CALIFORNIA INSTITUTE OF TECHNOLOGY

2010 ANNUAL REPORT

Caltech

CALIFORNIA INSTITUTE OF TECHNOLOGY

2010 ANNUAL REPORT

Table of Contents

Letter from the Chairman and the President

Thank you for your interest in Caltech. We believe this document—Caltech's annual report for fiscal year 2010—provides a thoughtful and useful account of the state of the Institute. You will encounter many interesting facts and figures over the following pages, but the fundamental message of this report can be summed up in three key points: Caltech is visionary. Caltech is dynamic. Caltech is thriving.

VISIONARY

In his State of the Union address this January, President Obama cited game-changing solar-energy research being conducted at Caltech as a prime example of how America is investing in innovation to confront "our generation's Sputnik moment." Caltech's Jet Propulsion Laboratory designed and built the first U.S. satellite in just a few short months after Russia's launch of Sputnik 1 in 1957, and the Institute is honored to play a key role in our country's response to the monumental challenge of cleanly powering the planet. To that end, the new Resnick Sustainability Institute at Caltech is creating synergies among research projects in several disciplines in order to find transformative energy solutions. The Resnick Sustainability Institute is also partnering with the new Joint Center for Artificial Photosynthesis (JCAP), a DOE-sponsored Energy Innovation Hub, to develop ways to generate fuel directly from sunlight.

Many Caltech faculty members and students were acknowledged for groundbreaking research during this period—work that has the potential to significantly impact many critical areas. In a small sampling from the health-care arena, for example, Yu-Chong Tai received a Breakthrough Award from *Popular Mechanics* for his work developing artificial retinas, and Pamela Bjorkman and Michael Roukes were awarded Director's Pioneer Awards from the National Institutes of Health for their innovative and high-impact biomedical research programs. In recognition of his career of achievement in optoelectronics and related fields, Amnon Yariv was awarded the National Medal of Science, becoming the 55th recipient among Caltech faculty and alumni. A more detailed list of recent honors received by Caltech faculty members follows later in this report.

Turning from efforts to improve our world to those aimed at exploring the cosmos, Caltech astronomers discovered the second-smallest exoplanet on record and demonstrated new potential for finding planets with mass similar to Earth's. JPL and campus researchers also continue to supply substantial thrust to the nation's space program. For example, JPL engineers are currently preparing the Mars Science Laboratory's rover (Curiosity) for its launch in the fall of 2011. Part of Curiosity's mission will be to search the red planet for the carbon-based molecular building blocks of life.

DYNAMIC

Caltech placed second in the highly respected World University Rankings in 2010 and first among engineering and technology universities. And in a multiyear study of more than 5,000 graduate research programs by the National Research Council, where Caltech's programs were compared to those similar in size, 23 of Caltech's 24 graduate programs ranked in the top four nationwide. Building on the strong foundation that led to this success, Caltech made important additions to both its physical and intellectual infrastructure in 2010.

To support Caltech's unparalleled teaching and research efforts, our physical campus continues to evolve. This year saw the opening of the Schlinger Laboratory for Chemistry and Chemical Engineering and the Annenberg Center for Information Science and Technology, both shining examples of sustainable and innovative architecture. Massive renovations are currently under way on the historic Linde + Robinson Laboratory, future home of the Linde Center for Global Environmental Science, which will open in 2011. Also in 2011, Caltech will initiate the renovation of the Jorgensen Laboratory, which will house JCAP and the Resnick Sustainability Institute.

Even more important than physical additions and renovations are the ways in which Caltech is building on its intellectual and creative capabilities by hiring outstanding new faculty throughout its academic divisions. These new faculty members, who collaborate with the top graduate students and postdoctoral scholars the Institute continues to attract, will strengthen Caltech's position as a world leader in both our core and emerging areas of research. Caltech also recruited one of the most impressive first-year classes in its history in 2010, as well as its most diverse. These students join a group of undergraduates who have already contributed to Caltech's legacy of discovery. For example, a record number of students participated in the Summer Undergraduate Research Fellowships (SURF) program in the summer of 2010, collaborating with faculty and graduate students on cutting-edge research on campus, at JPL, and beyond.

THRIVING

Caltech's financial health will be described further in the letter from Dean Currie, Caltech's Vice President for Business and Finance, that precedes the financial statements at the back of this book. The bottom line is that, despite the continuing economic challenges facing the country, both the campus and JPL continue to attract the resources from both public and private sources needed to excel in our research and educational missions.

Of course, the key to Caltech's strength lies in the many exceptional people who make up our unique community. Our faculty direct Caltech's revolutionary research and train the next generation of Caltech greats. Our students provide new fuel for Caltech's curiosity-driven fire. Our alumni take the Caltech torch of discovery out into the world. Our Board of Trustees provides the Institute with farsighted strategy and invaluable management acumen. The Associates and other friends of the Institute support our endeavors and act as Caltech ambassadors to the public. And our staff dedicate themselves to making Caltech a place where extraordinary people can do extraordinary things.

Looking ahead, we are confident that Caltech's balance of long-term vision and creative renewal will continue, and that this will help the Institute make many more significant contributions to science and society in the years to come.

Kent Kresa,
Chairman, Caltech Board of Trustees

Jean-Lou Chameau,
President, Caltech

Measuring Extinct Vertebrates' Temperatures

> "This is not quite like going back in time and sticking a thermometer up a creature's back end. But it's close."

John Eiler, Robert P. Sharp Professor of Geology and professor of geochemistry

Was *T. Rex* cold-blooded? Did birds regulate their body temperatures before or after they began to grow feathers? Why would evolution favor warm-bloodedness when it has such a high energy cost? In May 2010, geochemist John Eiler and colleagues took an important step toward answering these questions by describing the first method for the direct measurement of large extinct vertebrates' body temperatures.

Through the analysis of two rare isotopes in animal bones, teeth, or eggshells, the scientists examined the concentrations of carbon-13 and oxygen-18 in bioapatite—a mineral found in hard body parts. The isotopes tend to clump together with a concentration that depends on the temperature at which the body part was formed. Hot temperatures mean less clumping; low temperatures, more.

The team first looked at bioapatite from living warm- and cold-blooded animals, then tried their paleothermometer on fossils from a mammoth, a 12-million-year-old rhinoceros relative, and a cold-blooded alligator ancestor.

Now they're turning their attention to much older vertebrates whose bloodedness isn't yet known. First up? Dinosaurs, of course.

Searching for Exoplanets

> This is the latest in a long line of strange discoveries about extrasolar planets, and it shows that exoplanets continuously have this ability to surprise us. Each time we think we can explain them, something else comes along.

John Johnson, assistant professor of astronomy

Hundreds of extrasolar planets have been found over the past 15 years, most of them solitary worlds orbiting their parent star in seeming isolation. When two or more planets are spotted around a single star, they generally orbit too far apart to feel each other's gravity.

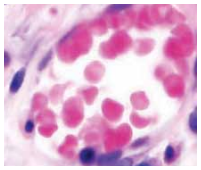
In the summer of 2010, however, astronomer John Johnson and colleagues—using data culled from the Keck Subgiants Planet Survey—found two systems featuring pairs of gas giants locked in close orbital embraces.

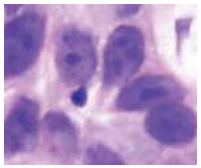
In one system—a planetary pair orbiting a massive, dying star located roughly 223 light-years from Earth—the intimate dance is closer and tighter than any previously seen. The members of the other pair are also similarly—remarkably—close to one another.

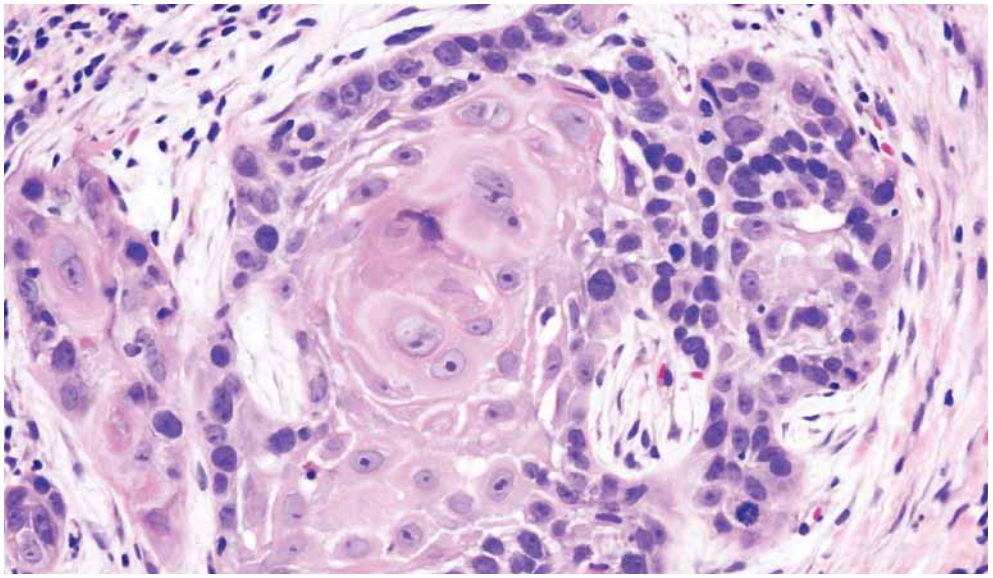
Johnson hopes further study of these and other subgiant systems—stars 40 to 100 percent larger than our sun—will help explain these planets' unique rhythm. "This is the tightest system that's ever been discovered," he says, "and we're at a loss to explain why it happened."

Fighting Cancer with Nanoparticles

In March 2010, chemical engineer Mark Davis and his Caltech-led team published evidence that a tiny, targeted particle—or nanoparticle—could be injected into a patient's bloodstream, find its way to and into a tumor, and deliver a tiny sliver of RNA (called a small interfering RNA, or siRNA) that would, in turn, deactivate an important cancer gene using a mechanism known as RNA interference.







Mark Davis, Warren and Katharine Schlinger Professor of Chemical Engineering

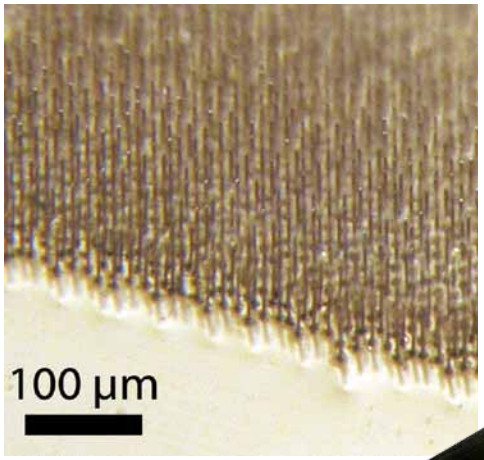
The team also showed, in a Phase I safety trial, that the therapy is dose-dependent—the more nanoparticles sent into the body, the higher the number of nanoparticles in the tumor cells. Even better, Davis says, the evidence showed that once they were in the tumor cells, the siRNAs did their job, degrading the messenger RNA that encodes a cell-growth protein.

This therapy, Davis adds, opens the door for future treatments that will be able to attack cancer and other diseases at the genetic level.

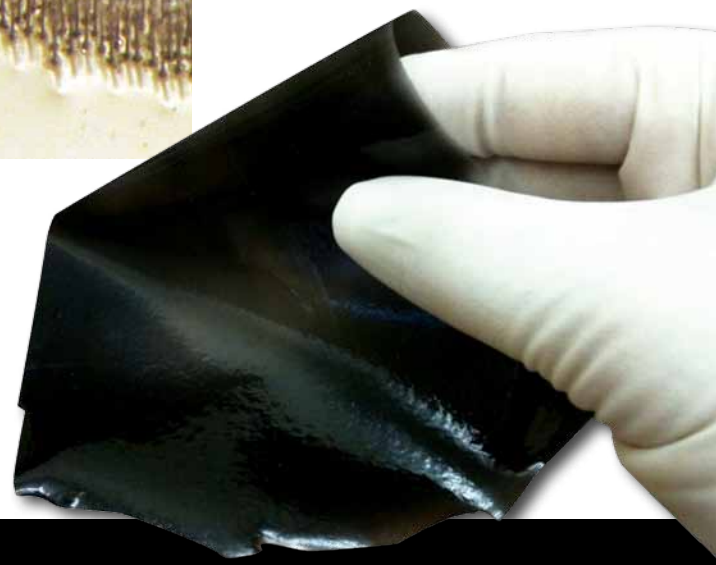
Reinventing the Solar Cell

> “These solar cells have, for the first time, surpassed the conventional light-trapping limit for absorbing materials.”

Harry Atwater, Howard Hughes Professor, professor of applied physics and materials science, and director of Caltech's Resnick Sustainability Institute



The silicon wires in this photomicrograph of a solar-cell array (left) are embedded in a thin, flexible polymer film (below).



Using arrays of long, thin silicon wires embedded in a flexible polymer film, physicist Harry Atwater and colleagues created a new type of flexible solar cell that enhances the absorption of sunlight and efficiently converts photons into electrons. And these silicon-wire solar cells—described in a February 2010 paper—are able to accomplish these tasks using only a fraction of the expensive semiconductor materials required by conventional solar cells.

The key to the cells' success? The silicon wires. Each one measures approximately 1 micron in diameter and, says team leader Harry Atwater, "is independently a high-efficiency, high-quality solar cell."

When brought together in an array, the wires are even more effective, interacting with one another to increase the cell's ability to absorb light. The arrays absorb up to 96 percent of incident sunlight at a single wavelength and 85 percent of total collectible sunlight.

Now being developed by a start-up called Caelux, the arrays keep growing progressively more efficient, Atwater says.

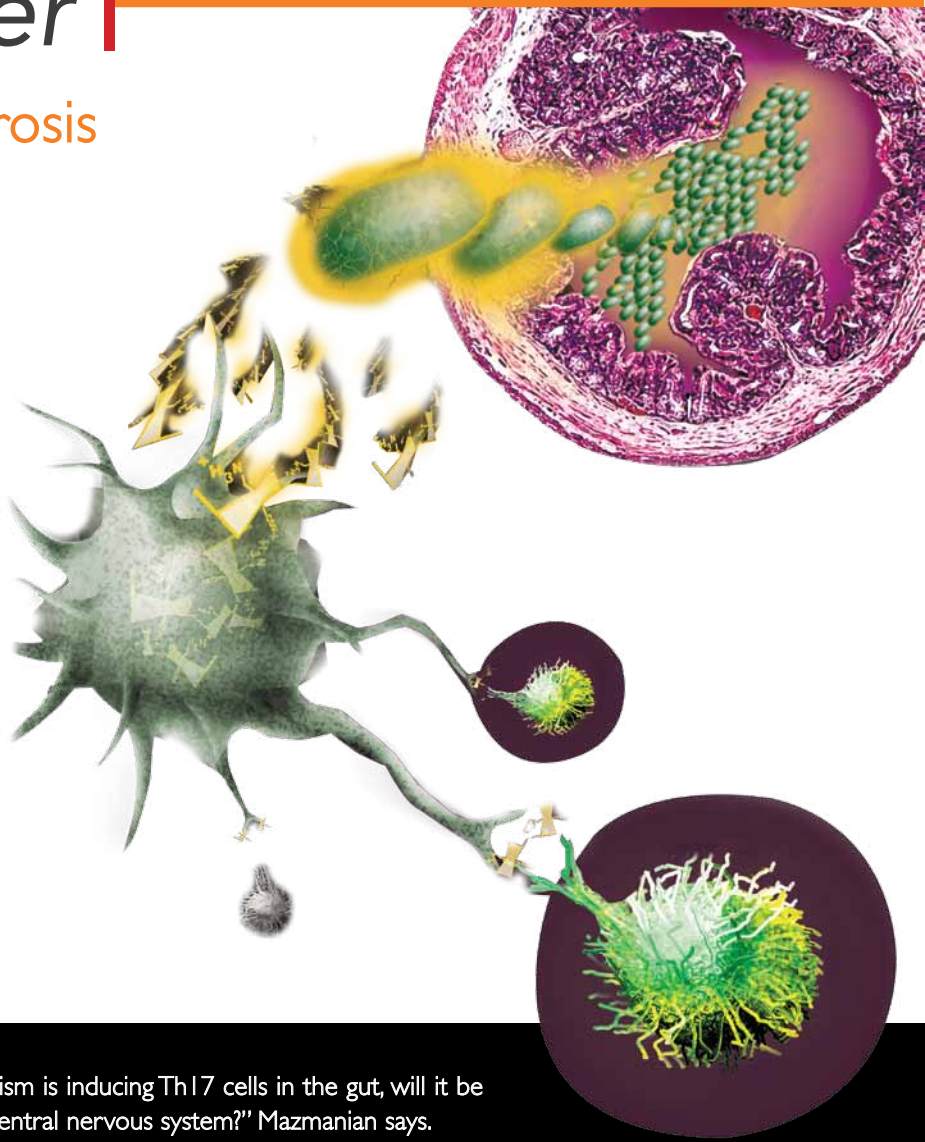
Connecting Gut Bacteria to Multiple Sclerosis

In July 2010, biologist Sarkis Mazmanian and colleagues demonstrated a connection between multiple sclerosis—an autoimmune disorder that affects the brain and spinal cord—and gut bacteria.

