

# Caltech 336

T F S S M T W T F S S M T W

The campus community biweekly  
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## Shall we dance?



Abby Fietzer and Steven Verschoor of the Occidental Folk and Historic Dance Troupe whirled their way across Dabney Lounge at the recent Viennese Waltz Night. The annual event is also cosponsored by the Caltech Ballroom Dance Club and Caltech-Occidental Orchestra.

## Caltech searches for development officer

The recent announcement of Jerry Nunnally's departure from the vice presidency for development and alumni relations has prompted the formation of a committee that will begin an immediate search for his successor.

Chaired by Bill Jenkins, Caltech's executive vice president for administration, the committee includes Peter Dervan, Bren Professor of Chemistry, Sandra Eil, treasurer and chief investment officer, Jean Grinols, administrator for the Division of Geological and Planetary Sciences, John Ledyard, chair of the Division of the Humanities and Social Sciences, Bob O'Rourke, vice president for public relations and interim vice president for development and alumni relations, and Caltech trustee Wally Weisman.

"This superb committee will play a key role in finding and selecting the best candidates and then help convince the candidates about the many positive attributes of Caltech and Pasadena," Jenkins said.

The quest for candidates was assigned to Gary Posner, a recruiter with Witt/Kiefer, a firm that specializes in searches for senior personnel and executives at institutions of higher education.

Given that Caltech's ambitious capital campaign has advanced into the plan-

see VP search, page 6

## 85 years old and going strong

What Institute organization has brought such luminaries as Martin Luther King, Jr., and Supreme Court Justice William O. Douglas to campus? Inspired Robert Millikan to bequeath the bulk of his estate to it? Can claim Frank Capra as an alum? And does everything from involving students in community service to serving them home-cooked chili during finals?

That would be the Caltech Y, of course. The Y has come a long way since its modest beginning in 1916, when a group of students decided to form a Young Men's Christian Association at Throop College of Technology. As the organization celebrates its 85th birthday this year, it is no longer a part of the national YMCA, but is an independent, nonprofit service organization officially affiliated with Caltech. It has, however, continued to take to new levels the original vision of its founders "to enrich student life; to enable students to learn about themselves and their place in the world community through increased social, ethical, and cultural awareness; and to address unmet student needs."

As Athena Castro, who joined the Y staff in 1997 and became executive director in 2000, observes, "Eighty-five years is a long time, but as I reflect on its history, the Y and its mission really haven't changed since the beginning."

## Microlaser delivers macropower

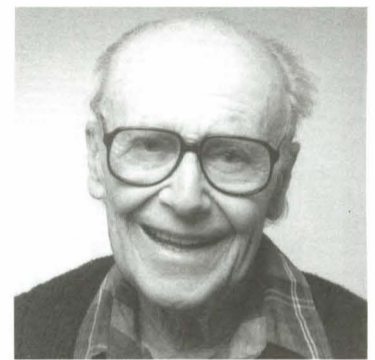
Caltech applied physicists have demonstrated an ultrasmall Raman laser that is 1,000 times more efficient than previous devices. The device could have significant applications for telecommunications and other areas where compact, highly efficient, and tunable lasers are desirable.

Reporting in the February 7 issue of *Nature*, Professor of Applied Physics Kerry Vahala and graduate students Sean Spillane and Tobias Kippenberg describe their progress in making the tiny device, which incorporates a small spherical glass bead and a stretched fiber-optic wire. The laser is especially efficient because of the way it stores light inside the microsphere, or resonator, as well as the manner in which the optical wire permits efficient coupling of light into the sphere.

According to Vahala, the light wraps around the sphere in a ring orbit and subsequently intensifies over hundreds of thousands of orbits, resulting in extreme concentration of optical power within the sphere. In this way, very weak signals applied to the sphere from the fiber-optic wire can build to enormous intensities within the sphere itself.

At these higher power levels, the physics within the sphere enters a non-

see *Microlaser*, page 6



## Caltech molecular biologist Davidson passes away

Norman Davidson, whose groundbreaking work in molecular biology at Caltech led to a better understanding of the genetic blueprint of life, died at Huntington Hospital in Pasadena on February 14 after a brief illness. He was 85.

