Fellow, Caltech, 1970–75; Research Associate, 1975–81; Senior Research Associate, 1981–2004; Lecturer, 1983–90; 1992; 1995–96; 1999–2000; 2006. Senior Research Associate Emeritus, 2004–.

Rochus E. Vogt, Ph.D., R. Stanton Avery Distinguished Service Professor and Professor of Physics, Emeritus S.M., University of Chicago, 1957; Ph.D., 1961. Assistant Professor, Caltech, 1962-65; Associate Professor, 1965-70; Professor, 1970-2002; R. Stanton Avery Distinguished Service Professor, 1982–2002; Avery Professor and Professor of Physics, Emeritus, 2002-. Chief Scientist, Jet Propulsion Laboratory, 1977-78; Chairman, Division of Physics, Mathematics and Astronomy, 1978–83; Acting Director, Owens Valley Radio Observatory, 1980-81; Vice President and Provost, 1983-87; Director, Laser Interferometer Gravitational-Wave Observatory Project, 1987-94.

Paul von Allmen, Ph.D., Visiting Associate in Chemistry

B.S., Swiss Federal Institute of Technology,

1984; Ph.D., 1991. Principal Member, Technical Staff, Jet Propulsion Laboratory, 2005–. Caltech, 2008–11.

Heinrich von Staden, Ph.D., Visiting Associate in History B.A., Yale University, 1961; Ph.D.,

B.A., Yale University, 1961; Ph.D., University of Tübingen, 1968. Professor, Institute for Advanced Study, 1998–. Caltech, 2009.

Thad Vreeland Jr., Ph.D., Professor of Materials Science, Emeritus B.S., Caltech, 1949; M.S., 1950; Ph.D., 1952. Research Fellow in Engineering, 1952–54; Assistant Professor of Mechanical Engineering, 1954–58; Associate Professor, 1958–63; Associate Professor of Materials Science, 1963–68; Professor, 1968–91; Professor Emeritus, 1991–.

Daniel Wagenaar, Ph.D., Broad Senior Research Fellow in Brain Circuitry M.Sc., University of Amsterdam, 1977; M.Sc., King's College London, 1998; Ph.D., 2006. Caltech, 2008–.

David Bertram Wales, Ph.D., Professor of Mathematics, Emeritus
B.S., University of British Columbia, 1961;
M.A., 1962; Ph.D., Harvard University,
1967. Bateman Research Fellow, Caltech,
1967–68; Assistant Professor, 1968–71;
Associate Professor, 1971–77; Professor,
1977–2008; Professor Emeritus, 2008–.
Associate Dean of Students, 1976–80; Dean

of Students, 1980–84; Executive Officer for Mathematics, 1985–91; Master of Student

Houses, 1991-97.

2004-09.

Duane E. Waliser, Ph.D., Visiting Associate in Planetary Science B.S., Oregon State University, 1985; M.S., University of California (San Diego), 1987; Ph.D., 1992. Research Scientist, Jet

Propulsion Laboratory, 2004-. Caltech,

Jiaiun Wang, Ph.D., Olga Taussky and John Todd Instructor in Mathematics M.S., Peking University, 2001; Ph.D., University of California, 2007. Caltech, 2007–10.

Xiangyun Wang, Ph.D., Lecturer in Chinese M.A., Central Institute for Nationalities (China), 1985; Ph.D., Harvard University, 1995. Caltech, 2001–.

Zhen-Gang Wang, Ph.D., Professor of Chemical Engineering
B.Sc., Beijing University, 1982; Ph.D.,
University of Chicago, 1987. Associate
Professor, Caltech, 1991–97; Associate
Professor, 1997–2002; Professor, 2002–.

Theodore A. Waniuk, Ph.D., Visiting Associate in Materials Science B.S., Harvey Mudd College, 1996; M.S.,

Caltech, 1998; Ph.D., 2004. Senior Scientist, Liquidmetal Technology, 2002–. Caltech, 2008–10.

Gerald J. Wasserburg, Ph.D., D.h.c., D.Sc.h.c., Sc.D.h.c., Crafoord Laureate, John D. MacArthur Professor of Geology and Geophysics, Emeritus S.B., University of Chicago, 1951; S.M., 1952; Ph.D., 1954; D.h.c., Rennes I University; University of Brussels; University of Turin; University of Paris; Sc.D.h.c., Arizona State University; D.Sc.h.c., University of Chicago. Assistant Professor of Geology, Caltech, 1955-59; Associate Professor, 1959-62; Professor of Geology and Geophysics, 1963-82; MacArthur Professor, 1982-2001; MacArthur Professor Emeritus, 2001-. Chairman, Division of Geological and Planetary Sciences, 1987-89; Executive Officer for Geochemistry, 1987–89.