First, the team tried unsuccessfully to induce MS in a strain of germ-free mice. Subsequently, they introduced a type of bacteria that produces inflammation and the appearance of an immune-system cell called Th17 in the gut. This same immune cell initiates the inflammatory cascade that leads to MS in animals.

> "Specific intestinal bacteria have a significant role in affecting the nervous system during MS. And they do so from the gut, an anatomical location very far from the brain."

Sarkis Mazmanian,
assistant professor of biology



"The question was, if this organism is inducing Th17 cells in the gut, will it be able to do so in the brain and central nervous system?" Mazmanian says.

The answer? Absolutely. Introducing that specific bacteria in germ-free mice induced Th17 not only in the gut but in the central nervous system and brain—causing the mice to become ill with MS-like symptoms.

The scientists aren't suggesting gut bacteria are the direct cause of MS. Rather, the bacteria may help shape the immune system's inflammatory response, creating conditions that could allow the disease to develop.

Understanding Decision-Making

We've all heard the predictions: e-commerce will eliminate traditional commerce; online shopping spells extinction for the neighborhood store.

But it's not time to bring out the wrecking ball quite yet, neuroscientist Antonio Rangel and his team noted in a September 2010 paper. They studied whether the form of presentation affects consumers' willingness to pay for an item.

The researchers presented foods to hungry subjects in a text-only format, in a high-resolution photograph, or on a tray, then asked the subjects how much they'd be willing to pay for the delectables.

> "At a restaurant, does it matter whether they simply list the name of the dessert, show a picture of the dessert, or bring the dessert cart around?"

Antonio Rangel,
professor of economics
and neuroscience

Subjects were willing to pay an average of 50 percent more for food presented on a tray than for written or pictured offerings. A test using trinkets from the Caltech bookstore produced similar results.

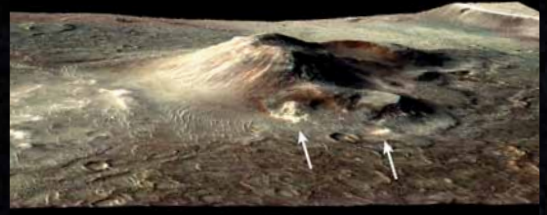
But when researchers separated shoppers from merchandise with a Plexiglas barrier—removing the possibility of physical contact—the value placed on the items plummeted. No touch, less interest. Maybe your local bookstore, where you can thumb through a paperback's pages, has more staying power than it thinks.

Jet Propulsion Laboratory

> "The Mars Science Laboratory is probably the most complex planetary mission that NASA has ever attempted."
>
> — Richard Cook, MSL deputy project manager

Left: JPL is preparing NASA's Mars Science Laboratory rover, Curiosity, for launch in late 2011. Here, Curiosity undergoes tilt-table testing of its robotic arm. The appendage will be used for a number of research activities, including a set of crucial maneuvers that have never been tried before on Mars: extracting pulverized samples from the interior of Martian rocks and placing them into laboratory instruments within the rover.

Below: Hydrothermal mineral deposits in this Martian volcanic cone provide evidence of a warm and wet ancient environment.



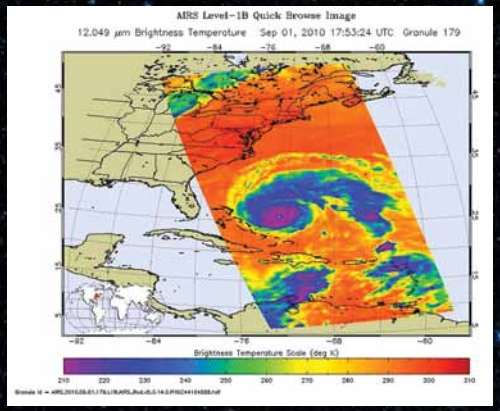
A meteorite discovered by the Mars rover Opportunity.

Curiosity's journey from Cape Canaveral, Florida, will begin in late 2011; the rover will arrive on the red planet in August 2012. During the mission—which will span one Martian year (687 Earth days)—researchers will utilize 10 different instruments to remotely assess, measure, and sample rocks, soil, and the atmosphere. Curiosity carries several types of cameras, a laser, and analytical instruments designed to search for organic compounds and determine rock composition.

Pushing Scientific Boundaries

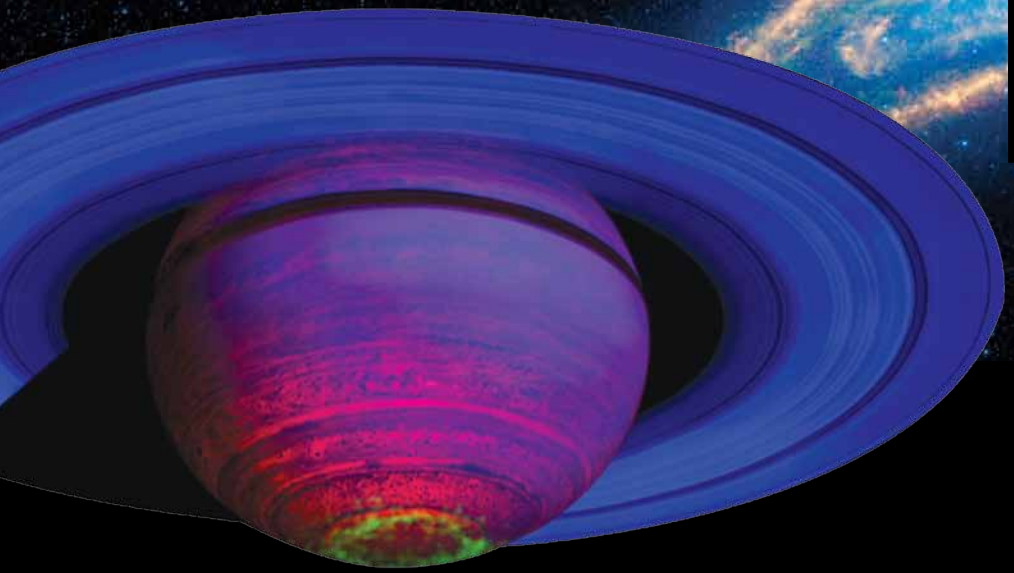
JPL currently has nine instruments and 20 spacecraft conducting active missions, each working to further NASA's research and exploration goals.

> "You have to have passion and boldness, and be prepared to make mistakes."
>
> — Charles Elachi, director, JPL



This image of Hurricane Earl, produced by the Atmospheric Infrared Sounder (AIRS) instrument, contrasts the temperature of Earl's cloud tops with surface temperature on Earth in cloud-free areas. AIRS is designed to support climate research and improve weather forecasting.

Left: This unique image of the 2010 Gulf of Mexico oil spill was generated by the Multi-angle Imaging SpectroRadiometer nearly a month after the Deepwater Horizon drilling rig explosion. The instrument used a variety of cameras to capture the oil spill in a dramatic shade of cyan. The white arrow in the right-center of the large image points to a plume of smoke, most likely from a controlled surface burn.



Fueled by the brightest minds in planetary and earth science—as well as the latest robotic and high-tech tools—JPL broadens our understanding of Earth and space. Space-based studies shed new light on climate change and Earth's atmosphere, while spacecraft and a cadre of telescopes uncover and collect data on distant environments that were previously out of reach. The flagship explorer Cassini, for instance, continues to orbit and scrutinize Saturn (left) and its moons.

> Although we do SURF for the research, the program's greatest value is often the opportunity to find out what it's like to be a full-time researcher or, even more relevant to us, to be a graduate student.
>
> — Jordan Theriot, 2010 SURF Student

A Legacy of Learning

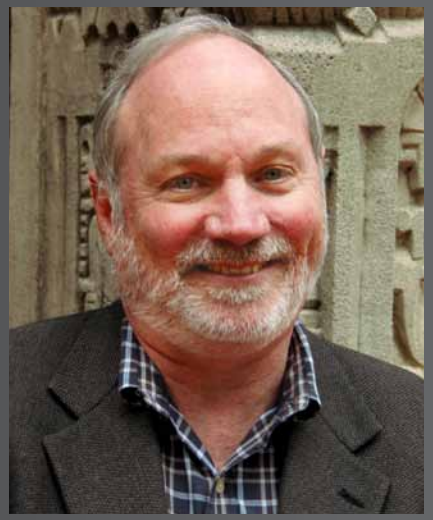
Left: Jordan Theriot, a 2010 SURF student, studied "click" ligands for new supramolecular structures at Louisiana State University

Experiencing undergraduate research firsthand

Where Research Has Impact

In the summer of 2010, 424 students teamed up with 259 scientific mentors as part of Caltech's Summer Undergraduate Research Fellowship (SURF) program. The undergrads—351 of them Caltech students—spent their summer days analyzing Saturn's stratosphere and troposphere, creating prototypes of real-time local tsunami early warning systems, considering the genetic basis of forgetting in the fruit fly, predicting sediment flux following wildfires in steep terrain, investigating the feasibility of water reuse on the Caltech campus, controlling a golf ball's trajectory using dynamic roughness, and looking at the narrative construction of Shakespearean tragedies. They were, in other words, busy doing what researchers do—researching.

Caltech's 116th Annual Commencement Ceremony, June 11, 2010



Above: Dennis Dougherty, George Grant Hoag Professor of Chemistry and 2010 recipient of the Richard P. Feynman Prize for Excellence in Teaching

> "Chemistry can be a little obscure. But it's a subject I love, and when you are enthusiastic . . . about something, you want to share that enthusiasm with others. I enjoy the challenge of making the field interesting and relevant."
>
> — Dennis Dougherty, George Grant Hoag Professor of Chemistry

Left: Zach Wickens, graduate student in chemistry, with his Amgen Scholars program mentor, John (Jack) Roberts, Caltech's Institute Professor of Chemistry, Emeritus.

Where Teaching Has Power

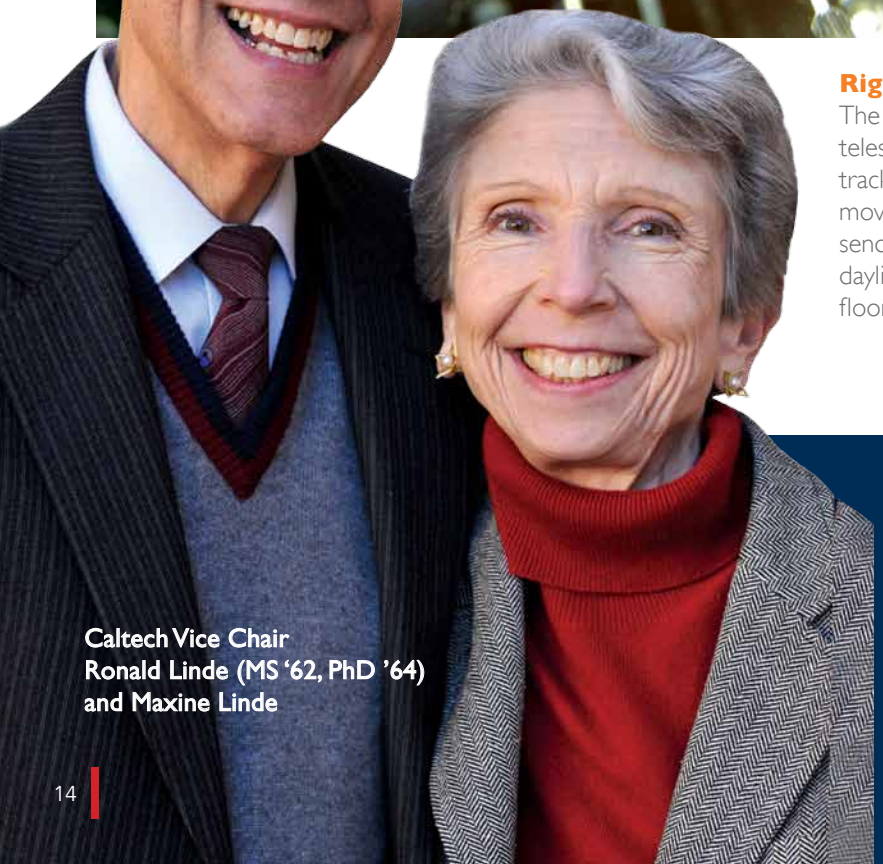
Dennis Dougherty, the 2010 winner of the Richard P. Feynman Prize for Excellence in Teaching—Caltech's most prestigious teaching award—was honored for his "exceptional ability to render difficult concepts in organic chemistry accessible to a broad cross section of undergraduate students." His enthusiasm for the subject—"Chemistry is cool!" he declares—serves him well in the lecture hall, where he employs a pedagogical style his wife (a former teacher who is now a school superintendent) calls "creatively traditional." It was this style, undoubtedly, that led to his being referred to in letters recommending him for the prize as "the best lecturer at Caltech."

Where Mentoring Has Meaning

Mentoring is an integral part of the Caltech culture. For instance, each student in the 2010 SURF program had a dedicated mentor. The value of mentorship crosses age and rank: Caltech's graduate students, its professors, even its emeriti take on mentorship roles. Emeritus professor Jack Roberts encouraged then–Macalester College undergrad Zach Wickens to imagine a life in science during his summer as an Amgen Scholar. Zach's experience not only convinced him to continue studying organic chemistry—it convinced him to study it as a Caltech graduate student. Zach joined the laboratory of Nobel Laureate Bob Grubbs in September 2010, and hasn't looked back.

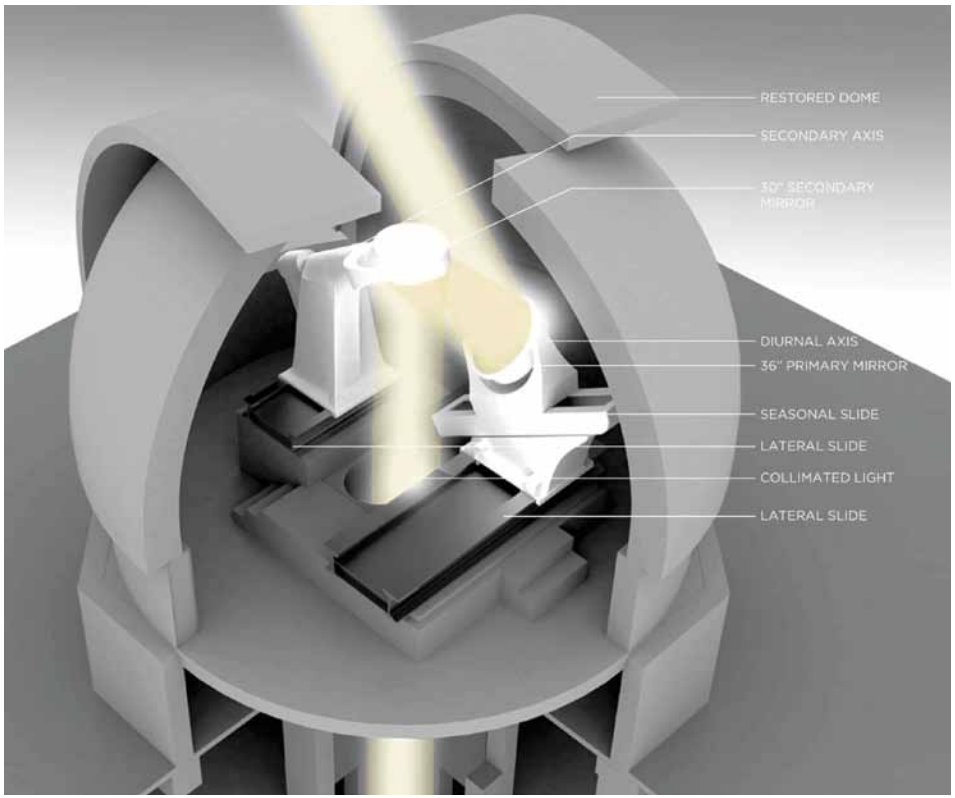
Linde + Robinson: Building on the Past for the Future

> Ron and Maxine Linde appreciate how critical environmental science is to the future of life on our planet.
>
> — Jean-Lou Chameau, President



Caltech Vice Chair Ronald Linde (MS '62, PhD '64) and Maxine Linde

Right: The solar telescope will track the sun's movement and send natural daylight to the floors below.



When Caltech began renovations in January 2010 to transform the 78-year-old Robinson Laboratory of Astrophysics into the state-of-the-art Linde + Robinson Laboratory, it also began to reshape the way researchers approach global environmental science.