Davidson was Caltech's Chandler Professor of Chemical Biology, Emeritus; he had been a faculty member since 1946. He took emeritus status in 1986, but served as executive officer for biology from 1989 to 1997 and remained active in research until his death.

"It was with the deepest personal regret that I heard of the death of Norman Davidson," said Caltech president David Baltimore. "Norman was a friend long before the prospect of my being president of Caltech arose, and he symbolized for me the essence of the Institute.

"His movement into biology from a background in chemistry allowed him to play a special role in the development of molecular biology. He saw imaginative ways that structural understanding could illuminate functional questions. He trained some of the finest and most imaginative people in the field. And he was deeply loved by all with whom he came in contact because of his unalloyed

see *Davidson*, page 2

## Kirschvink wins Feynman Prize

Professor of Geobiology Joseph Kirschvink has been awarded the 2002 Richard P. Feynman Prize for Excellence in Teaching "for his innovative teaching style and outstanding mentorship, which have inspired a generation of Caltech students," Provost Steve Koonin has announced.

When asked about his reaction, Kirschvink said, "I was stocked and shunned!" and then broke into laughter. Being a Caltech alum (BS '75, MS '75), he believes, contributes to his classroom rapport. "I was an undergrad here—I

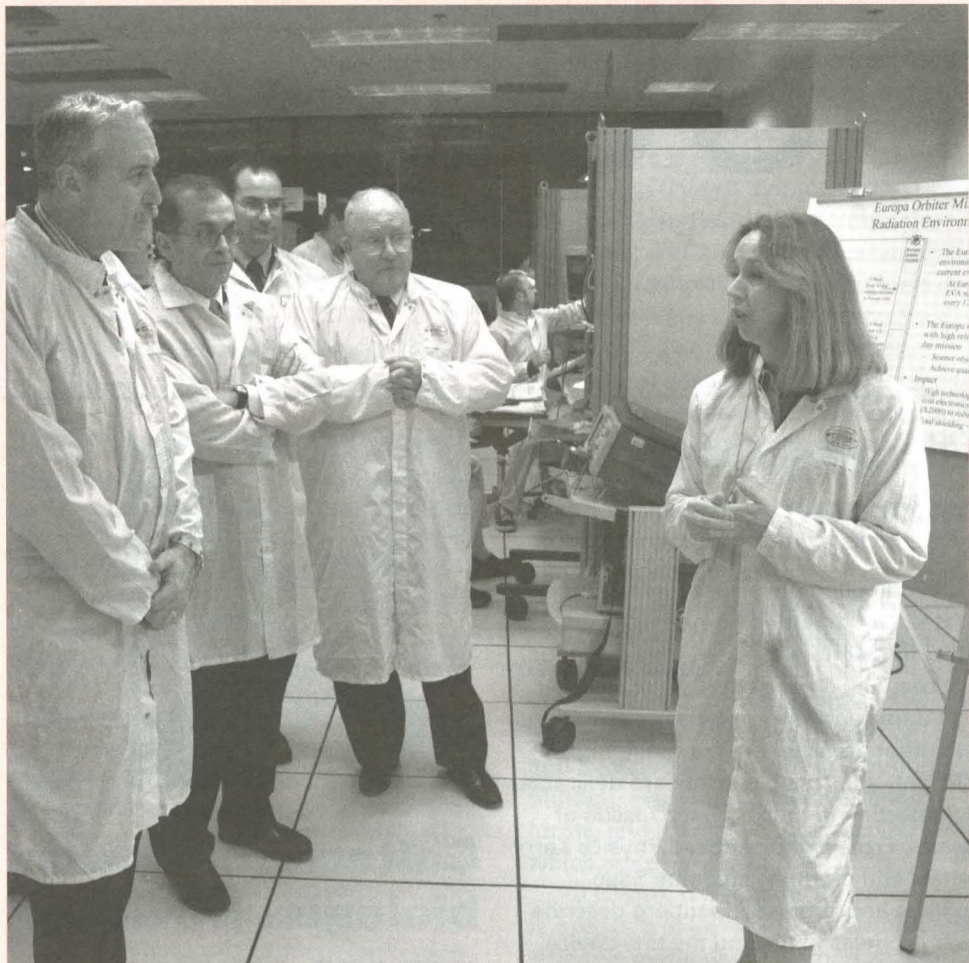
see *Kirschvink*, page 2



The Caltech Y staff, from left: Molly Hood, Athena Castro, Diana Salazar, Greg Fletcher, and Armida McGill.