Michael Watkins, Ph.D., Lecturer in Aeronautics M.S., University of Texas (Austin), 1985; Ph.D., 1989. Caltech, 2005–09.

Frank H. Webb, Ph.D., Visiting Associate in Geology B.A., University of California (Santa

Barbara), 1984; M.S., Caltech, 1989; Ph.D., 1990. Group Supervisor, Satellite Geodesy and Geodynamics Systems Group, Jet Propulsion Laboratory, 2000–. Visiting Associate, Caltech, 2005–10.

Sander Weinreb, Ph.D., Faculty Associate in Electrical Engineering B.S., Massachusetts Institute of Technology, 1958; Ph.D., 1963. Caltech, 1999–.

Alan Jay Weinstein, Ph.D., Professor of Physics

A.B., Harvard University, 1978; Ph.D., 1983. Assistant Professor, Caltech, 1988–95; Associate Professor, 1995–99; Professor, 2000–.

Cindy Weinstein, Ph.D., Professor of English; Executive Officer for the Humanities B.A., Brandeis University, 1982; Ph.D., University of California, 1989. Assistant Professor of Literature, Calrech, 1989–95; Associate Professor, 1995–2004; Associate Professor of English, 2004–05; Professor, 2005–. Executive Officer, 2008–.

Daniel Paul Weitekamp, Ph.D., Professor of Chemical Physics
9f Chemical Physics
B.A., Harvard College, 1974; Ph.D.,
University of California, 1982. Assistant
Professor of Chemistry, Caltech, 1985–91;
Associate Professor of Chemical Physics,
1991–2006; Professor, 2006–

Paul O. Wennberg, Ph.D., R. Stanton Avery Professor of Atmospheric Chemistry and Environmental Science and Engineering; Director; Ronald and Maxine Linde Center for Global Environmental Science
B.A., Oberlin College, 1985; Ph.D.,
Harvard University, 1994. Associate
Professor of Atmospheric Chemistry and
Environmental Engineering Science,
Caltech, 1998–2001; Professor, 2001–03;
Professor of Atmospheric Chemistry and
Environmental Science and Engineering,
2003–04; Avery Professor, 2004–. Director,
2008–.

Brian P. Wernicke, Ph.D., Chandler Family Professor of Geology B.S., University of Southern California, 1978; Ph.D., Massachusetts Institute of Technology, 1982. Visiting Professor, Caltech, 1990; Professor of Geology, 1992–2001; Chandler Professor, 2001–.

Ward Whaling, Ph.D., Professor of Physics, Emeritus B.S., Rice University, 1944; M.A., 1947; Ph.D., 1949. Research Fellow, Caltech, 1949–52; Assistant Professor, 1952–58; Associate Professor, 1958–62; Professor, 1962–93; Professor Emeritus, 1993.

Gerald Beresford Whitham, Ph.D.,
Charles Lee Powell Professor of Applied
Mathematics, Emeritus
B.Sc., University of Manchester, 1948;
M.Sc., 1949; Ph.D., 1953. Visiting
Professor of Applied Mechanics, Caltech,
1961–62; Professor of Aeronautics and
Mathematics, 1962–67; Professor of Applied
Mathematics, 1967–83; Powell Professor,
1983–98; Powell Professor Emeritus, 1998–,
Executive Officer for Applied Mathematics,
1971–80.

Allyson J. Whittaker, Ph.D., Senior Research Fellow in Biology B.S., University of Massachusetts, 1993; Ph.D., Massachusetts Institute of Technology, 2000. Caltech, 2006–09.

Mark Wiedenbeck, Ph.D., Visiting Associate in Physics B.S., University of Michigan, 1971; Ph.D., 1978. Principal Research Scientist, Jet Propulsion Laboratory, 1992–. Caltech, 2009–12.

Adam Wierman, Ph.D., Assistant Professor of Computer Science B.S., Carnegie Mellon University, 2001; M.S., 2004; Ph.D., 2007. Caltech, 2007—.

Simon J. Wilkie, Ph.D., Faculty Associate in Economics
B.Comm., University of New South Wales,
1982; M.A., University of Rochester, 1988;
Ph.D., 1990. Instructor, Caltech, 1994–95;
Assistant Professor, 1995–2002; Senior
Research Associate, 2002–05; Faculty
Associate, 2005–09.

Richard M. Wilson, Ph.D., Professor of Mathematics B.S., Indiana University, 1966; M.S., Ohio State University, 1968; Ph.D., 1969. Sherman Fairchild Distinguished Scholar, Caltech, 1976; Professor, 1980–.