With the support of lead donors Maxine Linde and Caltech Vice Chair Ronald Linde (MS '62, PhD '64), the Linde + Robinson Laboratory will be a hub for interdisciplinary work. Its two research centers—the Ronald and Maxine Linde Center for Global Environmental Science, and the Terrestrial Hazard Observation and Reporting Center, funded by Foster and Coco Stanback and the Gordon and Betty Moore Matching Program—bring together a full complement of scientists and engineers to generate comprehensive analyses of the global environment and to develop solutions to the world's complex environmental problems.

Walking the Walk

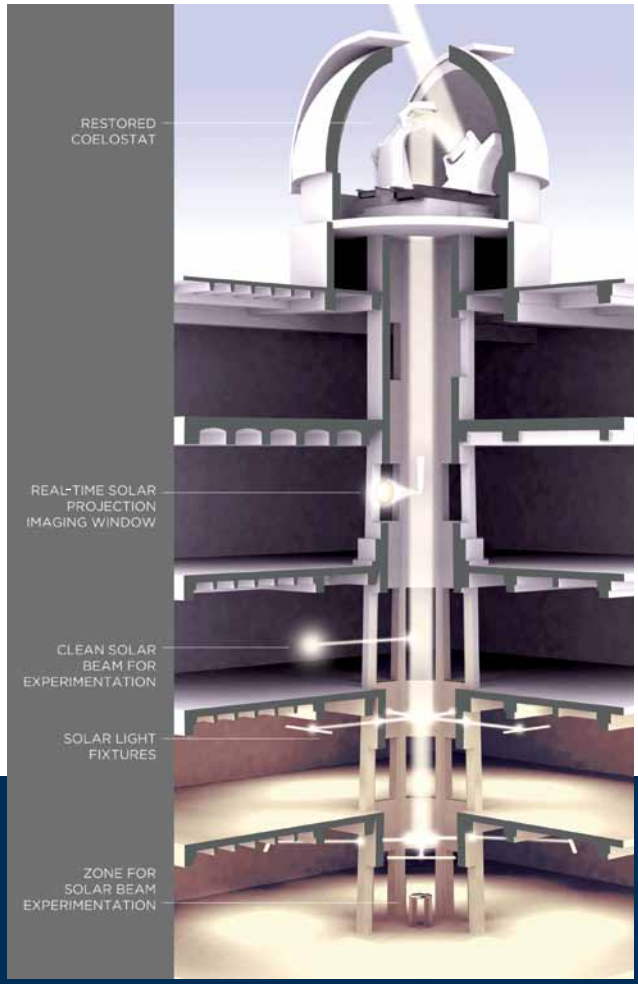
Caltech's newly remodeled Linde + Robinson Laboratory, scheduled for completion in Fall 2011, will unite faculty from a wide range of disciplines to study past and current conditions of the global environment and to predict how it will change in the future.

> "We feel privileged to bring new life and purpose to this building and to participate with Caltech as it takes a lead role in sustainability."
>
> — Ronald Linde (MS '62, PhD '64), Vice Chair, Board of Trustees

Left: The copper-lined "quiet room" provides a research space free from electromagnetic interference.

Below: Sunlight diverted into fiber-optic bundles will feed ceiling lights in basement and subbasement labs, bringing natural light to previously dark spots. Fluorescent lights will serve as a backup source on cloudy days and at night.

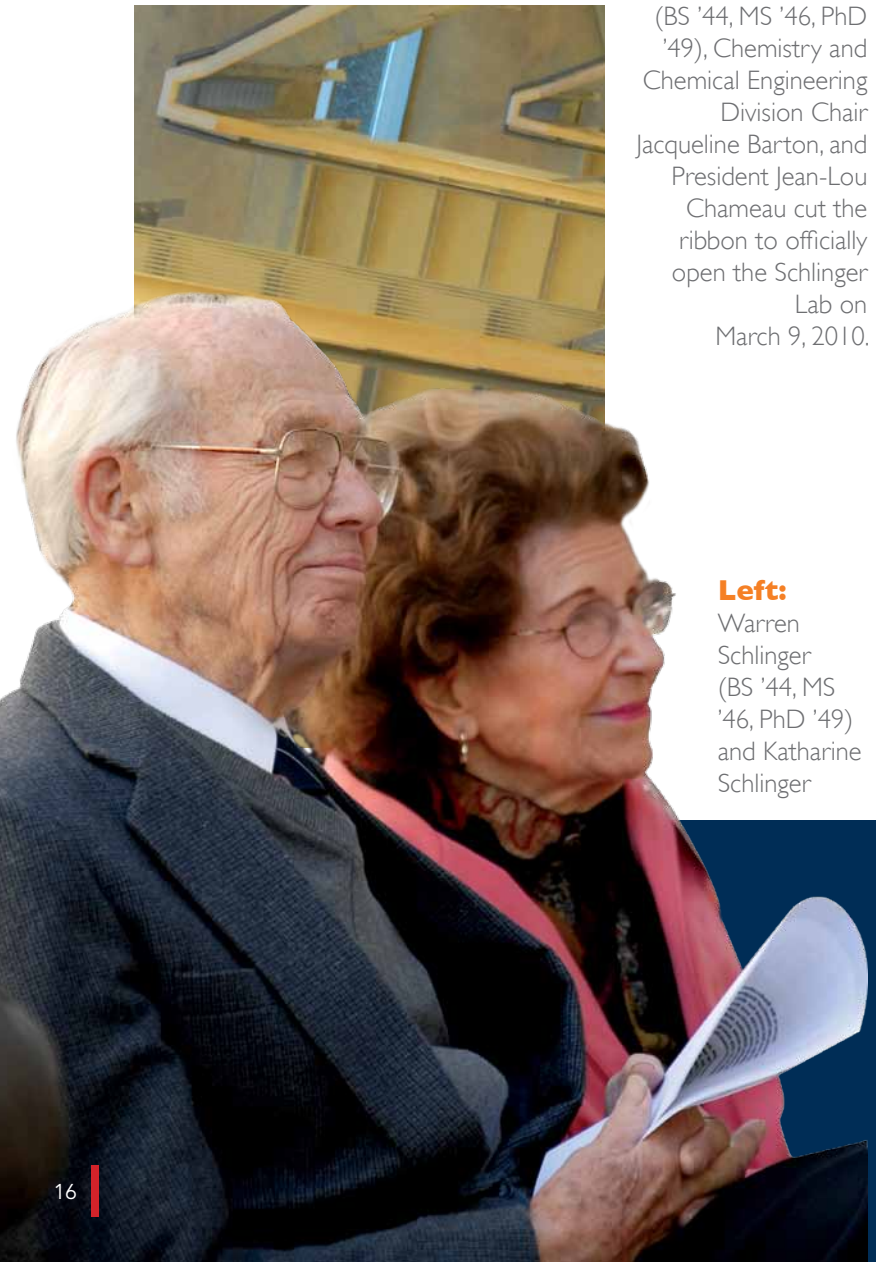
Right: The 3-D rendering illustrates how the solar telescope's shaft, which runs from the rooftop to below the subbasement, will carry natural light to each floor.



Page 14, right, and page 15, middle and right: Courtesy of Loisos + Ubbelohde

Linde + Robinson will itself serve as a model of sustainability and energy efficiency. For instance, the building's basements will be lit through the reenvisioned use of the Institute's historic solar telescope, commissioned in the 1930s by one of Caltech's founders, astronomer George Ellery Hale. Water stored deep below the building's subbasement will serve as an innovative cooling system, and a cistern under the garden will collect rainwater for landscape irrigation. Taken together, these and other improvements will reduce energy consumption to a sixth of that of otherwise comparable laboratory buildings and stand to make Linde + Robinson the first laboratory in a historic building to merit a Platinum designation—the highest ranking given by the Leadership in Energy and Environmental Design (LEED) Rating System.

Schlinger Laboratory: Catalyzing Discovery



From left, Will Webster (BS '49), Katharine Schlinger, Warren Schlinger (BS '44, MS '46, PhD '49), Chemistry and Chemical Engineering Division Chair Jacqueline Barton, and President Jean-Lou Chameau cut the ribbon to officially open the Schlinger Lab on March 9, 2010.

Left: Warren Schlinger (BS '44, MS '46, PhD '49) and Katharine Schlinger

Pioneering chemists and chemical engineers were brought under one roof for the first time in some 50 years in March, moving into a facility dedicated exclusively to chemical research.

The Warren and Katharine Schlinger Laboratory for Chemistry and Chemical Engineering—designed around leading sustainable-building principles as well as resident professors' independent research needs and lab specifications—has already begun to serve as a catalyst for discovery and collaboration. The space maximizes natural lighting, is outfitted with ventilated, energy-efficient

Innovation

Using locally derived and recycled building materials, and implementing an energy-efficient design, the Schlinger Lab uses 20 percent less energy and 42 percent less water indoors than typical chemical research facilities. The building reflects the Institute's campuswide commitment to sustainability and received Gold certification from the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

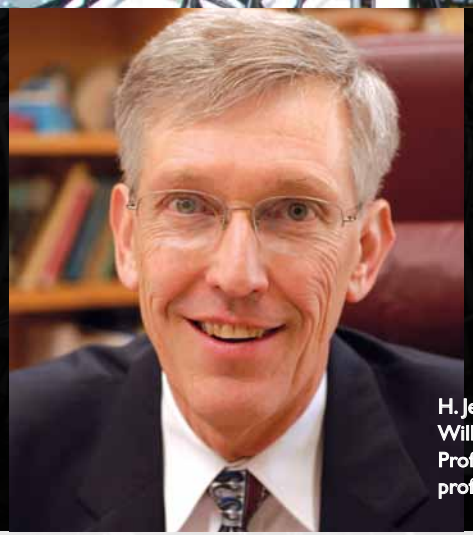
> "The Institute is recognized for having made some of the most significant scientific achievements of the past century in chemistry and chemical engineering. The Schlinger Laboratory will help to position Caltech for continued leadership in this critical area, helping to shape the future."
>
> — Jean-Lou Chameau, President

chemical fume hoods, and provides a high ratio of workstations per student or researcher.

The building is named in honor of Warren and Katharine Schlinger, who met at the Institute and have been among Caltech's most generous benefactors for more than 60 years.

"When you bring chemists and chemical engineers together in one laboratory, the results will be far greater than the sum of the parts," said Jacqueline Barton, chair of the Division of Chemistry and Chemical Engineering.

Research groups within the facility are focusing on a variety of ambitious projects: They are designing new catalysts and routes to the preparation of pharmaceuticals; they are characterizing new polymers with broad applications in liquid-crystal displays and intraocular lenses; they are creating new catalysts that may be critical in solar energy conversion; and they are studying the potential impact of aerosol production in the atmosphere on Earth's climate and air quality. And, under the direction of Nobel Laureate Robert Grubbs, they are doing high-throughput screening, discovery, and analysis of novel chemical entities as part of the Schlinger's Center for Catalysis and Chemical Synthesis.



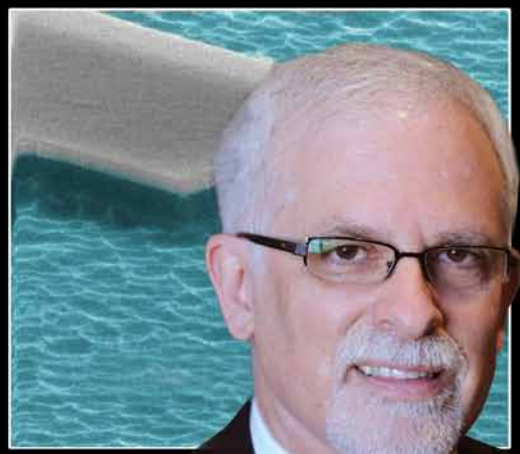
H. Jeff Kimble,
William L. Valentine
Professor and
professor of physics

H. Jeff Kimble

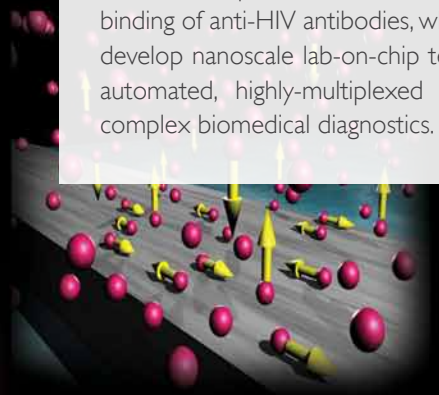
National Security Science and Engineering Faculty Fellow

In 2010, H. Jeff Kimble was one of 11 university faculty researchers tapped to conduct basic scientific research in areas of interest to the Department of Defense. The fellowship will provide Kimble with up to $4.2 million in direct research support over five years as he explores qualitatively new phenomena in quantum information science. The research, conducted through his Quantum Optics Group, will build upon that group's previous work in the manipulation of single atoms and photons.

Pamela Bjorkman,
Max Delbrück Professor of
Biology and Howard Hughes
Medical Institute Investigator



Michael Roukes,
Robert M. Abbey Professor
of Physics, Applied Physics,
and Bioengineering, and Kavli
Nanoscience Institute codirector



Pamela Bjorkman and Michael Roukes

NIH Director's Pioneer Award Recipients

In recognition of their influential and innovative work in the biomedical research field, Pamela Bjorkman and Michael Roukes were each given a 2010 National Institutes of Health Director's Pioneer Award. Each investigator in the program is given up to $500,000 in direct costs each year for five years to support high-risk research. Bjorkman will use her grant to create new proteins that will strengthen the binding of anti-HIV antibodies, while Roukes will develop nanoscale lab-on-chip technologies for automated, highly-multiplexed monitoring of complex biomedical diagnostics.

John Dabiri, MacArthur Fellow

A fluid-dynamics expert whose studies of schooling fish have stimulated new ideas in wind farming, John Dabiri received a five-year, $500,000 "no strings attached" MacArthur Fellowship in September 2010. The "genius" grant, awarded annually by the John D. and Catherine T. MacArthur Foundation, recognized Dabiri for his creativity in applying research on jellyfish propulsion to the design of vertical-axis wind turbines. As the head of Caltech's Biological Propulsion Laboratory, Dabiri works with colleagues to apply biologically inspired design principles to engineering systems.

"This is an opportunity I never imagined I would have, and I want to make the most of it. I think I'll start with swimming lessons, so that I can finally get up close and personal with the jellyfish I've been studying from afar."

John Dabiri, professor of aeronautics and bioengineering

Photo: John D. and Catherine T. MacArthur Foundation

Faculty Awards

National awards and honors

Air Force Office of Scientific Research (AFOSR), *Young Investigator Program Award:*
- José E. Andrade, *Associate Professor of Civil and Mechanical Engineering*

American Academy of Arts and Sciences, *Fellow:*
- Sunney I. Chan, *George Grant Hoag Professor of Biophysical Chemistry, Emeritus*
- William Andrew Goddard III, *Charles and Mary Ferkel Professor of Chemistry, Materials Science, and Applied Physics*

American Association for the Advancement of Science, *Fellow:*
- Frances H. Arnold, *Dick and Barbara Dickinson Professor of Chemical Engineering and Biochemistry*
- Jay A. Labinger, *Administrator of the Beckman Institute; Member of the Professional Staff; and Faculty Associate and Lecturer in Chemistry*

Defense Advanced Research Projects Agency, *Young Faculty Award:*
- Julia R. Greer, *Assistant Professor of Materials Science*
- Doris Y. Tsao, *Assistant Professor of Biology*

Department of Defense, *National Security Science and Engineering Faculty Fellow:*
- H. Jeff Kimble, *William L. Valentine Professor and Professor of Physics*

Presidential Early Career Award for Scientists and Engineers:
- John O. Dabiri, *Associate Professor of Aeronautics and Bioengineering*
- Beverley J. McKeon, *Assistant Professor of Aeronautics*
- Joel A. Tropp, *Assistant Professor of Applied and Computational Mathematics*

National Academy of Engineering, *Member:*
- Richard C. Flagan, *Irma and Ross McCollum–William H. Corcoran Professor of Chemical Engineering and Professor of Environmental Science and Engineering, and Executive Officer for Chemical Engineering*
- Anthony Leonard, *Theodore von Kármán Professor of Aeronautics, Emeritus*

U.S. Frontiers of Engineering Symposium, *Participant:*
- David A. Boyd, *Senior Research Fellow in Mechanical Engineering*
- Swaminathan Krishnan, *Assistant Professor of Civil Engineering and Geophysics*

National Aeronautics and Space Administration, *Robert H. Goddard Exceptional Achievement Award:*
- Sergio Pellegrino, *Professor of Aeronautics and Civil Engineering, and Jet Propulsion Laboratory Senior Research Scientist*

National Institutes of Health, *2010 NIH Director's New Innovator Award:*
- Alexei Aravin, *Assistant Professor of Biology*
- Changhuei Yang, *Associate Professor of Electrical Engineering and Bioengineering*