# NewsBriefs



New NASA administrator Sean O'Keefe (left) recently made his first official visit to JPL and Caltech. Along with JPL director Charles Elachi and Tom Gavin, he toured the lab of Valerie Thomas, JPL's X2000 avionics electronics manager. O'Keefe later attended an Athenaeum reception with Elachi and three past JPL directors: William Pickering, Bruce Murray, and Ed Stone.

## Honors and awards

**Barry Barish**, Linde Professor of Physics and director of the Laser Interferometer Gravitational-Wave Observatory Laboratory, has been selected by the awards committee of the American Association of Physics Teachers (AAPT) to receive the 2002 Klopsteg Award. He will give a major lecture at the summer meeting of the AAPT in Boise, Idaho, this August on a topic of current significance for nonspecialists.

**Steve Koonin**, professor of theoretical physics and provost, has been elected a member of the Council on Foreign Relations. Dedicated to increasing America's understanding of the world and contributing ideas to U.S. foreign policy, the council "aims to enhance the quality of study and debate on world issues, develop new generations of thinkers and leaders, and help meet international challenges by generating concrete and workable ideas."

## Personals

### Welcome to Caltech

#### January

**Joshua Adams**, computer assistant, aeronautics; **Stephen Barba**, senior system engineer, Space Infrared Telescope Facility (SIRTF); **Libera Berghella**, assistant biologist, biology; **Marco Bonati**, computing analyst, Palomar Observatory; **Jacqueline Campos**, administrative aide, Financial Services; **Yun Cao**, research assistant I, biology; **Anne Carasik**, network system administrator, Center for Advanced Computing Research (CACR); **Sean Carey**, staff scientist, SIRTF; **Kathleen Carpenter**, shift supervisor, Security; **Mi Sook Chang**, research assistant I, biology; **Oscar Cortez**, bus person, Athenaeum; **Matthew Evans**, application developer, Laser Interferometer Gravitational-Wave Observatory (LIGO); **Matthew Gardner**, research assistant, Physics, Mathematics and Astronomy; **Jeff Hickey**, assistant engineer, Palomar Observatory; **Heather Jackson**, administrative secretary, electrical engineering and computation and neural systems; **Scott Kee**, senior research assistant, electrical engineering; **Caroline Kennedy**, assistant veterinary lab technician,

biology; **Mark Lacy**, staff scientist, SIRTF; **Orlando Lopez**, dishwasher and general helper, Dining Services; **Sam Martin**, supervisor, JPL Store; **Douglas McElroy**, team deputy lead—observatory planning, SIRTF; **Eugenio Mendoza**, gardener, Physical Plant; **James Mertens**, cook, Dining Services; **Brett Miller**, shift supervisor, Security; **David Mispagel**, project manager, Physical Plant; **Cecilia Nakamura**, department aide, biology; **Wade Okumura**, director of human resources systems, Human Resources; **Gustavo Munoz**, assistant animal lab technician, biology; **Vivian Niller**, accounts payable processor, Financial Services; **Irma Perez**, administrative assistant, chemistry; **Anitha Rao**, research aide B, biology; **Christoph Rasche**, research assistant I, biology; **Luisa Rebull**, staff scientist, SIRTF; **Veronica Robles**, office assistant, electrical engineering; **Jerry Rodriguez**, banquet supervisor, Athenaeum; **Joseph Schaeffer**, research assistant I, computer science; **Samuel Sharp**, department clerk, and **Stephanie Solario**, assistant project accountant, Financial Services; **Laurie Thompson**, director of the Pasadena Center and educational researcher, Caltech Precollege Science Initiative (CAPSI); **Chi Wang**, research assistant I, biology; **Geoffrey Wardle**, director of the Entrepreneurial Fellows Program, engineering.

#### February

**David Adamczyk**, software engineer, high-energy physics; **Nina Bales**, server, Athenaeum; **Anthony Cava**, coach, Athletics; **Megan Gianakos**, administrative aid, Financial Aid; **Douglass Jourdan**, cook, Dining Services; **Vernon Leggins**, custodian, Physical Plant; **Natanael Lopez**, lead cook, Dining Services; **Thomas Reid**, administrative aid, Alumni Association; **Patricia Velez**, accounting assistant, Caltech Auxiliary and Business Services.