Erik Winfree, Ph.D., Associate Professor of Computer Science, Computation and Neural Systems, and Bioengineering
B.S., University of Chicago, 1991; Ph.D., Caltech, 1998. Assistant Professor, 1999–2006; Associate Professor of Computer Science and Computation and Neural Systems, 2006–07; Associate Professor of Computer Science, Computer Science, Computation and Neural Systems, and Bioengineering, 2007–.

Jay R. Winkler, Ph.D., Faculty Associate in Chemistry B.S., Stanford University, 1978; Ph.D., Caltech, 1993. Lecturer, 2002; 2004–05; Faculty Associate, 2008–11.

Mark Brian Wise, Ph.D., John A. McCone Professor of High Energy Physics B.Sc., University of Toronto, 1976; M.Sc., 1977; Ph.D., Stanford University, 1980. Assistant Professor of Theoretical Physics, Caltech, 1982–84, Associate Professor, 1984–85; Professor, 1985–92; McCone Professor, 1992–.

Barbara J. Wold, Ph.D., Bren Professor of Molecular Biology; Director, Beckman Institute B.S., Arizona State University (Tempe), 1973; Ph.D., Caltech, 1978. Research Fellow, 1978; Assistant Professor, 1981–88; Associate Professor, 1988–96; Professor, 1996–2002; Bren Professor, 2003–. Director, 2001–.

Juliann Kay Wolfgram, Ph.D., Lecturer in Art History B.A., Scripps College, 1979; M.A., University of Kansas, 1986; M.Phil., 1986; Ph.D., 1986. Caltech, 1992–2010.

Nicolaj Wolfson, M.D., Visiting Associate in Materials Science M.D., Tel Aviv Medical School, 1984. Visiting Assistant Professor. University of

M.D., 1el Aviv Medical School, 1984. Visiting Assistant Professor, University of Southern California, 2006–. Caltech, 2007–10.

Joyce Y. Wong, Ph.D., Visiting Associate in Electrical Engineering B.S., Caltech, 1995; M.S., 1996; Ph.D., 2000. Senior Research Scientist, Schlumberger, 2000–. Visiting Associate, Caltech, 2004–11.

Vanessa Woods, Ph.D., Lecturer in Psychology B.S., University of California (Santa Barbara), 2000; M.A., 2002; Ph.D., 2006. Caltech, 2009. James Francis Woodward, Ph.D., J. O. and Juliette Koepfli Professor of the Humanities B.A., Carleton College, 1968; Ph.D., University of Texas (Austin), 1977. Mellon Postdoctoral Instructor, Caltech, 1983–86; Assistant Professor, 1986–88; Associate Professor, 1988–92; Professor, 1992–2001; Koepfli Professor, 2001. Executive Officer for the Humanities, 1992–95; 2000–03.

Kenneth W. Wright, M.D., Visiting Associate in Chemical Engineering B.A., California Lutheran College, 1972; M.D., Boston University, 1977. Director, Pediatric Ophthalmology Research and Education Division, Cedars-Sinai Medical Center, 1999–. Caltech, 2004–09.

Guangying Wu, Ph.D., Broad Senior Research Fellow in Brain Circuitry B.S., Huazhong University of Science and Technology, 2004; Ph.D., University of Southern California, 2009. Caltech, 2009—.

Theodore Yao-Tsu Wu, Ph.D., Professor of Engineering Science, Emeritus
B.S., Chiao-Tung University (China), 1946;
M.S., Iowa State University, 1948; Ph.D.,
Caltech, 1952. Research Fellow, 1952–55;
Assistant Professor of Applied Mechanics,
1955–57; Associate Professor, 1957–61;
Professor, 1961–66; Professor of
Engineering Science, 1966–96; Professor
Emeritus, 1996–.

Peter John Wyllie, Ph.D., D.Sc.h.c., Professor of Geology, Emeritus B.Sc. (Geology and Physics), Saint Andrews University (Scotland), 1952; B.Sc. (Geology), 1955; Ph.D., 1958; D.Sc.h.c., Saint Andrews University. Professor, Caltech, 1983–99; Professor Emeritus, 1999–. Chairman, Division of Geological and Planetary Sciences, 1983–87; Divisional Academic Officer, 1994–99.

Lihua Xie, Ph.D., Visiting Associate in Control and Dynamical Systems B.S., Najing University of Science and Technology (China), 1983; M.S., 1986; Ph.D., University of Newcastle (Australia), 1992. Professor, Nanyang Technological University, 2004—. Caltech, 2008—.

Takehiko Yamato, Ph.D., Visiting Associate in Economics
B.A., University of Tshukuba (1984); M.A., University of Rochester, 1991; Ph.D., 1992. Professor, Tokyo Institute of Technology, 2001–. Caltech, 2008–09.

Pengchong Yan, Ph.D., Von Kármán Instructor in Applied and Computational Mathematics B.S., Fudan University, 2002; Ph.D., University of California (Davis). Caltech, 2008–10.