2010 NIH Director's Pioneer Award:
- Pamela J. Bjorkman, *Max Delbrück Professor of Biology, and Investigator, Howard Hughes Medical Institute*
- Michael L. Roukes, *Professor of Physics, Applied Physics, and Bioengineering, and Codirector of the Kavli Nanoscience Institute*

National Science Foundation, *Faculty Early Career Development (CAREER) Award:*
- Rainer Andreas Krause, *Assistant Professor of Computer Science*

Office of Naval Research, *Young Investigator:*
- Chiara Daraio, *Assistant Professor of Aeronautics and Applied Physics*

U.S. Science Envoy Program, *Envoy:*
- Ahmed H. Zewail, *Linus Pauling Professor of Chemical Physics and Professor of Physics*

Faculty Awards

International awards and honors

CINVESTAV (Center for Research and Advanced Studies of the National Polytechnic Institute), *2010 José Adem Memorial Lecturer:*
Matilde Marcolli, *Professor of Mathematics*

Danish Commission for UNESCO (United Nations Educational, Scientific, and Cultural Organization), *Niels Bohr Gold Medal:*
Kip S. Thorne, *Richard P. Feynman Professor of Theoretical Physics, Emeritus*

Alexander von Humboldt Foundation, *Humboldt Research Award:*
Jean-Philippe Avouac, *Professor of Geology and Director of the Tectonics Observatory*

Institute for Advanced Study, Technical University of Munich (TUM), *Hans Fischer Senior Fellowship:*
Michael Ortiz, *Dotty and Dick Hayman Professor of Aeronautics and Mechanical Engineering*

International Council for Industrial and Applied Mathematics, *2011 ICIAM Collatz Prize:*
Emmanuel J. D. Candes, *Ronald and Maxine Linde Professor of Applied and Computational Mathematics*

Nishina Memorial Foundation, *2009 Nishina Memorial Prize, Corecipient:*
Hiroshi Oguri, *Fred Kavli Professor of Theoretical Physics*

Tetrahedron Publications, *Tetrahedron Young Investigator Award for Organic Synthesis:*
Brian M. Stoltz, *Ethel Wilson Bowles and Robert Bowles Professor of Chemistry*

Awards and honors from professional societies

American Chemical Society, *2011 Priestley Medal:*
Ahmed H. Zewail, *Linus Pauling Professor of Chemistry and Professor of Physics*

Fellow:
David A. Tirrell, *Ross McCollum–William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering*
Ahmed H. Zewail, *Linus Pauling Professor of Chemistry and Professor of Physics*

American Council of Learned Societies, *ACLS New Faculty Fellow:*
Nicole A. Archambeau, *ACLS Postdoctoral Instructor in History*

American Geophysical Union, *Fellow:*
Richard A. Mewaldt, *Senior Research Associate in Physics*
Joann Stock, *Professor of Geology and Geophysics*

American Institute of Aeronautics and Astronautics, *Fellow:*
Paul E. Dimotakis, *John K. Northrop Professor of Aeronautics and Professor of Applied Physics, and Chief Technologist, JPL*

Associate Fellow:
Timothy E. Colonius, *Professor of Mechanical Engineering*

American Physical Society, *Fellow:*
Bradley W. Filippone, *Professor of Physics*
Robert B. Phillips, *Professor of Applied Physics and Mechanical Engineering*

Titles shown for recipients are current as of the fiscal year 2010, when these awards were announced, and do not reflect more recent promotions or changes.

Faculty Awards

American Society for Biochemistry and Molecular Biology, *Fritz Lipmann Lecturer:*
Douglas C. Rees, *Roscoe Gilkey Dickinson Professor of Chemistry; Investigator, Howard Hughes Medical Institute; and Executive Officer for Biochemistry and Molecular Biophysics*

ASME (American Society of Mechanical Engineers), *Thomas K. Caughey Dynamics Award:*
Jerrold E. Marsden, *Carl F Braun Professor of Engineering, Control and Dynamical Systems, and Applied and Computational Mathematics*

2010 Robert Henry Thurston Lecture Award:
Ares J. Rosakis, *Theodore von Kármán Professor of Aeronautics; Professor of Mechanical Engineering; and Chair of the Division of Engineering and Applied Science*

Timoshenko Medal:
Wolfgang G. Knauss, *Theodore von Kármán Professor of Aeronautics and Applied Mechanics, Emeritus*

American Society of Plant Biologists, *Fellow:*
Elliot Meyerowitz, *George W. Beadle Professor of Biology, and Chair of the Division of Biology*

Astronomical Society of the Pacific, *2010 Catherine Wolfe Bruce Gold Medal:*
Gerry Neugebauer, *Robert Andrews Millikan Professor of Physics, Emeritus*

Robert J. Trumpler Award:
Robert Quimby, *Postdoctoral Scholar in Astronomy*

Institute of Electrical and Electronics Engineers (IEEE), *Fellow:*
Seyed-Ali Hajimiri, *Professor of Electrical Engineering*

2011 IEEE Photonics Award:
Amnon Yariv, *Martin and Eileen Summerfield Professor of Applied Physics and Professor of Electrical Engineering*

IEEE Communications Society, Data Storage Technical Committee, *2009 Best Paper in Signal Processing and Coding for Data Storage, Corecipient*
Jehoshua Bruck, *Gordon and Betty Moore Professor of Computation and Neural Systems and Electrical Engineering*

Materials Research Society, *Fred Kavli Distinguished Lecturer:*
Harry A. Atwater, *Howard Hughes Professor, Professor of Applied Physics and Materials Science, and Director of the Resnick Sustainability Institute*

Mathematical Association of America, *Lester R. Ford Award, Corecipient:*
Tom M. Apostol, *Professor of Mathematics, Emeritus*

Society for Experimental Mechanics, *Fellow:*
Guruswami Ravichandran, *John E. Goode, Jr., Professor of Aeronautics and Mechanical Engineering, and Director of the Graduate Aerospace Laboratories*

SIAM (Society for Industrial and Applied Mathematics), *2010 George Pólya Prize, Corecipient:*
Emmanuel J. D. Candes, *Ronald and Maxine Linde Professor of Applied and Computational Mathematics*

Society for Political Methodology, *Fellow:*
R. Michael Alvarez, *Professor of Political Science*

Foundation awards

Rita Allen Foundation, *2010 Rita Allen Foundation Scholar and Milton E. Cassel Scholar:*
David Prober, *Assistant Professor of Biology*

Camille and Henry Dreyfus Foundation, *2010 Senior Scientist Mentor:*
John D. Roberts, *Institute Professor of Chemistry, Emeritus*

Faculty Awards

Bill & Melinda Gates Foundation,
Grand Challenges Explorations Grant:
James R. Heath, *Elizabeth W. Gilloon Professor and Professor of Chemistry*

Peter and Patricia Gruber Foundation,
2010 Cosmology Prize:
Charles Steidel, *Lee A. DuBridge Professor of Astronomy*

John D. and Catherine T. MacArthur Foundation,
Fellow:
John O. Dabiri, *Associate Professor of Aeronautics and Bioengineering*

Searle Scholars Program, *2010 Searle Scholar:*
Theodor Agapie, *Assistant Professor of Chemistry*

Alfred P. Sloan Foundation, *Research Fellow:*
Thomas F. Miller III, *Assistant Professor of Chemistry*
Joel A. Tropp, *Assistant Professor of Applied and Computational Mathematics*

Vilcek Foundation, *2010 Vilcek Prize in Biomedical Science:*
Alexander J. Varshavsky, *Howard and Gwen Laurie Smits Professor of Cell Biology*

University honors

University of Cambridge, *Scott Lecturer:*
Kip S. Thorne, *Richard P. Feynman Professor of Theoretical Physics, Emeritus*

University of South Carolina, *Sixth Vasil A. Popov Prize:*
Joel A. Tropp, *Assistant Professor of Applied and Computational Mathematics*

Institute honors

Endowed Professorships:
Kaushik Bhattacharya, *Howell N. Tyson, Sr., Professor of Mechanics*
Seyed-Ali Hajimiri, *Thomas G. Myers Professor of Electrical Engineering*
Sergio Pellegrino, *Joyce and Kent Kresa Professor of Aeronautics*
Jonas C. Peters, *Bren Professor of Chemistry*
John P. Preskill, *Richard P. Feynman Professor of Theoretical Physics*
Tapio Schneider, *Frank J. Gilloon Professor of Environmental Science and Engineering*
Shinsuke Shimojo, *Gertrude Baltimore Professor of Experimental Psychology*
Jonas Zmuidzinas, *Merle Kingsley Professor of Physics*

Associated Students of the California Institute of Technology (ASCIT),
2009–10 Teaching Awards:
Glen A. George, *Lecturer in Computer Science and Electrical Engineering*
David A. Tirrell, *Ross McCollum–William H. Corcoran Professor and Professor of Chemistry and Chemical Engineering*
Michael A. Vicic, *Lecturer in Chemical Engineering*
Adam C. Wierman, *Assistant Professor of Computer Science*

Teaching Assistant Awards:
Padraic J. Bartlett, *Graduate Student in Mathematics*
Nicholas Hoh, *Graduate Student in Chemical Engineering*
June K. Wicks, *Graduate Student in Geochemistry*
Aaron B. Zimmerman, *Graduate Student in Physics*

Graduate Student Council,
2009–10 Mentoring Award:
Koji Arai, *Senior Research Fellow in Experimental Physics*
Sunil Golwala, *Associate Professor of Physics*
Kathryn E. Kautzman, *Postdoctoral Scholar in Chemical Engineering*

Classroom Teaching Award:
Aron Kuppermann, *Professor of Chemical Physics*

Richard P. Feynman Prize for Excellence in Teaching, *Recipient:*
Dennis A. Dougherty, *George Grant Hoag Professor of Chemistry*

Board of Trustees

(as of April 2011)

Officers of the Board

Kent Kresa, *Chair*
David L. Lee, *Vice Chair*
Ronald K. Linde, *Vice Chair*
Jean-Lou Chameau, *President*

Trustees

Robert C. Bonner*
Senior Partner
Sentinel HS Group, LLC

Brigitte M. Bren
President and Chief Executive Officer
International Strategic Planning

John E. Bryson*
Retired Chairman and Chief Executive Officer
Edison International

Jean-Lou Chameau
President
California Institute of Technology

Milton M. Chang
Managing Director
Incubic Venture Capital

John S. Chen
Chairman, Chief Executive Officer and President
Sybase, Inc.

Robert B. Chess
Chairman
Nektar Therapeutics

Lounette M. Dyer
Entrepreneur

Gilad I. Elbaz
Founder and Chief Executive Officer
Factual Inc.

William T. Gross
Chairman and Founder
Idealab

Narendra K. Gupta
Cofounder
Nexus Venture Partners

Frederick J. Hameetman
Chairman
Cal-American

Robert T. Jenkins

Peter D. Kaufman
Chairman and Chief Executive Officer
Glenair, Inc.

Jon Faiz Kayyem
Founder and Chief Scientific Officer
GenMark Diagnostics, Inc.

Louise Kirkbride*
Board Member
State of California
Contractors State License Board

Jon B. Kutler
Chairman and Chief Executive Officer
Admiralty Partners, Inc.

Louis J. Lavigne, Jr.*
Managing Director
Lavigne Groupe

David L. Lee
Managing General Partner
Clarity Partners, L.P.

York Liao
Managing Director
Winbridge Company Ltd.

Alexander Lidow
Chief Executive Officer
EPC Corporation

Ronald K. Linde*
Independent Investor;
Chair, The Ronald and Maxine Linde Foundation;
Founder/Former CEO, Envirodyne Industries, Inc.

Shirley M. Malcom
Director, Education and Human Resources Programs
American Association for the Advancement of Science

Deborah D. McWhinney
Head of Global Digital Merchant Acquiring
Citi Global Enterprise Payments

Richard N. Merkin
Founder and Chief Executive Officer
Heritage Provider Network

Philip M. Neches*
Chairman
Foundation Ventures LLC

Patrick H. Nettles, Jr.
Executive Chairman
Ciena Corporation

Peter Norton
Norton Family Office

Board of Trustees

(as of April 2011)

Ronald L. Olson
Senior Partner
Munger, Tolles & Olson

Stephen R. Onderdonk*
President and Chief Executive Officer (Retired)
Econolite Control Products, Inc.

Pedro J. Pizarro
President
Edison Mission Energy

Nelson C. Rising
Chief Executive Officer
Rising Realty Partners

Stephen A. Ross
Franco Modigliani Professor of Finance and Economics
Massachusetts Institute of Technology and Chairman, Compensation Valuation, Inc.

James F. Rothenberg
Chairman & Principal Executive Officer
Capital Research and Management Company

Marc I. Stern
Vice Chairman and Chief Executive Officer
The TCW Group, Inc.

Donald W. Tang
Chief Executive Officer
CSIP Group

Charles R. Trimble
Founder and Former Chief Executive Officer
Trimble Navigation, Ltd.

Lewis W. van Amerongen
LvA Enterprises, Inc.

Gayle E. Wilson
Nonprofit Consultant

Jay S. Wintrob
President and Chief Executive Officer
SunAmerica Financial Group

Suzanne H. Woolsey
Corporate Governance Consultant

Senior Trustees

Gordon M. Binder
Managing Director
Coastview Capital

William H. Davidow
Founding Partner
Mohr, Davidow Ventures

Thomas E. Everhart
President Emeritus
California Institute of Technology

Arthur L. Goldstein
Chairman and Chief Executive Officer (Retired)
Ionics, Incorporated

Shirley M. Hufstedler
Senior Of Counsel
Morrison & Foerster

Bobby R. Inman
Professor, Lyndon B. Johnson Centennial Chair in National Policy
The University of Texas at Austin

Kent Kresa*
Chairman Emeritus
Northrop Grumman Corporation

A. Michael Lipper*
President and Chief Executive Officer
Lipper Advisory Services

Stewart A. Resnick
Chairman
Roll International Corporation

Walter L. Weisman*
Former Chairman and Chief Executive Officer
American Medical International, Inc.

Life Members

George L. Argyros
Chairman and Chief Executive Officer
Arnel and Affiliates

Stephen D. Bechtel, Jr.
Chairman (Retired)
Bechtel Group, Inc.

G. Patricia Beckman
Community Leader

Donald L. Bren
Chairman of the Board
Irvine Company

Board of Trustees

(as of April 2011)

Eli Broad
Founder
The Broad Foundations

Harold Brown
President Emeritus
Counselor
Center for Strategic and International Studies (CSIS)

Walter Burke
Treasurer
Sherman Fairchild Foundation, Inc.

Jewel Plummer Cobb
President Emerita
California State University, Fullerton

Harry M. Conger
Chairman & Chief Executive Officer, Emeritus
Homestake Mining Company

Richard P. Cooley
Retired Chairman
Seafirst Bank

Camilla Chandler Frost
Trustee of the Chandler Trust and a Director and Secretary-Treasurer
Chandis Securities Company

Philip M. Hawley
Chairman
P. M. Hawley, Inc.

William F. Kieschnick
President and Chief Executive Officer (Retired)
Atlantic Richfield Company

Gordon E. Moore
Chairman Emeritus
Chairman Emeritus
Intel Corporation

Sidney R. Petersen
Chairman and Chief Executive Officer (Retired)
Getty Oil Company

Simon Ramo
Cofounder and Director Emeritus
TRW Inc.

Arthur Rock
Principal
Arthur Rock and Company

Benjamin M. Rosen
Chairman Emeritus
Chairman Emeritus
Compaq Computer Corporation

Richard M. Rosenberg
Chairman and Chief Executive Officer (Retired)
Bank of America Corporation

Robert J. Schultz
Vice Chairman (Retired)
General Motors Corporation

Mary L. Scranton
Nonprofit Consultant

Dennis Stanfill
Private Investor

Charles H. Townes
Nobel Laureate and Professor in the Graduate School
Department of Physics
University of California, Berkeley

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

Albert D. Wheelon

Honorary Life Member

Betty I. Moore
Cofounder
Gordon and Betty Moore Foundation

*Members of the Board of Trustees Audit and Compliance Committee. John E. Bryson is chair, Jean-Lou Chameau, Matthew W. Brewer, Dean W. Currie, Charles Elachi, Pamela D. Koyzis, Jennifer T. Lum, Sharon E. Patterson, Stephen L. Proia, Scott H. Richland, Edward M. Stolper, Victoria D. Stratman, and Eugene L. Tattini are standing attendees.