#### Retirements

##### March 1

**Kusza Boguslaw**, an administrator and member of the professional staff in chemical engineering, has retired after 14 years at Caltech.

**Jerald Burk** has retired after 26 years at Caltech. He was the provost's special assistant in the Office of the Provost.

### Davidson, from page 1

commitment to pushing the frontiers of understanding.

"Caltech is diminished by the loss of this great man who, undaunted by infirmity, almost to the end drove himself around the campus in his cart, asking questions, making suggestions, and still fully contributing to the institution to which he had given so much of his life," Baltimore said.

Born in 1916, Davidson earned a bachelor's degree in chemistry at the University of Chicago in 1937, and another bachelor of science degree at the University of Oxford in 1939 as a Rhodes Scholar. In 1941 he completed his doctorate in chemistry at the University of Chicago.

During the war he worked for the National Defense Research Committee Project at USC, and for the Division of War Research at Columbia University and the University of Chicago. From 1943 to 1945, he worked on the University of Chicago's Plutonium Project.

After the war, Davidson joined the Caltech faculty as a chemistry instructor. He became a full professor in 1957, executive officer for chemistry in 1967, and Chandler Professor of Chemical Biology in 1982.

Davidson was known in the scientific community for his innovative methods in bridging the gap between the physical and biological sciences. He pioneered new methods in physical chemistry and electron microscopy, the latter proving especially useful for genetic mapping and exploring the information properties of DNA and RNA.

In 1996, when he was awarded the National Medal of Science by President Clinton, the White House cited him "for breakthroughs in chemistry and biology which have led to the earliest understanding of the overall structure of genomes." Davidson was a founding member of the advisory council to the Human Genome Project.

"Norman was a major figure in both chemistry and biology for more than half a century, and one of the people who helped bring the two together, not just at Caltech, but in the subject as a whole," said Caltech provost Steve Koonin.

Davidson's many awards included his designation as the 1980 California Scientist of the Year, the Robert A. Welch Award in Chemistry, the Dickson Prize for Science, and the American Chemical Society's Peter Debye Award. He was a member of the National Academy of Sciences and a fellow of the American Academy of Arts and Sciences.

Davidson is survived by his wife, Annemarie Davidson, of Sierra Madre; four children; and eight grandchildren.



Caltech's most recent Feynman Prize winner, circa mid-1970s, before he launched his professorial career.

### Kirschvink, from page 1

know the capabilities of the students," he said. In addition, undergrads enjoy the hands-on nature of his lab classes; for many of them, it's the first real research opportunity they've received.

Perhaps more telling, though, as to why his class enrollments keep growing is his view of the learning process. "It's a chance to have fun with science," he said. "Science should be enjoyable." At the same time, he makes sure things remain challenging: "Students like to compete, and so do I."

Koonin said that the many undergraduate and graduate students who take Kirschvink's classes are "inspired by his unabashed enthusiasm for the Earth sciences, embraced by his sincerity and dedication to education, and challenged by the depth and breadth of his knowledge." The courses blend science fundamentals with state-of-the-art research and opportunities for field work in the United States and abroad.

The Feynman Prize is awarded annually to a Caltech professor who "demonstrates unusual ability, creativity, and innovation in undergraduate and graduate classroom and laboratory teaching." Nominations for the Feynman Prize can be made by any member of the Caltech community.

The prize, consisting of a cash award of \$3,500 and an equivalent raise in the honoree's salary, is made possible by a gift from Ione and Robert E. Paradise, in appreciation of Richard Feynman's contributions to excellent teaching.



L. A. Sparks star Mwadi Mabika recently spoke on campus about women in sports. Her visit was in honor of National Girls and Women in Sports Day and the 30-year anniversary of Title IX, a federal statute that bans sex discrimination in educational programs.



# February 25–March 3, 2002

M T W T F S S

## Monday, February 25

### Aeronautics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 1 p.m.—“Spaceflight Safety,” Jeff Claxton, NASA Dryden. Information: [www.galcit.caltech.edu/seminars.shtml](http://www.galcit.caltech.edu/seminars.shtml).