Changhuei Yang, Ph.D., Associate Professor of Electrical Engineering and Bioengineering B.S. (Electrical Engineering), B.S. (Physics), Massachusetts Institute of Technology, 1997; M.Eng., 1997; B.S. (Mathematics), 2002; Ph.D., 2002. Assistant Professor of Electrical Engineering, Caltech, 2003–04; Assistant Professor of Electrical Engineering and Bioengineering, 2004–09; Associate Professor, 2009–.

Amnon Yariv, Ph.D., Martin and Eileen Summerfield Professor of Applied Physics and Professor of Electrical Engineering B.S., University of California, 1954; M.S., 1956; Ph.D., 1958. Associate Professor of Electrical Engineering, Caltech, 1964–66; Professor, 1966–74; Professor of Electrical Engineering and Applied Physics, 1974–79; Thomas G. Myers Professor of Electrical Engineering and Professor of Applied Physics, 1979–96; Summerfield Professor and Professor of Electrical Engineering, 1996–

Leeat Yariv, Ph.D., Associate Professor of

B.Sc., Tel Aviv University, 1992; M.Sc., 1995; M.A., Harvard University, 2001; Ph.D., 2001. Visiting Assistant Professor, Caltech, 2004–05; Associate Professor, 2005–.

Rachid Yazami, Ph.D., Visiting Associate in Chemistry

Eng., National Polytechnic Institute of Grenoble, 1978; Ph.D., 1985. Research Director, National Center for Scientific Research, 1998–. Visiting Associate in Materials Science, Caltech, 2000–06; Visiting Associate in Chemistry, 2006–09.

Nai-Chang Yeh, Ph.D., Professor of Physics B.S., National Taiwan University, 1983; Ph.D., Massachusetts Institute of Technology, 1988. Assistant Professor, Caltech, 1989–95; Associate Professor, 1995–97; Professor, 1997–.

Yun Yen, Ph.D., Visiting Associate in Chemical Engineering M.D., Taipei Medical College, 1982; Ph.D., Thomas Jefferson University, 1987. Associate Cancer Center Director, City of Hope, 2005. Caltech, 2007–09.

Tau-Mu Yi, Ph.D., Visiting Associate in Control and Dynamical Systems
A.B., B.S., Harvard College, 1986; Ph.D.,
Massachusetts Institute of Technology,
1995. Assistant Professor, University of
California (Irvine), 2003—, Visiting Associate
in Biology, Caltech, 1995–98; Visiting
Associate in Control and Dynamical
Systems, 2004–09.

Hae Yong Yoo, Ph.D., Senior Research Fellow in Biology B.S., Seoul National University, 1990; M.S., 1992; Ph.D., 1998. Caltech, 2005–09.

Sanichiro Yoshida, Ph.D., Visiting Associate in Physics Ph.D., Keio University (Japan), 1986. Engineer, University of Florida, 1997–. Caltech, 2000–10.

Arata Yoshihara, Ph.D., Visiting Associate in Geobiology B.Sc., Kobe University, 1996; M.Sc., University of Tokyo, 1998; Ph.D., 2001. Assistant Professor, University of Toyama, 2007—. Caltech, 2007—08.

Steven J. Youra, Ph.D., Faculty Associate in the Humanities A.B., University of Michigan, 1971; M.A., University of Rochester, 1973; Ph.D., Cornell University, 1983. Faculty Associate, Caltech, 2001–. Director, Hixon Writing Center, 2001–.

Chengxiang Yu, Ph.D., Visiting Associate in Aeronautics B.S., Beijing University of Aeronautics and Astronautics, 1994; M.S., Caltech, 2007; Ph.D., 2001. Researcher, University of Castilla-La Mancha, 2003—. Caltech, 2008; 2009.

Mary An-yuan Yui, Ph.D., Senior Research Fellow in Biology B.S., University of California (Santa Barbara), 1977; M.S., Oregon State University, 1982; Ph.D., Florida University, 1995. Lecturer, Caltech, 2005; Senior Research Fellow, 2005–09.

Yuk Ling Yung, Ph.D., Professor of Planetary Science B.S., University of California, 1969; Ph.D., Harvard University, 1974. Visiting Associate, Caltech, 1976; Assistant Professor, 1977–82; Associate Professor, 1982–86; Professor, 1986–.

Bernard Yurke, Ph.D., Visiting Associate in Computation and Neural Systems B.S., University of Texas (Austin), 1975; Ph.D., Cornell University, 1982. Distinguished Member of the Technical Staff, Bell Labs, Lucent Technologies, 1982-. Moore Distinguished Scholar, Caltech, 2003–04; Visiting Associate, 2006–10.