Institute Administrative Council

(as of June 2011)

Jacqueline K. Barton
Chair, Division of Chemistry and Chemical Engineering

Jean-Lou Chameau
President

James W. Cowell Jr.
Associate Vice President for Facilities

Dean W. Currie
Vice President for Business and Finance

Hall P. Daily
Director of Government Relations

Dennis A. Dougherty
Chair of the Faculty

Charles Elachi
Vice President and Director, Jet Propulsion Laboratory

Richard E. Fagen
Chief Information Officer

Kenneth A. Farley
Chair, Division of Geological and Planetary Sciences

Morteza Gharib
Vice Provost

Peter B. Dervan
Vice President for Development and Institute Relations

Melany L. Hunt
Vice Provost

Jonathan N. Katz
Chair, Division of the Humanities and Social Sciences

Jennifer T. Lum
Deputy General Counsel

Stephen L. Mayo
Chair, Division of Biology

Julia M. McCallin
Associate Vice President for Human Resources

Sharon E. Patterson
Associate Vice President for Finance and Treasurer

Scott H. Richland
Chief Investment Officer

Ares J. Rosakis
Chair, Division of Engineering and Applied Science

Anneila I. Sargent
Vice President for Student Affairs

Richard P. Seligman
Associate Vice President, Research Administration

Joseph E. Shepherd
Dean of Graduate Studies

B. Thomas Soifer
Chair, Division of Physics, Mathematics and Astronomy

Edward M. Stolper
Provost

Victoria D. Stratman
General Counsel

Mary L. Webster
Executive Assistant to the President and Secretary, Board of Trustees

Letter from the Vice President for Business and Finance

This letter conveys an overview of Caltech's financial results for fiscal year 2010, ending September 30, 2010. The accompanying audited financial statements provide more detail. To echo the preceding message from Chairman Kresa and President Chameau, Caltech's financial position is strong.

Caltech mirrored the nation in embarking on the slow path to recovery from the recent financial crisis, posting modest gains in revenue and a slight decrease in expenses that created an increase in overall net assets of 3 percent. Improvements in the Institute's financial standing were a marked recovery from each of the previous two years, when net assets decreased and the endowment suffered significant investment losses in excess of $100 million.

During fiscal year 2010, Caltech achieved an increase in overall revenue of 7 percent. Revenues were bolstered by a 9 percent increase in research revenue and further benefited from the release of construction-related gifts for new buildings. On the campus, faculty received nearly $330 million in new research awards during this fiscal year. New gifts and commitments from private donors totaled more than $100 million during the same period. JPL also continued its great partnership in innovation with NASA and recorded expenditures of almost $1.7 billion.

The Caltech endowment exhibited strong gains, increasing in value to $1.63 billion from $1.5 billion the prior fiscal year with a well-diversified portfolio. This impressive growth includes an endowment investment return of 10.2 percent. The endowment provided approximately $90 million to support our campus operating budget in 2010. At the same time, Caltech saw a decrease in expenses (excluding direct research) of 2.7 percent over the prior fiscal year. This can largely be attributed to lower utility costs and to lower interest rates, which decreased borrowing costs in servicing Institute debt.

As a result of these increased revenues and decreased expenses, Caltech maintained a balanced budget and achieved a surplus in its campus operating budget of $3 million. These results are incremental but encouraging and represent a favorable variance of $6 million to the overall budget. Caltech remains committed to moving its budget to equilibrium as the economy continues to recover.

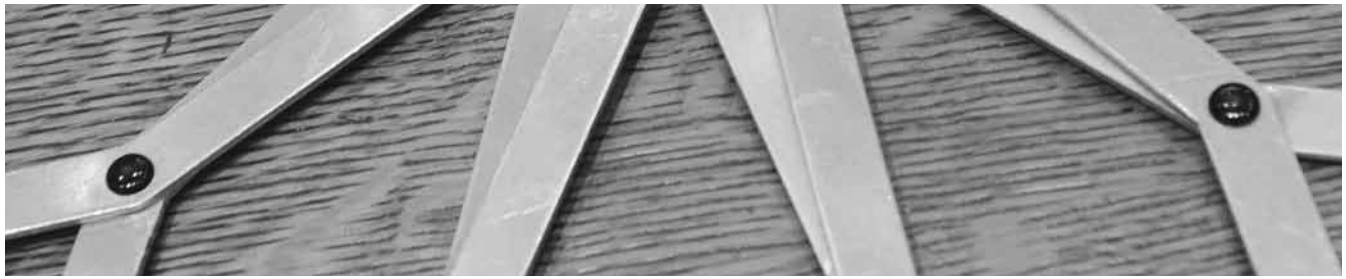
We are encouraged by the gains of the most recent fiscal year. Looking toward the future, we are confident that 2010 marked the beginning of a strong resurgence in Caltech's financial health. Regardless of what fluctuations the markets may bring, our commitment to Caltech's mission to expand human knowledge and benefit society will not waver.

Dean Currie,
Vice President for Business and Finance

CALIFORNIA INSTITUTE OF TECHNOLOGY

FINANCIAL STATEMENTS

For the Years Ended September 30, 2010 and 2009



CALIFORNIA INSTITUTE OF TECHNOLOGY

INDEX TO THE FINANCIAL STATEMENTS

For the Years Ended September 30, 2010 and 2009

Report of Independent Auditors

To the Board of Trustees of the
California Institute of Technology

In our opinion, the accompanying balance sheets and the related statements of activities and cash flows present fairly, in all material respects, the financial position of the California Institute of Technology (the "Institute") at September 30, 2010 and 2009, and the changes in its net assets and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Institute's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As discussed in Note B to the financial statements, during the year ended September 30, 2009, the Institute adopted a new accounting standard that governs the net asset classification of funds subject to an enacted version of the Uniform Prudent Management of Institutional Funds Act for endowment funds. In addition, as discussed in Note B to the financial statements, the Institute adopted a new accounting standard that required it to change the measurement date of its pension and postretirement plan assets and liabilities to coincide with its September 30, 2009 year end.

PricewaterhouseCoopers LLP

January 24, 2011

PricewaterhouseCoopers LLP, 350 South Grand Avenue, Los Angeles, CA 90071
T: (213) 356 6000, F: (813) 637 4444, www.pwc.com/us

California Institute of Technology

Balance Sheets
At September 30, 2010 and 2009
(Dollars in Thousands)

ASSETS	2010	2009
Cash and cash equivalents (Notes B and D)	$ 42,733	$ 28,190
Advances and deposits	5,088	3,305
Accounts and notes receivable, net		
United States government	192,323	182,074
Other	15,724	15,631
Contributions receivable, net	131,969	197,931
Investments	1,833,665	1,740,089
Prepaid expenses and other assets	75,919	55,960
Deferred United States government billings	480,725	449,713
Property, plant, and equipment, net	847,206	838,624
Total assets	$ 3,625,352	$ 3,511,517
LIABILITIES and NET ASSETS		
Liabilities:		
Accounts payable and accrued expenses	$ 409,800	$ 379,315
Deferred revenue and refundable advances	20,032	21,116
Annuities, trust agreements, and agency funds	72,980	81,093
Bonds and notes payable	427,137	435,195
Accumulated postretirement benefit obligation	539,632	502,278
Total liabilities	1,469,581	1,418,997
Commitments and contingencies (Note L)		
Net assets:		
Unrestricted	692,704	566,186
Temporarily restricted	700,740	815,190
Permanently restricted	762,327	711,144
Total net assets	2,155,771	2,092,520
Total liabilities and net assets	$ 3,625,352	$ 3,511,517

The accompanying notes are an integral part of these financial statements.

California Institute of Technology

Statements of Activities

For the Years Ended September 30, 2010 and 2009

(Dollars in Thousands)

	2010	2009
Changes in unrestricted net assets:		
Revenue and net assets released from restrictions:		
Tuition and fees, net of student financial aid	$ 29,586	$ 29,162
Investment return/(loss)	63,345	(173,249)
Gifts	19,348	35,212
Grants and contracts:		
Jet Propulsion Laboratory - direct	1,678,512	1,853,440
Other United States government - direct	227,014	207,615
Non–United States government - direct	20,726	20,928
Indirect cost recovery and management allowance	109,814	107,682
Auxiliary enterprises	32,589	34,295
Other	47,175	39,198
Net assets released from restrictions	180,786	98,138
Total revenue and net assets released from restrictions	2,408,895	2,252,421
Expenses:		
Instruction and academic support	236,354	243,700
Organized research:		
Jet Propulsion Laboratory	1,678,512	1,853,440
Other Institute research	284,672	272,024
Institutional support	68,037	65,229
Auxiliary enterprises	31,735	36,593
Total expenses	2,299,310	2,470,986
Excess/(deficit) of revenues over/under expenses	109,585	(218,565)
Other changes in unrestricted net assets:		
Changes in postemployment benefit obligations	1,476	(32,300)
Redesignations and reclassifications of net assets	15,457	(10,828)
Total other changes in unrestricted net assets	126,518	(261,693)
Change in accounting principle for endowment funds	-	(467,791)
Change in accounting principle for pension and postretirement plans	-	(1,938)
Increase/(decrease) in unrestricted net assets	$ 126,518	$ (731,422)
Changes in temporarily restricted net assets:		
Gifts	$ 33,497	$ 35,266
Investment return	60,010	30,933
Net assets released from restrictions	(180,786)	(98,138)
Redesignations and reclassifications of net assets	(27,171)	(10,393)
Total changes in temporarily restricted net assets	(114,450)	(42,332)
Change in accounting principle for endowment funds	-	467,791
(Decrease)/increase in temporarily restricted net assets	$ (114,450)	$ 425,459
Changes in permanently restricted net assets:		
Gifts	$ 38,090	$ 28,077
Investment return/(loss)	1,355	(189)
Other income/(loss)	24	(11)
Redesignations and reclassifications of net assets	11,714	21,221
Increase in permanently restricted net assets	$ 51,183	$ 49,098
Increase/(decrease) in total net assets	$ 63,251	$ (256,865)
Net assets at beginning of year	2,092,520	2,349,385
Total net assets at end of year	$ 2,155,771	$ 2,092,520

The accompanying notes are an integral part of these financial statements.

California Institute of Technology

Statements of Cash Flows
For the Years Ended September 30, 2010 and 2009
(Dollars in Thousands)

	2010	2009
Cash flows from operating activities:		
Increase/(decrease) in net assets	$ 63,251	$ (256,865)
Adjustments to reconcile increase/(decrease) in net assets to net cash used in operating activities:		
Depreciation, accretion, and amortization	60,413	57,266
Change in accounting principle for pension and postretirement plans	-	1,938
Change in pension and postretirement benefit obligations	(1,476)	32,300
Contributions restricted for long-term investment and capital projects	(35,004)	(30,196)
Investment return restricted for long-term investment and capital projects	(761)	(1,074)
Realized and unrealized (gains)/losses on investments	(112,611)	152,543
In-kind receipt of securities, property, plant, and equipment	(1,303)	(1,972)
Actuarial change in trust liability	(3,209)	2,323
Losses on disposals of property, plant, and equipment	3,543	10,555
Changes in assets and liabilities:		
Advances and deposits	(1,783)	2,318
Accounts and notes receivable, net	(10,342)	20,007
Contributions receivable, net	34,503	12,218
Prepaid expenses and other assets	(19,475)	(3,299)
Deferred United States government billings	(31,012)	(121,509)
Accounts payable and accrued expenses	16,470	2,696
Deferred revenue and refundable advances	552	(9,873)
Agency funds	724	(221)
Accumulated postretirement benefit obligation	38,997	127,206
Net cash provided by/(used in) operating activities	1,477	(3,639)
Cash flows from investing activities:		
Purchases of investments	(385,038)	(563,854)
Proceeds from sales and maturities of investments	440,547	569,023
Purchases of property, plant, and equipment	(71,596)	(103,305)
Proceeds from sale of property, plant, and equipment	86	607
Net cash used in investing activities	(16,001)	(97,529)
Cash flows from financing activities:		
Contributions restricted for long-term investment and capital projects	38,984	17,974
Investment return restricted for long-term investment and capital projects	761	1,074
Cash received under split-interest agreements	4,180	17,990
Cash payments made under split-interest agreements	(6,588)	(6,822)
Proceeds from issuance of bonds	-	80,000
Net (repayments)/borrowings on short-term debt	(8,270)	10,100
Net cash provided by financing activities	29,067	120,316
Net increase in cash and cash equivalents	14,543	19,148
Cash and cash equivalents at beginning of year	28,190	9,042
Cash and cash equivalents at end of year	$ 42,733	$ 28,190

The accompanying notes are an integral part of these financial statements.

A. Description of the California Institute of Technology

The California Institute of Technology (the "Institute") is a private, not-for-profit institution of higher education based in Pasadena, California. Founded in 1891, the Institute provides education and training services, primarily for students at the undergraduate, graduate, and postdoctoral levels, and performs research, training, and other services under grants, contracts, and similar agreements with sponsoring organizations, primarily departments and agencies of the government of the United States of America.

B. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements include the accounts of the Institute's main campus and satellite facilities ("Campus"), as well as the Jet Propulsion Laboratory ("JPL"), a Federally Funded Research and Development Center managed by the Institute for the National Aeronautics and Space Administration ("NASA").

The Institute manages JPL under a cost-reimbursable contract with NASA. JPL's land, buildings, and equipment are owned by the United States government and are excluded from the Institute's financial statements. Receivables and liabilities arising from JPL's activities are reflected in the Institute's balance sheets. The direct costs of JPL's activities and the related reimbursement of those costs are segregated in the statements of activities. The management allowances earned under the NASA contract also are included as an indirect cost recovery and management allowance in the statements of activities.

The Institute is generally exempt from federal income taxes under the provisions of Internal Revenue Code ("IRC") Section 501(c)(3). The Institute is also generally exempt from payment of California state income, gift, estate, and inheritance taxes. The Institute has no uncertain tax positions.

The Institute's financial statements have been prepared on the accrual basis of accounting, in accordance with accounting principles generally accepted in the United States of America.

Net assets are classified into three categories according to donor-imposed restrictions or provisions of law: permanently restricted, temporarily restricted, and unrestricted.

Permanently restricted net assets include gifts, charitable remainder trusts, pooled income funds, gift annuities, other split-interest agreements, and contributions receivable in which donors have stipulated that the original value of their contributions and, if applicable, any subsequent accumulations, be invested in perpetuity.

Temporarily restricted net assets include endowment earnings related to permanent endowments that have not been appropriated for expenditures and gifts for which donor-imposed restrictions have not been met, including funds restricted for future capital projects, charitable remainder trusts, pooled income funds, gift annuities, other split-interest agreements, and related contributions receivable. These restrictions are expected to be removed through the passage of time, the appropriation of endowment earnings by the

Institute, and/or the occurrence of expenditures that meet donors' restrictions. Expirations of temporary restrictions on net assets are reported as releases from temporarily restricted to unrestricted net assets in the statements of activities. Donor-restricted gifts that are received and either spent or deemed spent within the same fiscal year are reported as unrestricted revenues.

Unrestricted net assets are those not subject to donor-imposed restrictions.

Use of Estimates
The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Redesignations
Net assets related to certain contributions received in prior periods have been transferred among net asset categories due to changes in donor designations.

Reclassifications
Certain balances at September 30, 2009, and for the year then ended have been reclassified to conform to the current year presentation.

Cash and Cash Equivalents
Cash and cash equivalents includes bank account balances, investments in money market funds, as well as other short-term investments that have remaining maturities of three months or less when purchased. The Institute classifies all cash and cash equivalents held as part of the investment portfolio as investments. At September 30, 2010 and 2009, short-term investments, as disclosed in Note D, included $271,969 and $453,885, respectively, in cash and cash equivalents. Carrying amounts of cash and cash equivalents approximate fair value due to the relatively short maturities of these instruments.

Under the Institute's cash management system, checks issued but not presented to banks may result in overdraft balances for accounting purposes and are included in accounts payable and accrued expenses in the balance sheets if an overdraft situation exists. There were no overdrafts at September 30, 2010 and 2009.

Advances and Deposits
Advances include certain cash balances, totaling $3,780 and $2,336 at September 30, 2010 and 2009, respectively, that are restricted for use in connection with United States government-sponsored research. Deposits include $1,308 and $969 at September 30, 2010 and 2009, respectively, in cash withheld from employees for health and dependent care spending accounts.

Accounts and Notes Receivable
Accounts receivable under contracts and grants are carried at cost, less an allowance for doubtful accounts. The allowance for doubtful accounts was $767 and $872 at September 30, 2010 and 2009, respectively. Student accounts and notes receivable of $7,096 and $7,012 at September 30, 2010 and

2009, respectively, are carried at cost; doubtful accounts are charged to expense when they are deemed to become uncollectible. The value of receivables at cost, less any applicable allowances, approximates fair value.

Investments
Investments are recorded at fair values based on a hierarchy that prioritizes the inputs to valuation techniques used to measure fair value as discussed in Note K. Purchases and sales of securities are recorded on trade dates, and realized gains and losses are determined based on the average cost of securities sold. There were no outstanding purchases or sales at September 30, 2010 or September 30, 2009.

The Institute engages a number of outside parties to manage portions of its investment portfolio. The Institute's investment strategy incorporates certain financial instruments, which involve, to varying degrees, elements of market and credit risk.