Ahmed H. Zewail, Ph.D., D.Sc.h.c., D.h.c., D.Univ.h.c., D.Phil.h.c., LL.D.h.c., M.D.h.c., Nobel Laureate, Linus Pauling Professor of Chemistry and Professor of Physics B.Sc., Alexandria University, 1967; Ph.D., University of Pennsylvania, 1974; D.Sc.h.c., American University in Cairo; Katholieke Universiteit, Leuven; University of Pennsylvania; Université de Lausanne; University of New Brunswick; Jadavpur University; Heriot-Watt University; Bogazici University; École Normale Supérieure; University of Oxford; University of Dublin; University of Cambridge; D.h.c., University of Rome; Université de Liége; D.Univ.h.c., Swinburne University; Peking University; Tohoku University; University of Buenos Aires; Babes-Bolyai University; D.Phil.h.c., Alexandria University, Lund University; D.H.L., American University of Beirut; LL.D.h.c., Concordia University; M.D.h.c., Pusan National University. Assistant Professor of Chemical Physics, Caltech, 1976-78; Associate Professor, 1978-82; Professor, 1982–89; Pauling Professor, 1990-2007; Pauling Professor of Chemistry, 2007-; Professor of Physics, 1995-.

Jiji Zhang, Ph.D., Assistant Professor of Philosophy B.A., Peking University, 2000; M.S., Carnegie Mellon University, 2002; Ph.D., 2006. Caltech, 2006—.

Deming Zhao, Ph.D., Visiting Associate in Environmental Science and Engineering B.S., Zhejiang University, 1998; M.S., 2001; Ph.D., 2003. Associate Professor, 2007–. Caltech, 2008–09.

Maxym Zinchenko, Ph.D., Harry Bateman Research Instructor in Mathematics M.S., Kharkov National University (Ukraine), 1997; Ph.D., University of Missouri (Columbia), 2006. Caltech, 2006–09.

Kai Zinn, Ph.D., Professor of Biology B.A., University of California (San Diego), 1977; Ph.D., Harvard University, 1983. Assistant Professor, Caltech, 1989–95; Associate Professor, 1995–99; Professor, 1999–.

Harold Zirin, Ph.D., Professor of Astrophysics, Emeritus A.B., Harvard College, 1950; A.M., Harvard University, 1951; Ph.D., 1953. Visiting Associate, Caltech, 1963; Professor, 1964–98; Professor Emeritus, 1998–. Chief Astronomer, Big Bear Solar Observatory, 1970–80; Director, Big Bear Solar Observatory, 1980–97.

Jonas Zmuidzinas, Ph.D., Professor of Physics; Senior Research Scientist, Jet Propulsion Laboratory; Director, Microdevices Laboratory, Jet Propulsion Laboratory B.S., Caltech, 1981; Ph.D., University of California, 1987. Assistant Professor, Caltech, 1989–95; Associate Professor, 1995–2000; Professor, 2000–. Senior Research Scientist, 2005-; Director, 2007–.

abbreviations of courses, 341
academic calendar, 4–5
academic divisions, 9, 237
academic standards, 140, 164, 258
accreditations, 48
administrative officers, 545
admission, 125, 238
admission to candidacy, 143, 247,
248, 251
advanced placement, 127
advisers, 30, 142, 243
aerospace
courses, 342
graduate option, 264
instructional and research staff,
559–567
option representative, 237
study and research, 79
undergraduate minor, 179
aerospace engineer degree, 267
Air Force ROTC, 137
alcohol on campus, 55
allowance of credit, 145
Alumni Association, 38
Americans with Disabilities Act
(ADA), 54
anthropology courses, 349
applied and computational mathe-
matics
courses, 350
graduate option, 269
instructional and research staff, 559–567
option representative, 237
study and research, 83 undergraduate option, 179
applied computation minor, 271,
308
applied mechanics
courses, 356
graduate option, 272
instructional and research staff,
559–567
option representative, 237
study and research, 85

applied physics courses, 358 graduate option, 273 instructional and research staff, 559-567 option representative, 237 study and research, 85 undergraduate option, 181 applying for admission, 125, 238 applying for financial aid, 151 applying for graduate standing, 238 Army ROTC, 137 art history courses, 362 ASCIT, 31 assistantships, 256 Associated Students of Caltech, 31 astronomical observatories, 88-89 astrophysics courses, 365 graduate option, 276 instructional and research staff, 574-582 option representative, 237 study and research, 87 undergraduate option, 183 athletics, 30. See also physical education auditing courses, 39 authorization and accreditation, 48 awards, 165, 260

В

bachelor of science degree, 143, 247 Beckman Auditorium, 21, 34 Beckman Institute, 23, 26 Beckman Laboratory, 93, 98. See also buildings and facilities behavioral and social neuroscience study and research, 89 graduate option, 280 option representative, 237 Big Bear Solar Observatory, 25, 88 biochemistry and molecular biophysics courses, 371 graduate option, 284 instructional and research staff, 554-558

636

option representative, 237	option representative, 237
study and research, 90	study and research, 94
bioengineering	undergraduate option, 193
courses, 371	chemistry
graduate option, 285	advanced placement/college
instructional and research staff,	credit, 127
559–567	courses, 393
option representative, 237	graduate option, 297
study and research, 91	instructional and research staff,
undergraduate option, 185	554–558
biology	
	option representative, 237
advanced placement/college	study and research, 96
credit, 127	undergraduate option, 196
courses, 376	Chinese. See language courses
graduate option, 288	civil engineering
instructional and research staff,	courses, 402
550–554	graduate option, 301
option representative, 237	instructional and research staff,
study and research, 92	559–567
undergraduate option, 188	option representative, 237
biotechnology, 94	study and research, 98
board of trustees, 541	civil engineer's degree, 293
bookstore, 34	College Board Tests, 126, 129
B.S./M.S. joint degree, 247	college credit, 127
buildings and facilities, 18-27	College Scholarship Service (CSS)
business economics and manage-	PROFILE application, 151, 152
ment	committees, 543–544, 546–549
courses, 387	competitiveness grant, 155
undergraduate option, 192	computation and neural systems
F,	courses, 404
	graduate option, 303
C	instructional and research staff,
	559–567
café, 34	option representative, 237
calendar, 4–5	study and research, 99
Cal Grants, 155	undergraduate concentration,
Caltech-UCLA Medical Scientist	207, 210
Training Program, 292	computational science and engi-
Caltech-USC M.D./Ph.D.	neering, 305
Program, 293	
Caltech Y, 33	computer ethics, 50–52, 52–54
	computer science
Cambridge Scholars program, 132	courses, 409
campus directory, 7	graduate option, 306
candidacy, 143, 247, 248, 249	instructional and research staff,
career development, 36–38	559–567
Center for Advanced Computing	option representative, 237
Research (CACR), 26, 582	study and research, 100
chemical engineering	undergraduate option, 201
courses, 389	computer software agreement, 50
graduate option, 293	computer store, 34
instructional and research staff,	computing support services, 582
554–558	conflict resolution, 43, 159

control and dynamical systems courses, 419	drugs on campus, 55, 57 dual degree (3/2) plan, 130
graduate option, 308	8 71 7
instructional and research staff, 559–567	E
option representative, 237	
study and research, 103	early action application plan, 125
undergraduate minor, 202	École Polytechnique Scholars
controlled substances, 55	program, 134
Copenhagen Scholars program, 133	economics
core curriculum requirements,	courses, 422
175–178	undergraduate option, 203
counseling service, 35	Edinburgh Scholars program, 135
course loads. See overloads; under-	electrical engineering
loads	courses, 425
courses, 341-539. See also under spe-	graduate option, 310
cific option first-year schedule, 178	instructional and research staff, 559–567
required for graduation,	option representative, 237
175–179	study and research, 105
Crafoord laureates, 18	undergraduate option, 204
credit, transfer of, 130, 145	electrical engineer's degree, 310
credits, 42, 127, 145	electronic information resources policy, 52
	employment, 36–38, 62, 160–161
D	energy science and technology, 109, 435
deferral of entrance, 126	engineering and applied science
degrees	instructional and research staff,
aerospace engineer, 267	559–567
bachelor of science, 143, 174,	undergraduate option, 207
247. See also under specific	engineering courses (general), 435
option	engineer's degree, 247
civil engineer, 301	English
doctor of philosophy, 249. See	advanced placement/college
also under specific option	credit, 127
electrical engineer, 310	courses, 437
engineer, 247	undergraduate minor, 212
joint B.S./M.S., 247	undergraduate option, 212
master of science, 246. See also	English as a second language, 239,
under specific option	446
mechanical engineer, 328	
departmental and option regula-	English requirements for interna-
tions, 142, 179–234, 264–339	English requirements for international students, 130, 238–239,
detached duty, 242	tional students, 130, 238-239,
	tional students, 130, 238–239, 249, 251
detached duty, 242	tional students, 130, 238–239, 249, 251 environmental science and engi-
detached duty, 242 dining facilities, 255 Direct Loan Programs, 156–158 directory of campus, 7	tional students, 130, 238–239, 249, 251 environmental science and engineering
detached duty, 242 dining facilities, 255 Direct Loan Programs, 156–158 directory of campus, 7 disputes, 43, 159. <i>See also</i> grievances	tional students, 130, 238–239, 249, 251 environmental science and engineering courses, 447
detached duty, 242 dining facilities, 255 Direct Loan Programs, 156–158 directory of campus, 7 disputes, 43, 159. <i>See also</i> grievances doctor of philosophy degree, 249.	tional students, 130, 238–239, 249, 251 environmental science and engineering courses, 447 graduate option, 312
detached duty, 242 dining facilities, 255 Direct Loan Programs, 156–158 directory of campus, 7 disputes, 43, 159. <i>See also</i> grievances	tional students, 130, 238–239, 249, 251 environmental science and engineering courses, 447 graduate option, 312 instructional and research staff,