Alternative investments include holdings in limited partnerships, limited liability companies, and offshore investment funds. These investments may not be readily marketable or redeemable, and may specify penalties for early liquidation from the related funds. The Institute reviews and evaluates the values provided by external investment managers and has agreed with the valuation methods and assumptions used in determining the fair value of the alternative investments. Those estimated fair values may differ from the values that could have been determined had a ready market for these securities existed.

At September 30, 2010 and 2009, investments included short-term investments valued at $22,997 and $50,259, respectively, that were purchased with unexpended proceeds from the 2009 Series California Educational Facilities Authority (CEFA) revenue bonds. These assets are limited to use in specific construction projects.

Endowment
Endowment net assets are those held for long-term investment in support of the Institute. All investments of endowment assets are carried in an investment pool unless special considerations or donor stipulations require that they be held separately. Endowment net assets include donor-restricted endowments and board-designated endowments. Gift annuities, interests in trusts held by others, contributions receivable, and unexpended funds appropriated from endowment earnings that are subject to remaining purpose restrictions are not considered endowment net assets.

Pursuant to its interpretation of the Uniform Prudent Management of Institutional Funds Act ("UPMIFA") as enacted in California, the Institute classifies as permanently restricted net assets (a) the original value of gifts to permanent endowments, (b) the original value of subsequent gifts to permanent endowments, and (c) the value of accumulations to permanent endowments made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portions of donor-restricted endowment funds that are not classified in permanently restricted net assets are classified as temporarily restricted net assets until those amounts are appropriated for expenditures by the Institute in a manner consistent with the standard of prudence prescribed by UPMIFA and Institute policies. In accordance with UPMIFA, the

Institute considers the following factors in making a determination to appropriate endowment earnings:

- The duration and preservation of the fund
- The purpose of the donor-restricted endowment fund
- General economic conditions
- The possible effects of inflation and deflation
- The expected total return from income and the appreciation of investments
- Other resources of the Institute
- The investment policies of the Institute

The Institute appropriates endowment earnings for expenditures based on current spending rates and, if applicable, the incurrence of specific expenditures in accordance with donors' purpose restrictions.

A primary Institute endowment investment objective is to provide a predictable stream of funding to programs by investing endowment assets to earn an average annual total return that exceeds inflation by at least the amount required to support the endowment's contribution to the operating budget. This objective relies on a strategy in which investment returns are achieved through both capital appreciation (realized and unrealized gains) as well as current yield (interest and dividends). The Institute targets a diversified asset allocation, including investments in both public markets and in alternative investments, within prudent risk constraints.

In accordance with the Institute's 2010 spending policy, 5.75% of the average of the twelve calendar quarters' endowment market values immediately preceding a given fiscal year is available each year for distribution to the operating budget. If current-year interest, dividends, and gains are not sufficient to support the current-year distribution, the balance is provided from prior years' accumulated earnings.

As a result of market declines, the fair value of certain donor-restricted endowment funds is less than the historical value of such funds. The aggregate deficiencies for donor-restricted endowment funds were $48,485 and $63,439 at September 30, 2010 and 2009, respectively, and are recorded in unrestricted net assets. Such deficiencies reverse with market value appreciation. Reversals of these deficiencies increase unrestricted net assets.

Derivatives

The Institute uses an interest rate swap to manage the interest rate exposure of a portion of its variable rate debt. The swap is recorded at fair value, which is the estimated amount that the Institute would receive or pay to terminate the agreement, taking into account current interest rates and the current credit-worthiness of the swap counterparty. Realized losses of $5,556 and $4,891 resulted from regular settlements with the counterparty during the years ended September 30, 2010 and 2009, respectively, and are included in investment return in the statements of activities. Changes in the swap's fair value during the years ended September 30, 2010 and 2009, resulted in unrealized losses of $14,101 and $15,466, respectively, and are included in investment return in the statements of activities. The fair value of the swap was a liability of $41,458 and $27,357 at September 30, 2010 and 2009, respectively, and is included in accounts payable and accrued expenses in the balance sheets.

The Institute's externally managed investment funds may include derivatives. The fair value of any such derivatives is included in the calculation of the fair values of the Institute's investments in such funds.

Property, Plant, and Equipment

Property, plant, and equipment is recorded at the cost of construction or acquisition, or at the fair value of contributed assets at the date of the gift. Interest costs related to debt used for construction of assets are capitalized and included in the cost of construction. Depreciation on all assets is calculated over the estimated useful lives as defined for each class of depreciable asset, which range from three to fifty years, and is computed using the straight-line method. Depreciation on buildings is calculated based on the useful lives of each major building component. The Institute provides for the renewal and replacement of assets from various sources set aside for this purpose. The Institute routinely acquires or constructs equipment under federal and non federal research grants. Assets acquired or constructed under both federal and nonfederal grants in which title does not ultimately transfer to the Institute are not recorded as property, plant, and equipment.

The Institute records conditional asset retirement obligations primarily related to asbestos removal and disposal for future remediation activity. Asset retirement cost, net of accumulated depreciation, at September 30, 2010 and 2009 was $1,118 and $1,256, respectively, and is included in property, plant, and equipment in the balance sheets. The asset retirement obligation at September 30, 2010 and 2009 was $11,043 and $10,638, respectively, and is included in accounts payable and accrued expenses in the balance sheets.

Split-Interest Agreements

The Institute's split-interest agreements with donors consist primarily of charitable gift annuities and charitable remainder trusts for which the Institute serves as trustee. For irrevocable agreements, assets contributed are included in Institute investments at fair value. Contribution revenue is recognized at the date each trust is established after recording liabilities for the actuarially determined present value of the estimated future payments to be made to the beneficiaries. The actuarial liability is discounted at an appropriate risk-adjusted rate at the inception of each agreement and the applicable actuarial mortality tables. Discount rates on all split-interest agreements range from 3.2% to 11.2%. The liabilities are adjusted during the terms of the trusts for changes in the fair value of the assets, accretion of discounts, and other changes in the estimates of future benefits. Actuarial liabilities totaled $60,514 and $61,074 at September 30, 2010 and 2009, respectively, and are included in liabilities for annuities, trust agreements, and agency funds in the balance sheets. The Annuity 2000 Mortality Table was used for the years ended September 30, 2010 and 2009.

The Institute is also the trustee for certain revocable agreements. Assets contributed are included in Institute investments at fair value, and amounts equal to the value of assets are included in liabilities for annuities, trust agreements, and agency funds. Total assets and liabilities for revocable agreements were $3,166 and $11,464 at September 30, 2010 and 2009, respectively.

Beneficial Interests

The Institute is the beneficiary of charitable remainder and perpetual trusts held and administered by others. The fair value of the Institute's interest in these trusts is determined by the fair value of trust assets, multiplied by the Institute's percentage interest in the various trusts, and is included in prepaid expenses and other assets in the balance sheets. Contribution revenues are recognized at the date the

trusts are established. Distributions from perpetual trusts are recorded as contribution revenues, and the carrying value of the beneficial interests is adjusted for changes in the values of the underlying assets. These assets totaled $20,063 and $11,972 at September 30, 2010 and 2009, respectively.

Retirement Plans
The Institute's retirement plans cover substantially all of its employees. Except for a small number of former employees who participated in a defined benefit pension plan that was terminated in 1993 and who are covered by a successor defined benefit pension plan, the Institute provides a defined contribution retirement program for its qualified academic and administrative employees. Contributions to IRC Section 403(b) defined contribution plans for the years ended September 30, 2010 and 2009 were $21,637 and $21,592, respectively, for the Campus and $64,275 and $64,358, respectively, for JPL. The Institute has no assets or liabilities related to these plans.

At September 30, 2010 and 2009, respectively, prepaid expenses and other assets included $42,992 and $37,503 in assets held pursuant to IRC Section 457 retirement plans. The assets are invested with external investment managers and are recorded at fair value. The Institute's liabilities related to these funds were $41,913 and $36,999 at September 30, 2010 and 2009, respectively, and are included in accounts payable and accrued expenses in the balance sheets.

Funds Held for Others
The Institute held assets totaling $9,300 and $8,554 in agency funds at September 30, 2010 and 2009, respectively. The assets held are primarily included in investments in the balance sheets. The corresponding liability, which is equal to assets held, is included in annuities, trust agreements, and agency funds on the balance sheets.

Compensated Absences
Employees at the Institute are entitled to paid vacation based upon length of service and other factors. The Institute accrues a liability for vacation benefits that employees have earned but not yet taken. At September 30, 2010 and 2009, accrued compensated absences of $73,917 and $71,348, respectively, are included in accounts payable and accrued expenses in the balance sheets.

Workers' Compensation Insurance
The Institute provides workers' compensation insurance to its employees. Liabilities for the Institute's retained risk related to such coverage are determined by an actuary and are included in accounts payable and accrued expenses in the balance sheets. At September 30, 2010 and 2009, the estimated liabilities for workers' compensation amounted to $7,810 and $9,292, respectively.

Revenue Recognition
The Institute's revenue recognition policies are as follows:

- *Tuition and fees* - Student tuition and fees are recorded as revenues during the year the related academic services are rendered and displayed net of financial aid on the statements of activities. Tuition and fees totaled $71,506 and $68,030 at September 30, 2010 and 2009, respectively. Student financial aid totaled $41,920 and $38,868 at September 30, 2010 and 2009, respectively. Student tuition and fees received in advance of services to be rendered are recorded as deferred revenue.

- *Investment return (loss)* - Investment transactions are recorded on the trade date. Investment income and realized and unrealized gains and losses, net of investment management fees, are reported as increases or decreases to the appropriate net asset category.

- *Gifts* - Gifts from donors, including contributions receivable from unconditional promises to give, are recorded as revenues in the year received. Gifts are recorded at fair value using quoted market prices, market prices for similar assets, independent appraisals, or as estimated by Institute management. Gift revenue from contributions to be collected in the form of securities or other investments is adjusted to reflect the year-end value of securities and/or investments to be contributed. Donor-restricted gifts, which are received and either spent, or deemed spent, within the same year, are reported as unrestricted revenue. Gifts of long-lived assets with no donor-imposed time restrictions are reported as unrestricted revenue in the year received. Gifts restricted to the acquisition or construction of long-lived assets are reported as temporarily restricted revenue and released to unrestricted net assets when long-lived assets are placed in service. Gifts that are subject to other time or purpose restrictions are reported as temporarily restricted revenue and released to unrestricted net assets when donor restrictions are fulfilled. Gifts received for endowment investment are held in perpetuity and recorded as permanently restricted revenue. Conditional promises to give are not recorded until donor-imposed conditions have been substantially met. Conditional promises to give totaled $108,904 and $127,657 at September 30, 2010 and 2009, respectively. At September 30, 2010 and 2009, respectively, conditional promises included $77,500 and $85,000 for research programs from a foundation that shares a common board member with the Institute.

- *Grants and contracts* - Revenues from grants and contracts are reported as increases in unrestricted net assets as allowable expenditures under such agreements are incurred. Certain grants and contracts provide for the reimbursement of indirect facilities and administrative costs based on rates negotiated with the Office of Naval Research, the Institute's federal cognizant agency for the negotiation and approval of facilities and administrative and other indirect cost rates. Amounts received in excess of expenditures are recorded as deferred revenue.

- *Auxiliary enterprises* - Revenues from supporting services, such as dining facilities, faculty and student housing, and bookstores, are recorded at time of delivery of a product or service. Amounts received in advance of deliveries of products or services are recorded as deferred revenue.

Expenses

Expenses are generally reported as decreases in unrestricted net assets. The statements of activities present expenses by functional classification in accordance with the overall educational and research mission of the Institute.

Building and improvements depreciation and plant operation expenses are allocated to functional classifications based on square footage occupancy of Institute facilities. Equipment depreciation is allocated to functional classifications based on average equipment purchases attributed to each classification. Interest expense on external debt, net of amounts capitalized, is allocated to the functional categories that have benefited from the proceeds of such debt. Interest expense, net of

capitalized interest, for the years ended September 30, 2010 and 2009 was $8,436 and $5,959, respectively, and capitalized interest was $1,078 and $926, respectively.

New Accounting Pronouncements

During the year ended September 30, 2010, the Institute adopted a new accounting standard that expanded pension and other postretirement benefit plan disclosures related to the fair value of each plan's assets. Adoption of this standard had no material impact on the financial statements.

During the year ended September 30, 2009, the Institute adopted a new accounting standard that required the Institute to change the measurement date of its defined benefit pension and other postretirement plan assets and obligations to coincide with its fiscal year-end date. The following table summarizes the incremental effects of the measurement date provision on the Institute's balance sheet at September 30, 2009:

	Before measurement date change	Adjustment	After measurement date change
Deferred United States government billings	$ 443,984	$ 5,729	$ 449,713
Total assets	3,505,788	5,729	3,511,517
Accounts payable and accrued expenses	379,266	49	379,315
Accumulated postretirement benefit obligation	494,660	7,618	502,278
Total liabilities	1,411,330	7,667	1,418,997
Unrestricted net assets	568,124	(1,938)	566,186
Total net assets	2,094,458	(1,938)	2,092,520
Total liabilities and net assets	3,505,788	5,729	3,511,517

During the year ended September 30, 2009, the Institute adopted a new accounting standard that governs how not-for-profit organizations classify the net assets of donor-restricted endowment funds subject to an enacted version of the Uniform Prudent Management of Institutional Funds Act of 2006 ("UPMIFA"). The new standard requires that net appreciation related to permanent endowments be classified as temporarily restricted net assets until appropriated for expenditures. In addition, the standard requires enhanced disclosures for all endowment funds. The State of California adopted UPMIFA effective January 1, 2009. As of the enactment date, the Institute recorded an adjustment to reclassify $467,791 from unrestricted to temporarily restricted net assets related to the adoption of this standard.

In September 2009, the Financial Accounting Standards Board issued Accounting Standards Update (ASU) 2009-12, which allows the Institute to measure the fair value of its investments in certain entities, as defined by the standard, at net asset value (NAV). The investments covered by the

standard are generally classified as alternative investments by the Institute. The Institute chose to early adopt the recognition and valuation provisions of the standard for the year ended September 30, 2009. The Institute has historically used NAV as a basis for determining the fair value of applicable investments and therefore the adoption had no material impact on the financial statements. During the year ended September 30, 2010, the Institute adopted the disclosure requirements of this standard.

In January 2010, the FASB issued an update to ASU 2009-12. The update expands required disclosures about fair value measurements. In particular, this guidance requires: (1) separate disclosure of the amounts of significant transfers in and out of Level 1 and Level 2 fair value measurements along with the reasons for such transfers; (2) information about purchases, sales, issuances, and settlements to be presented separately in the reconciliation for Level 3 fair value measurements; (3) fair value measurement disclosures for each class of assets and liabilities; and (4) disclosures about the valuation techniques and inputs used to measure fair value for both recurring and nonrecurring fair value measurements that fall in either Level 2 or Level 3. This guidance is effective for the Institute's fiscal year beginning October 1, 2010, except for (2) above, which is effective for the fiscal year beginning October 1, 2011. The Institute is currently evaluating the impact that this guidance will have on its financial statement disclosures.

C. Contributions Receivable, net

Contributions receivable consist of unconditional promises to give to the Institute in the future. Contributions receivable are initially recorded at fair value including a discount to the present value of the future cash flows at an appropriate risk-adjusted rate. Discount rates on all outstanding contributions at September 30, 2010 and 2009 range from 2.64% to 5.84%.

Contributions receivable consisted of the following at September 30, 2010 and 2009:

	2010	2009
Contributions receivable at beginning of year, net	$ 197,931	$ 212,964
Discount at beginning of year	15,266	18,275
Allowance for doubtful accounts at beginning of year	197	236
Contributions receivable at beginning of year, gross	213,394	231,475
New contributions received	3,508	50,379
Contribution payments received	(74,741)	(64,280)
Adjustments to fair value of securities to be contributed	505	(2,310)
Write offs and other adjustments	64	(1,870)
Contributions receivable at end of year, gross	142,730	213,394
Discount at end of year	(10,662)	(15,266)
Allowance for doubtful accounts at end of year	(99)	(197)
Contributions receivable at end of year, net	$ 131,969	$ 197,931

Gross contributions receivable carried the following restrictions at September 30, 2010 and 2009:

	2010	2009
Endowment for programs, activities, and scholarships	$ 27,452	$ 40,550
Building construction	1,414	1,937
Education, general and time restrictions	113,864	170,907
Total contributions receivable, gross	$ 142,730	$ 213,394

Gross contributions receivable are expected to be realized as follows at September 30, 2010 and 2009:

	2010	2009
Within one year	$ 54,615	$ 62,526
Between one year and five years	65,897	124,670
More than five years	22,218	26,198
Total contributions receivable, gross	$ 142,730	$ 213,394

At September 30, 2010 and 2009, contributions receivable of $75,611 and $97,808, respectively, were due from a foundation that shares a common board member with the Institute. At September 30, 2010 and 2009, contributions receivable of $19,200 and $37,671, respectively, were due from this board member in the form of securities.