undergraduate concentration, 208, 210	instructional and research staff, 567–570
Equal Employment Opportunity,	minor, 218 option representative, 238
essays for undergraduate admission, 126	study and research, 112 undergraduate option, 213
examinations. <i>See</i> admission; placement examinations	geology. See geological and plane- tary sciences
exchange programs, 131, 246. See also study abroad	geology summer field course, 150 geophysics. <i>See</i> geological and plan-
expenses, 146, 253. See also registra-	etary sciences
tion; tuition	German. See language courses grade appeals, 43
	grade-point average, 42
F	grades, 40–44
facilities, 18–27	graduate degrees, 237, 246, 247, 249
faculty advisers, 30, 243	graduate program, 10
faculty and officer listings, 585 faculty officers and committees, 547–549	admission to, 238 career development advising, 36 expenses, 253
faculty option representatives, 237	faculty advisers, 243
faculty-student relations, 30 FAFSA, 151, 152	financial assistance, 256 housing, 255
federal/state grants and loans, 154–160. See also financial aid;	option representatives, 237 options, 264–339
repayments return of funds, 146–150	policies and procedures, 238–246
federal student aid application, 151	residency requirements, 240
fees. See expenses	graduate record examination, 238
fellowships, 257	graduate student council, 31
film courses, 451 financial aid, 150–165, 256–259	graduates, employment experience
firearms, 61	of, 38 graduate studies committee, 237
fire policy, 61	graduation requirements, 130,
first-year course schedule, 178	143–144, 174–178
foreign students, 39	grants, 154, 155-156
French. See language courses freshman advisers, 30	grievances, 49
C	Н
G	

GALCIT, 79 general deposit, 146, 149 geobiology. See geological and planetary sciences geochemistry. See geological and planetary sciences geological and planetary sciences courses, 452 graduate option, 315

harassment policy, 69 health services, 34-36 high school requirements for admission, 125 history courses, 466 graduate minor, 320 undergraduate minor, 220 undergraduate option, 219 history and philosophy of science

courses, 473	K
graduate minor, 320 study and research, 114	Keck Observatory, 25, 89, 121
undergraduate minor, 223	Kellogg Radiation Laboratory, 122.
undergraduate option, 221	See also buildings and facilities
history of Caltech, 11 honor system, 32, 149, 255	Kerckhoff Marine Laboratory, 25, 93
housing, 28, 255	93
humanities, 115, 480	
drop policy, 139	\mathbf{L}
humanities and social sciences, 145,	
176–177	laboratories, special, 245
instructional and research staff, 571–574	laboratory of chemical synthesis, 96. See also buildings and facilities
	laboratory requirements, 176
ĭ	language courses, 485
1	late registration fees, 149, 241, 255
immigration matters, 39	law courses, 488
independent studies program, 116,	leave, 139, 140. <i>See also</i> sabbaticals libraries, 27, 583
223, 484	LIGO, 26, 122
Industrial Relations Center, 26, 582	literature. See English
Information Management Systems	loans, 154, 156–160, 257
and Services (IMSS), 582	London Scholars program, 136
Information Science and	
Lechnology LLb 484	
Technology, 116, 484	M
Infrared Processing and Analysis Center (IPAC), 23, 87	M
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52	major fields of study. See options
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35	major fields of study. See options map of campus, 6
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239,	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff,
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration,
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37 involuntary leave, 140	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration, 207, 210 mathematics advanced placement/college
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37 involuntary leave, 140 J Japanese. See language courses	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration, 207, 210 mathematics advanced placement/college credit, 127
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37 involuntary leave, 140 J Japanese. See language courses Jet Propulsion Laboratory, 14, 25,	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration, 207, 210 mathematics advanced placement/college credit, 127 courses, 492
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37 involuntary leave, 140 J Japanese. See language courses Jet Propulsion Laboratory, 14, 25, 582	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration, 207, 210 mathematics advanced placement/college credit, 127 courses, 492 graduate option, 323
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37 involuntary leave, 140 J Japanese. See language courses Jet Propulsion Laboratory, 14, 25,	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration, 207, 210 mathematics advanced placement/college credit, 127 courses, 492 graduate option, 323 instructional and research staff, 574–582
Infrared Processing and Analysis Center (IPAC), 23, 87 Institute policies, 52 insurance, health, 35 interhouse activities, 30 international baccalaureate, 127 international students, 39, 239 employment program, 161 English requirement, 130, 239, 249, 251 financial aid, 153 sabbaticals, 242 internships, 37 involuntary leave, 140 J Japanese. See language courses Jet Propulsion Laboratory, 14, 25, 582	major fields of study. See options map of campus, 6 marine biology laboratory, 25, 93 master of science degree, 246. See also under specific option materials science courses, 489 graduate option, 321 instructional and research staff, 559–567 option representative, 238 study and research, 116 undergraduate concentration, 207, 210 mathematics advanced placement/college credit, 127 courses, 492 graduate option, 323 instructional and research staff,