At September 30, 2010 and 2009, contributions receivable of $14,507 and $19,024 were due from another foundation that shares a common board member with the Institute.

D. Investments

Investments consisted of the following at September 30, 2010 and 2009:

	2010	2009
Short-term investments	$ 321,147	$ 455,099
Fixed-income securities	69,815	69,401
Equity securities	522,553	419,955
Other investment funds	-	19,039
Alternative investments:		
Absolute return strategies	513,511	408,864
Private equity	176,491	151,621
Real Assets	205,073	188,271
Real estate mortgages, notes, and other investments	25,075	27,839
Total investments	$ 1,833,665	$ 1,740,089

At September 30, 2010 and 2009, short-term investments included $271,969 and $453,885, respectively, in cash and cash equivalents.

At September 30, 2009, other investment funds consisted of amounts held by a fund whose trustee had restricted redemptions by shareholders. During the year ended September 30, 2010, the Institute redeemed its holdings in the fund in exchange for cash.

Investments were categorized as follows at September 30, 2010 and 2009:

	2010	2009
Investment pool	$ 1,600,757	$ 1,462,206
Separately invested endowments	45,536	53,242
Trusts, annuities, and other	187,372	224,641
Total investments	$ 1,833,665	$ 1,740,089

At September 30, 2010 and 2009, endowment investments were $1,631,076 and $1,508,460, respectively.

Investment return/(loss) consisted of the following for the years ended September 30, 2010 and 2009:

	2010	2009
Interest and dividend income	$ 12,099	$ 10,038
Net realized gains/(losses)	96,899	(24,829)
Net unrealized appreciation/(depreciation)	15,712	(127,714)
Total investment return/(loss)	$ 124,710	$ (142,505)

Investment return includes realized and unrealized losses related to the interest rate swap agreement as discussed in Note B.

E. Deferred United States Government Billings

The Institute's contract with NASA provides for the reimbursement of certain employee benefit costs incurred but not yet billed to the JPL contract. Therefore, the Institute has recorded deferred United States government billings related to the portion of its accumulated postretirement benefit obligation, accrued vacation, workers' compensation, and pension benefit liabilities attributable to JPL, as the Institute expects to recover these amounts through future charges to JPL contracts. Although these deferred billing amounts may not be currently funded, and therefore may need to be funded as part of future NASA budgets, the Institute believes it has the contractual right to require that such funding be made available at the time these employee benefit costs become payable by the Institute.

Deferred United States government billings related to deferred reimbursements of the following liabilities at September 30, 2010 and 2009:

	2010	2009
Accumulated postretirement benefit obligation	$ 416,280	$ 386,278
Accrued vacation benefits	59,363	57,640
Other benefit liabilities	5,082	5,795
Total deferred United States government billings	$ 480,725	$ 449,713

F. Property, Plant, and Equipment, net

Property, plant, and equipment consisted of the following at September 30, 2010 and 2009:

	2010	2009
Land and land improvements	$ 55,961	$ 50,634
Buildings and building improvements	822,245	723,580
Equipment	500,475	495,890
Construction in progress	77,925	142,795
Less: accumulated depreciation	(609,400)	(574,275)
Total property, plant, and equipment, net	$ 847,206	$ 838,624

Depreciation expense for the years ended September 30, 2010 and 2009 was $59,454 and $55,355, respectively.

G. Bonds and Notes Payable

Bonds and notes payable consisted of the following at September 30, 2010 and 2009:

Bonds Payable:	2010	2009
California Educational Facilities Authority (CEFA) revenue bonds:		
2009 Series due November 1, 2039, with interest at 5.00% (gross of issue premium of $668 and $691, respectively)	$ 80,668	$ 80,691
2006 Series A due October 2036, with variable interest rates reset weekly (0.20% and 0.22%, respectively)	82,500	82,500
2006 Series B due October 2036, with variable interest rates reset weekly (0.18% and 0.30%, respectively)	82,500	82,500
Series 1998 due October 2028, with interest at 4.25% (net of issue discount of $2,057 and $2,172, respectively)	48,508	48,393
Series 1998 due October 2027, with interest at 4.5% (net of issue discount of $2,169 and $2,289, respectively)	51,131	51,011
Series 1994 due January 2024, with variable interest rates reset weekly (0.20% and 0.22%, respectively)	30,000	30,000
Total bonds	375,307	375,095
Notes payable:		
Bank of America revolving bank credit facility expiring January 2011, with variable interest rates (0.42% and 0.41%, respectively)	51,830	5,100
Bank of America revolving bank credit facility expiring January 2011, with variable interest rates (0.37% at September 30, 2009)	-	50,000
Bank of America revolving bank credit facility expiring June 2013, with variable interest rates	-	-
Commercial paper note program ($100,000 authorized), weighted-average interest (0.25% at September 30, 2009)	-	5,000
Bank of New York money market loan program with no expiration date, with variable interest rates	-	-
JPMorgan Chase money market loan program with no expiration date, with variable interest rates	-	-
Wells Fargo revolving bank credit facility expiring June 2013, with variable interest rates	-	-
Total notes payable	51,830	60,100
Total bonds and notes payable	$ 427,137	$ 435,195

As of September 30, 2010, the Institute had available to it six unsecured revolving lines of credit (the "Lines of Credit"). The Institute has internally-mandated aggregate borrowing limits under the Lines of Credit, which include the following amounts: $100.0 million for borrowings to finance working capital; $25.0 million for borrowings to finance acquisitions of real estate and temporary funding for capital projects; and $200.0 million for borrowings secured to preserve liquidity. All credit facilities and money market loan program agreements are uncollateralized.

The table below summarizes the material terms of the Lines of Credit, including permitted uses of any funds drawn under each individual Line of Credit at September 30, 2010:

Financial Institution	Permitted Maximum Amount	Outstanding Amounts	Facility Maturity	Purpose
Bank of America	$100,000	$ 51,830	January 2011	General working capital and capital projects
JPMorgan Chase	62,000	-	None	General working capital and capital projects
Bank of America	50,000	-	January 2011	General working capital and capital projects
Bank of New York	50,000	-	None	General working capital and capital projects
Bank of America	50,000	-	June 2013	Liquidity for variable rate bonds and commercial paper
Wells Fargo	50,000	-	June 2013	Liquidity for variable rate bonds and commercial paper

The lines of credit from Bank of New York, JPMorgan Chase, and the Bank of America line of credit for $50,000 maturing in January 2011 all are uncommitted. Maturity dates for individual advances made by these institutions are to be determined at the time advances are made.

Financial covenants under certain of the Lines of Credit require that the Institute maintain a ratio of unrestricted cash and investments to total adjusted debt outstanding equal to at least 0.5 to 1.0.

In July 2009, the Institute activated a facility that permits the issuance of an aggregate total of $100,000 in taxable or tax-exempt commercial paper to finance capital projects. Currently, the Institute has imposed an internal limit on borrowing under the commercial paper program of $20,000.

Principal repayments on bonds and notes payable were as follows at September 30, 2010:

Year Ending September 30	Amount
2011	$ 246,830
2012	-
2013	-
2014	-
2015	-
Thereafter	180,307
Total	$ 427,137

Under certain circumstances, the CEFA Series 1994 and 2006 Series A and 2006 Series B variable rate revenue bonds could fail to be remarketed, requiring the Institute to repurchase the outstanding bonds totaling approximately $195,000. Therefore, those bonds have been classified as repayable in the following year in the table above.

The fair value of bonds payable and commercial paper is estimated based on quoted market prices for the bonds or paper or similar financial instruments and was $385,926 and $390,969 at September 30, 2010 and 2009, respectively. Amounts outstanding under the Lines of Credit totaling $51,830 and $55,100 at September 30, 2010 and 2009, respectively, are carried at cost, which approximates fair value.

In 2006, the Institute entered into an interest rate swap agreement in conjunction with issuance of the 2006 Series A and B variable rate revenue bonds. Under the terms of the agreement, which expires October 1, 2036, the Institute pays the counterparty a fixed interest rate of 3.549% and receives a variable rate, indexed at 67% of one-month LIBOR (0.17% at September 30, 2010), on a $165,000 underlying notional principal amount.

H. Net Assets

Temporarily restricted net assets were available for the following purposes at September 30, 2010 and 2009:

	2010	2009
Educational and research funds	$ 91,936	$ 105,747
Contributions receivable	107,944	164,299
Capital projects	264	78,592
Life income and annuity funds	32,275	23,882
Endowments	468,321	442,670
Total temporarily restricted net assets	$ 700,740	$ 815,190

The changes in temporarily restricted net assets related to capital projects are due primarily to the completion of three major Campus buildings and the release of temporarily restricted gifts related to construction.

Permanently restricted net assets were available for the following purposes at September 30, 2010 and 2009:

	2010	2009
Student loan funds	$ 15,470	$ 14,962
Contributions receivable	24,025	33,632
Life income and annuity funds	30,282	27,742
Endowments	692,550	634,808
Total permanently restricted net assets	$ 762,327	$ 711,144

Reclassifications and redesignations of net assets in the Statement of Activities for the year ended September 30, 2010, include the effects of out-of-period reclassifications among unrestricted, temporarily restricted, and permanently restricted net asset categories. The reclassifications increased unrestricted net assets by $25,046, decreased temporarily restricted net assets by $26,058, and increased permanently restricted net assets by $1,012. The reclassifications are primarily due to the recognition of the effect of expirations of temporary donor restrictions on gifts for acquisition of buildings and equipment that were not appropriately released to unrestricted net assets in the period that the related fixed assets were placed into service, primarily in the fiscal year ended September 30, 2009. The adjustments did not affect overall net assets and were not considered material to the financial statements.

Endowment net assets consisted of the following at September 30, 2010:

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor-restricted endowment funds	$ (59,580)	$ 468,321	$ 692,550	$ 1,101,291
Board-designated endowment funds	530,668	-	-	530,668
Total endowment net assets	$ 471,088	$ 468,321	$ 692,550	$ 1,631,959

Endowment net assets consisted of the following at September 30, 2009:

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor-restricted endowment funds	$ (63,439)	$ 442,670	$ 634,808	$ 1,014,039
Board-designated endowment funds	492,980	-	-	492,980
Total endowment net assets	$ 429,541	$ 442,670	$ 634,808	$ 1,507,019

Changes in endowment net assets for the years ended September 30, 2010 and 2009, were as follows:

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Balance as of October 1, 2008	$ 1,026,043	$ 39,208	$ 594,207	$ 1,659,458
Effect of change in accounting principle	(429,493)	429,493	-	-
Investment return:				
Investment income	5,911	3,680	55	9,646
Net (decline) appreciation in market value	(158,008)	22,848	(124)	(135,284)
Total investment return	(152,097)	26,528	(69)	(125,638)
Contributions and pledge payments	12,136	450	32,764	45,350
Additions to board-designated endowments	29,691	-	-	29,691
Appropriation for expenditure	(49,729)	(45,112)	(676)	(95,517)
Redesignations, reclassifications, and other	(7,010)	(7,897)	8,582	(6,325)
Balance as of September 30, 2009	**429,541**	**442,670**	**634,808**	**1,507,019**
Investment return:				
Investment income	436	-	-	436
Net appreciation in market value	73,950	70,417	1,340	145,707
Total investment return	74,386	70,417	1,340	146,143
Contributions and pledge payments	-	675	45,949	46,624
Additions to board-designated endowments	29,148	-	-	29,148
Appropriation for expenditure	(53,686)	(48,021)	(775)	(102,482)
Redesignations, reclassifications, and other	(8,301)	2,580	11,228	5,507
Balance as of September 30, 2010	**$ 471,088**	**$ 468,321**	**$ 692,550**	**$ 1,631,959**

The $429,493 effect of the change in accounting principle noted above is included in the overall effect of the change in accounting principle related to endowments in the statement of activities for the year ended September 30, 2009. The amount above excludes $38,298 of the overall effect of the change in accounting principle for endowments that is related to items not considered endowment net assets under the Institute's definition.

I. Retirement Plans

A small number of employees who participated in a defined benefit pension plan that was terminated in 1993 participate in a successor defined benefit pension plan. Retirement benefits under that plan are determined based on years of service and career average compensation, and accrued partially on a fixed-dollar basis and partially on a variable-dollar basis. Financial and actuarial information for the plan is based on a September 30 measurement date.

Certain financial information regarding the successor defined benefit plan was as follows for the years ended September 30, 2010 and 2009:

	2010	2009
Change in the benefit obligation:		
Benefit obligation at beginning of year	$ 4,871	$ 4,828
Service cost	34	35
Interest cost	239	254
Measurement date change	-	51
Benefits paid	(152)	(98)
Actuarial loss/(gain)	379	(199)
Benefit obligation at end of year	$ 5,371	$ 4,871

The accumulated benefit obligation for the defined benefit pension plan was $5,347 and $4,853, respectively, at September 30, 2010 and 2009.

	2010	2009
Change in fair value of plan assets:		
Fair value of plan assets at beginning of year	$ 3,033	$ 2,426
Actual return on plan assets	224	145
Employer contributions	404	444
Benefits paid	(152)	(98)
Measurement date change	-	118
Plan expenses	(3)	(2)
Fair value of plan assets	$ 3,506	$ 3,033

	2010	2009
Funded status at valuation date:		
Funded status	$ (1,865)	$ (1,838)
Net amount recognized at end of year	$ (1,865)	$ (1,838)

The unfunded benefit obligation is recognized in accounts payable and accrued expenses in the balance sheets. The statements of activities include the effects of changes in the accumulated benefit obligation that are not otherwise recognized in periodic pension cost. The effect for the Campus was a decrease in unrestricted net assets of $164 and $14 for the years ended September 30, 2010 and 2009, respectively, and is recorded in other changes in unrestricted net assets. The effect related to JPL for the years ended September 30, 2010 and 2009, respectively, was an increase of $146 to JPL direct expense and revenue and to deferred U.S. government billings, and a decrease to JPL direct expense and revenue of $188, and to deferred U.S. government billings, respectively, as any cost associated with this adjustment related to JPL will ultimately be recoverable from NASA.

As discussed in Note B, the Institute was required to measure plan assets and liabilities at September 30, effective for the year ended September 30, 2009. Previously, the Institute used a June 30 measurement date. This change required that the Institute adjust unrestricted net assets for the effect of this change in accounting principle. The adjustment for the Campus was $11 for the year ended September 30, 2009, and is reflected in accounts payable and accrued expenses in the balance sheets and as a change in accounting principle for pension and postretirement plans in the statements of activities. The adjustment related to JPL was $38 for the year ended September 30, 2009, and is reflected in accounts payable and accrued expenses in the balance sheets, as well as in both JPL direct expense and revenue, and in deferred U.S. government billings, as any cost associated with this adjustment related to JPL will ultimately be recoverable from NASA.

Differences between accumulated periodic pension expense and the unfunded accumulated pension obligation are recorded in unrestricted net assets. At September 30, 2010 and 2009, those differences were as follows:

	2010	2009
Amounts recognized in unrestricted net assets:		
Net actuarial loss	$ 749	$ 438
Total amounts recognized as unrestricted net assets	$ 749	$ 438

Net periodic cost related to the plan for the years ended September 30, 2010 and 2009, included the following components:

	2010	2009
Service cost	$ 34	$ 35
Interest cost	239	254
Recognized actuarial loss	6	43
Expected return on plan assets	(160)	(137)
Net periodic cost	$ 119	$ 195

Estimated contributions to the retirement plan in the next year are $474.

Estimated future benefit payments are expected to be paid as follows:

Year Ending September 30	Benefit Payments
2011	$ 242
2012	271
2013	323
2014	348
2015	363
2016–2020	1,948

Participant annuities may be fixed or variable and reflect the value of designated plan equity and fixed-income securities. Plan assets are invested in separate accounts by the funding agent and carry a target allocation of 19% equities, 76% fixed-income, and 5% short-term investments. At September 30, 2010 and 2009, total retirement plan assets were invested as follows:

	2010	2009
Equity securities	16.00%	16.00%
Fixed-income securities	81.00%	83.00%
Cash	3.00%	1.00%

The following weighted-average assumptions were used to determine the Institute's benefit obligations under the plan at September 30, 2010 and 2009:

	2010	2009
Discount rate	4.90%	5.70%
Expected return on plan assets	5.25%	5.25%
Long-term rate of compensation increase	4.00%	4.00%

To develop the expected long-term rate of return on assets, the Institute considers the historical returns and future expectations for each asset class, as well as the asset allocation of the retirement plan's investment portfolio. Estimated future return was based on expected returns for various asset categories. The evaluation of the historical and future returns resulted in the selection of 5.25% for the expected return on plan assets.

The following weighted-average assumptions were used to determine the Institute's net periodic benefit cost under the plan for the years ended September 30, 2010 and 2009:

	2010	2009
Discount rate	5.70%	7.00%
Expected return on plan assets	5.25%	5.25%
Long-term rate of compensation increase	4.00%	4.00%

As described in Note K, the Institute uses a hierarchy to report the fair value of invested assets, including the invested assets for the defined benefit plan. All of the plan's investments fall within Level 2 of that hierarchy.