undergraduate option, 224

640

graduate students, 240

641

mechanical engineering courses, 502 graduate option, 326 instructional and research staff, 559–567 option representative, 238 study and research, 118 undergraduate option, 226 mechanical engineer's degree, 328 medical examination, 34. See also health services medical school, 36, 292–293. See also premedical program menu classes, 175 missing student policy, 61 Moore Distinguished Visitors, 11 M.S. degree, 246. See also under spe- cific option mural policy, 61 music courses, 508	part-time graduate study programs, 244 pass/fail grading, 42 patent agreement, 50 Pell grants, 154 performance courses, 510 performing and visual arts, 32 Ph.D. degree, 249. See also under specific option philosophy courses, 512 undergraduate minor, 231 undergraduate option, 229 physical education, 177, 515 physical examination, 34 physics advanced placement/college credit, 128 courses, 520 graduate option, 331
	instructional and research staff, 574–582
N	option representative, 238

new student orientation, 128 Nobel laureates, 17 nondegree programs, 244 nondiscrimination policy, 62

0

off-campus facilities, 25 officers and faculty listings, 585 officers of Caltech, 541, 545, 547 on-campus recruiting program, 37 option advisers, 30, 142 option representatives, 237 options, 10 change of, 143 regulations, 142, 179-234, 264-339 selection of, 142 overloads, 144 Owens Valley Radio Observatory, 25, 87, 88, 122

P

Palomar Observatory, 25, 87, 88, 121, 122

summer research, 139, 242 undergraduate students, 138–140 religious practice, 34	student life, 28–34 alcohol use, 55 clubs, publications, and societies, 32, 33
repayments, 146, 156-159, 259	employment, 36, 37, 160-161
research	grievance procedures, 49
areas of, 79–123	health, 34
funds, 257	housing, 28
summer, 27, 139, 242	Student Patent and Computer
undergraduate, 27, 139	Software Agreement, 50
researchers, visiting, 240	student records and transcripts, 44
residency requirements, 240	45–49
retention rates, 52	study abroad, 132, 161
ROTC, 137	Submillimeter Observatory, 25, 87 89, 121, 122
6	substance abuse, 55
S	summer research, 27, 139, 242
	Summer Undergraduate Research
sabbaticals, 139, 242	Fellowships (SURF), 27
SAT exams, 125, 126, 129	
scholarships, 153, 154, 165, 257	an.
scholastic requirements, 140	T
scientific writing, 178	
Scripps Institution of	teaching assistantships, 256–257
Oceanography, 246	tests. See admission; placement
seismological laboratory, 114	examinations
senior postdoctoral scholars, 11	theses, 249, 252
sexual assault policy, 63	Title IX, 68
SMART grant, 155	3/2 dual degree plan, 130
social science	transcripts, 44, 46, 48, 254
core Institute requirements,	transfer admissions, 128
176–177	transfer of credit, 130, 145
courses, 533	trustees, 541
graduate option, 335	tuition, 146, 253, 254
instructional and research staff,	
571–574	**
option representative, 238	U
study and research, 122	
Spanish. See language courses	UCLA-Caltech Medical Scientist
special students, 239	Training Program, 292
Spitzer Science Center, 24, 87, 121	undergraduate program, 10
Staff/Faculty Consultation Center, 583	admission, 125 expenses, 146
staff of instruction and research,	housing, 28
550–637	options, 179–234
Stafford Loan, 157	requirements, 174–179
state and federal grants, 154-156	research, 27, 139
stipends, 256	underloads, 144, 165
structural mechanics	units, 42, 144, 333
undergraduate minor, 234	unpaid bills policy, 150, 254
Student Activities Center, 29	USC-Caltech M.D./Ph.D.
Student Affairs, 583	Program, 293

\mathbf{v}

vacations. *See* recesses veterans, 44 visas, 39 visiting students, 131, 240 visual arts, 32

W

withdrawal, 140, 146–149, 259 work-study, 37, 154, 161 writing, 127, 130, 177, 178

Y

Y, Caltech, 33