The following table summarizes the investments of the Institute's defined benefit plan assets as of September 30, 2010 and 2009:

	2010	2009
Short-term investments	$ 95	$ 39
Fixed-income securities	2,850	2,510
International equity securities	326	276
Domestic equity securities	235	208
Total	$ 3,506	$ 3,033

J. Postretirement and Postemployment Benefits Other Than Pensions

The Institute's employees may be eligible for certain health and life insurance benefits upon retirement. The Institute's obligation related to these benefits is actuarially determined and has been recorded in the accompanying balance sheets. Any actuarial deferrals resulting from changes in the accumulated postretirement benefit obligation are amortized over the average future working lifetime of Institute employees.

The Institute's postretirement benefits are funded on a pay-as-you-go basis; therefore, there are no plan assets. As a result, a formal investment policy has not been developed.

Certain financial information regarding the plan was as follows for the years ended September 30, 2010 and 2009, and is based on a September 30 measurement date:

	2010	2009
Change in the accumulated postretirement benefit obligation:		
Accumulated postretirement benefit obligation at beginning of year	$ 502,278	$ 344,259
Service cost	15,385	10,119
Interest cost	29,074	23,689
Participant contributions	3,987	3,192
Measurement date change	-	8,452
Benefits paid	(18,897)	(20,870)
Actuarial loss	7,805	133,437
Benefit obligation at end of year	$ 539,632	$ 502,278

	2010	2009
Components of net periodic postretirement benefit cost:		
Service cost	$ 15,385	$ 10,119
Interest cost	29,074	23,689
Amortization of prior year service credit	(3,337)	(3,337)
Amortization of loss	7,093	-
Net periodic benefit cost	$ 48,215	$ 30,471

	2010	2009
Change in the fair value of plan assets:		
Employer contributions	$ 14,910	$ 14,267
Participant contributions	3,987	2,344
Benefits paid	(18,897)	(16,611)
Fair value of plan assets at end of year	$ -	$ -

The accumulated postretirement benefit obligation is recognized as a liability in the balance sheets. The statements of activities include the effects of changes in the postretirement benefit obligation that are not otherwise recognized in periodic postretirement benefit cost. The effect for the Campus was an increase in unrestricted net assets of $1,643 and a decrease in unrestricted net assets of $34,224 for the years ended September 30, 2010 and 2009, respectively, and is recorded in other changes in unrestricted net assets. The effect related to JPL for the years ended September 30, 2010 and 2009, respectively, was an increase of $5,692 and $111,003 to both JPL direct expense and revenue and to deferred U.S. government billings, as any cost associated with this adjustment related to JPL will ultimately be recoverable from NASA.

As discussed in Note B, the Institute was required to measure plan assets and liabilities at September 30, effective for the year ended September 30, 2009. Previously, the Institute used a June 30 measurement date. This change required that the Institute adjust unrestricted net assets for the effect of this change in accounting principle. The adjustment for the Campus was $1,927 for the year ended September 30, 2009, and is reflected in the accumulated postretirement benefit obligation in the balance sheet and as a change in accounting principle for pension and postretirement plans in the statement of activities. The adjustment related to JPL was $5,691 for the year ended September 30, 2009, and is reflected in the balance sheets, as well as in both JPL direct expense and revenue, and in deferred U.S. government billings, as any cost associated with this adjustment related to JPL will ultimately be recoverable from NASA.

	2010	2009
Funded status at valuation date:		
Funded status	$ (539,632)	$ (502,278)
Net amount recognized at end of year	$ (539,632)	$ (502,278)

	2010	2009
Amounts recognized in the balance sheets:		
Accumulated postretirement obligation	$ (539,632)	$ (502,278)
Total amounts recognized in balance sheets	$ (539,632)	$ (502,278)

	2010	2009
Amounts recognized as changes in unrestricted net assets:		
Prior service credit	$ (18,568)	$ (21,905)
Net loss	141,471	140,759
Total amounts recognized in unrestricted net assets	$ 122,903	$ 118,854

An estimated prior service credit of $3,337 and net loss of $7,060 will be amortized from unrestricted net assets into net periodic benefit cost during the year ending September 30, 2011.

The following weighted-average assumptions were used to determine the Institute's obligation under the plan at September 30, 2010 and 2009:

	2010	2009
Discount rate	5.20%	5.90%
Health care cost trend rate	10.00%	11.00%

The following weighted-average assumptions were used to determine the Institute's net periodic benefit cost under the plan for the years ended September 30, 2010 and 2009:

	2010	2009
Discount rate	5.90%	7.10%
Health care cost trend rate	11.00%	9.00%

At September 30, 2010, the assumed health care cost trend rates for subsequent years were as follows:

Year Ending September 30	Health Care Cost Trend Rate
2011	9.25%
2012	8.50%
2013	8.00%
2014	7.50%
2015	7.00%
2016	6.50%
2017	6.25%
2018	6.00%
2019	5.75%
2020	5.50%
2021	5.25%
2022	5.00%
2023	4.75%
2024 and thereafter	4.50%

A one-percentage-point change in assumed health care cost trend rates would have the following effects:

	1% Increase	1% Decrease
Effect on the total of service and interest cost components	$ 8,932	$ (7,008)
Effect on accumulated postretirement benefit obligation	$ 86,642	$ (69,979)

The Institute and its retirees are expected to contribute approximately $17,788 and $4,413, respectively, during the year ending September 30, 2011.

At September 30, 2010, the estimated future benefit payments were as follows:

Year Ending September 30	Benefit Payments
2011	$ 19,400
2012	21,200
2013	23,000
2014	24,700
2015	26,300
2016–2020	152,700

K. Fair Value

During the year ended September 30, 2009, the Institute adopted a new accounting standard that establishes a fair value hierarchy that ranks the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest ranking to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest ranking to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as noted below.

Fair value for Level 1 is based upon quoted prices in active markets that the Institute has the ability to access for identical assets and liabilities. Market price data is generally obtained from exchange dealer markets. The Institute does not adjust the quoted price for such assets and liabilities.

Fair value for Level 2 is generally based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the instruments. Inputs are obtained from various sources, including market participants, dealers, and brokers.

Interest rate swap arrangements have inputs that can generally be corroborated by market data and are therefore generally classified as Level 2. Interest rate swaps are valued using observable inputs, such as quotations received from counterparties, dealers, or brokers, whenever available and considered

reliable. In instances in which models are used, the value of the interest rate swap depends upon the contractual terms of, and specific risks inherent in, the instrument, as well as the availability and reliability of observable inputs. Such inputs include market prices for reference securities, credit curves, assumptions for nonperformance risk, and correlations of such inputs.

Fair value for Level 3 is based on valuation techniques that use significant inputs that are unobservable, as assets and liabilities in Level 3 trade infrequently or not at all. Assets and liabilities included in Level 3 primarily consist of the Institute's ownership in alternative investments.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The following is a summary of the levels within the fair value hierarchy for the Institute's assets and liabilities as of September 30, 2010 and 2009:

	Level 1	Level 2	Level 3	2010 Total
Assets:				
Cash and cash equivalents	$ 42,733	$ -	$ -	$ 42,733
Investments:				
Short-term investments	321,137	10	-	321,147
Fixed-income securities	27,767	41,993	55	69,815
Equity securities	410,025	109,315	3,213	522,553
Alternative investments:				
Absolute return strategies	-	-	513,511	513,511
Private equity	-	-	176,491	176,491
Real assets	-	-	205,073	205,073
Real estate and other	-	-	25,075	25,075
Total investments	758,929	151,318	923,418	1,833,665
Interests in trusts held by others	-	-	20,063	20,063
Defined contribution plans	7,716	20,328	14,948	42,992
Total assets	$ 809,378	$ 171,646	$ 958,429	$ 1,939,453
Liabilities:				
Interest rate swap	$ -	$ 41,458	$ -	$ 41,458
Defined contribution plans	7,633	19,370	14,910	41,913
Total liabilities	$ 7,633	$ 60,828	$ 14,910	$ 83,371

	Level 1	Level 2	Level 3	2009 Total
Assets:				
Cash and cash equivalents	$ 28,190	$ -	$ -	$ 28,190
Investments:				
Short-term investments	455,097	2	-	455,099
Fixed-income securities	27,207	42,141	53	69,401
Equity securities	184,420	232,493	3,042	419,955
Other	-	-	19,039	19,039
Alternative investments:				
Absolute return strategies	-	-	408,864	408,864
Private equity	-	-	151,621	151,621
Real assets	-	-	188,271	188,271
Real estate and other	-	3	27,836	27,839
Total investments	666,724	274,639	798,726	1,740,089
Interests in trusts held by others	-	-	11,972	11,972
Defined contribution plans	6,191	16,496	14,816	37,503
Total assets	$ 701,105	$ 291,135	$ 825,514	$ 1,817,754
Liabilities:				
Interest rate swap	$ -	$ 27,357	$ -	$ 27,357
Defined contribution plans	6,152	16,048	14,799	36,999
Total liabilities	$ 6,152	$ 43,405	$ 14,799	$ 64,356

The Institute generally uses net asset value ("NAV") to determine the fair value of investments that (a) do not have readily determinable fair values and (b) either have certain specific attributes of an investment company or prepare their financial statements consistent with the measurement principles of an investment company. Accordingly, in circumstances in which NAV per share of any such investment is determinative of fair value, the Institute estimates the fair value using NAV per share of the investment (or its equivalent) without further adjustment as a practical expedient. Funds valued using NAV invest in both marketable securities as well as securities that do not have readily determinable fair values. The fair values of the securities that do not have readily determinable fair values are determined by each fund's general partner and are based on appraisals or other estimates that include considerations such as the cost of the securities, prices of recent significant placements of securities of the same issuer, and subsequent developments concerning the companies to which the securities relate. At September 30, 2010, the Institute's related investments by major investment category were as follows:

Fixed-Income Securities

This category includes an investment in a bond fund that invests in sovereign debt instruments of global markets. The fund has a fair value of $38,991 at September 30, 2010, and allows for monthly redemptions with a ten-day notice.

Equity Securities
At September 30, 2010, this category includes $109,161 in funds that invest in publicly traded equity securities of companies in global markets. The funds allow either daily or monthly redemptions with up to a fifteen-day notice.

Absolute Return Strategies
This category includes investments in hedge funds whose investment objectives are to earn significant risk-adjusted returns by investing and trading in various securities and financial instruments, including publically traded and privately issued common and preferred shares of domestic and foreign companies, corporate debt, bonds, swaps, options, futures contracts, and commodities. Investments with a total fair value of $432,865 allow redemptions from quarterly to triennially, with notice periods ranging from 45 to 180 days. One investment with a fair value of $19,355 allows monthly redemptions with a ten-day notice. In addition, investments with a total fair value of $61,291 and unfunded commitments of $8,107 do not allow redemptions and have remaining lives of up to seven years.

Private Equity
This category consists of several investments in private equity funds. The funds' holdings primarily include privately owned foreign and domestic companies (or other funds with investments in privately owned foreign and domestic companies) in a wide variety of industries. The total unfunded commitment for these investments was $76,021 at September 30, 2010. The Institute does not have any redemption rights in these investments and the investments have remaining lives of up to eight years.

Real Assets
This category includes investments in limited partnerships that invest in foreign and domestic real estate, domestic energy, or domestic timber industries. The fair value of these investments was $176,393, and the total unfunded commitment was $65,751 at September 30, 2010. The Institute does not have any redemption rights in these investments, and the investments have remaining lives of up to 10 years.

This category also includes an investment in a fund with an investment objective to earn the returns of a commodities benchmark as selected by the Institute, plus an additional return, with the use of various strategies in the fixed-income markets. The fair value of this investment at September 30, 2010 is $28,680. The investment allows redemptions annually with a ninety-day notice.

The methods described above may produce fair value calculations that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Institute believes its valuation methods are appropriate and consistent with those of other market participants, the use of different methodologies or assumptions to determine fair value of certain financial instruments could result in different estimates of fair value.

The following table is a summary of changes in the fair value of the Institute's Level 3 instruments for the year ended September 30, 2010:

Assets:	Beginning Balance	Net Purchases / (Sales)	Change in Fair Value	Ending Balance
Investments:				
Fixed-income securities	$ 53	$ 1	$ 1	$ 55
Equity securities	3,042	200	(29)	3,213
Other	19,039	(19,012)	(27)	-
Alternative investments:				
Absolute return strategies	408,864	37,292	67,355	513,511
Private equity	151,621	262	24,608	176,491
Real assets	188,271	22,425	(5,623)	205,073
Real estate and other	27,836	(289)	(2,472)	25,075
Total investments	798,726	40,879	83,813	923,418
Interests in trusts held by others	11,972	7,778	313	20,063
Defined contribution plans	14,816	(486)	618	14,948
Total assets	$ 825,514	$ 48,171	$ 84,744	$ 958,429
Liabilities:				
Defined contribution plans	$ 14,799	$ (504)	$ 615	$ 14,910
Total liabilities	$ 14,799	$ (504)	$ 615	$ 14,910

During the year ended September 30, 2010 and 2009, there were no transfers between Level 3 and other levels.

Changes in the fair value of investments are included in investment return in the statement of activities. Changes in the fair value of interests in trusts held by others are included in gifts in the statements of activities.

L. Commitments and Contingencies

Contingencies

The Institute receives funding or reimbursement from agencies of the United States government for various activities that are subject to audit, and is a defendant in various legal actions incident to the conduct of its activities. Except as specifically discussed below, management does not expect that liabilities, if any, related to these audits or legal actions will have a material impact on the Institute's financial position.

The Institute was named as a potentially responsible party ("PRP") by NASA under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. As a PRP, the Institute may be jointly liable for contribution towards clean-up costs, estimated to be in excess of $100,000, of the NASA/JPL Superfund site.

Officials of the Institute presently are not able to predict the impact, if any, that final resolution of the matter will have on the Institute's financial position or changes in its net assets. However, the Institute believes that it will have recourse to the United States government for any liabilities it may incur in connection with being named a PRP for that site.

Commitments

The Institute was committed under certain construction and services contracts in the amount of approximately $73,505 and $52,947 at September 30, 2010 and 2009, respectively.

At September 30, 2010 and 2009, the Institute had outstanding commitments to invest $149,879 and $207,591, respectively, with alternative investment managers and/or limited partnerships over the next 10 years.

The Institute's workers' compensation insurance carrier requires that the Institute maintain an unsecured letter of credit for claims that do not exceed certain deductible amounts. At September 30, 2010 and 2009, the amount of the letter of credit facility was $7,350. The letter of credit was not used during the years ended September 30, 2010 and 2009, and therefore no liability has been recorded in the balance sheets.

The Institute is currently providing funding for the operation of certain local water treatment facilities, subject to receipt of funding from NASA. Annual costs are not expected to exceed $5,000.

The Institute leases equipment and buildings, primarily for JPL, under operating leases expiring at various dates through 2015. Rent expense incurred under operating lease obligations was $6,875 and $6,973 for the years ended September 30, 2010 and 2009, respectively.

At September 30, 2010, future minimum payments under operating leases of greater than one year in duration were as follows:

Year Ending September 30	Amount
2011	$ 6,355
2012	6,308
2013	5,727
2014	811
2015	-
Total	$ 19,201

Approximately $19,060 of the future minimum lease payments listed above may be recoverable from JPL under the Institute's cost-reimbursable contract with NASA.

The Institute rents equipment and buildings to students, faculty, and other organizations under operating leases expiring at various dates through 2015. Rental income received under operating lease obligations was $8,562 and $8,525 at September 30, 2010 and 2009, respectively.

At September 30, 2010, minimum future rentals from operating leases of greater than one year in duration were as follows:

Year Ending September 30	Amount
2011	$ 8,077
2012	7,792
2013	6,398
2014	5,167
2015	4,961
Total	$ 32,395

M. Supplemental Cash Flow Information

The following are additional supplemental disclosures related to the statements of cash flows:

	2010	2009
Cash paid during the year for interest, net of amounts capitalized	$ 7,104	$ 4,970
Noncash investing and financing activities:		
Securities received to satisfy pledge payments	22,237	14,908
In-kind receipt of securities, property, plant, and equipment	5,887	1,972
Accrued purchases of property, plant, and equipment at year end	6,448	6,851

N. Subsequent Events

Subsequent events were evaluated from September 30, 2010 through January 24, 2011, which was the date the financial statements were issued.

Credits

Produced by the Office of Marketing and Communications, Caltech

Design: McGregor Creative, Inc., Pasadena

Photography: Shannon Boettcher, Lance Hayashida, Nasa/JPL, Bob Paz, Jenny K. Somerville, Kakani Katija Young, Bill Youngblood.

Caltech

www.caltech.edu
1200 East California Boulevard
Pasadena, CA 91125.