### Astronomy Tea Talk

106 Robinson, 4 p.m.—Topic to be announced. William Holzapfel, professor of physics, UC Berkeley. Information: <http://astro.caltech.edu/~jlc/colloquia.html>.

### Computation and Neural Systems Seminar

24 Beckman Labs, 4 p.m.—Topic to be announced. Jean Ensminger, professor of anthropology, Caltech.

### General Biology Seminar

119 Kerckhoff, 4 p.m.—“Identifying Genetic Regulatory Networks in the Developing Mesoderm,” Marc Halfon, research fellow in medicine, Brigham and Women’s Hospital, Harvard Medical School.

### Geology and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Global Seismic Anisotropy,” Professor Jean-Paul Montagner, Institut de Physique du Globe de Paris. Information: [www.gps.caltech.edu](http://www.gps.caltech.edu).

### Solid State Sciences Seminar Series (S<sup>5</sup>)

102 Steele, 4 p.m.—“Ballistic Electron Emission Microscopy (BEEM) of Buried Semiconductor Heterostructures, Quantum Wells, and Quantum Dots,” Professor Venky Narayanamurti, Harvard University. Refreshments, Watson lobby, 3:45 p.m. Information: [www.its.caltech.edu/~yehgroup/s5/](http://www.its.caltech.edu/~yehgroup/s5/).

### Applied and Computational Mathematics Colloquium

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“Stochastic Lattice Gas Models for Fluid,” Horng-Tzer Yau, professor of mathematics, Courant Institute, New York University. Refreshments, 3:45 p.m.

## Tuesday, February 26

### Caltech Library System Presents: Copyright for Researchers in Academia

Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—Rights and responsibilities under copyright law will be discussed by Kimberly Douglas, director of the Sherman Fairchild Library, and attorney Peggy Luh, Caltech’s Office of the General Counsel. Information and registration: <http://library.caltech.edu/learning/form.htm>. Open to Caltech community members only.

### Institute for Quantum Information

74 Jorgensen, 3 p.m.—“Implementation of Quantum Repeaters and Long-Distance Quantum Communication through Laser Manipulation of Atomic Ensembles,” Luming Duan, senior postdoctoral scholar in physics, Caltech.

### Joint Mechanical Engineering/Solid Mechanics Seminar

206 Thomas, 3 p.m.—“The Emergence and Development of Control Control: The Hidden Technology,” Professor Karl J. Astrom, UC Santa Barbara. Refreshments, 210 Thomas, 2:45 p.m.

### Ulric B. and Evelyn L. Bray Seminar

25 Baxter, 4 p.m.—“Intertemporal Substitution at Work? Evidence from a Field Experiment,” Lorenz Goette, department of economics, UC Berkeley. Refreshments.

### Carnegie Observatories Colloquium Series

William T. Golden Auditorium, 813 Santa Barbara Street, 4 p.m.—“SIRTF Sings: The SIRTF Nearby Galaxies Survey,” Professor Robert Kennicutt, department of astronomy, University of Arizona. Refreshments, 3:30 p.m.

### General Biology Seminar

119 Kerckhoff, 4 p.m.—Topic to be announced. York Marahrens, department of human genetics, UCLA.

### W. N. Lacey Lectureship in Chemical Engineering

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Informatics in Pharmaceutical R & D,” Dr. Sangtae Kim, Lilly Research Laboratories. Refreshments, 113 Spalding Lab, 3:30 p.m. Information: [www.cheme.caltech.edu/seminars/seminars.html](http://www.cheme.caltech.edu/seminars/seminars.html).

## Wednesday, February 27

### Mathematical Physics Seminar

351 Sloan, noon—“Quantum Dynamics of Many-Body Systems, Euler Equations, and Nonlinear Schrödinger Equations,” Horng-Tzer Yau, professor of mathematics, Courant Institute, New York University. Information: [www.math.caltech.edu/events/mathphys.html](http://www.math.caltech.edu/events/mathphys.html).

### Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Early-Type Galaxies: Old Stars in Young Galaxies,” Pieter van Dokkum, postdoctoral scholar in astronomy, Caltech. Information: <http://astro.caltech.edu/~jlc/colloquia.html>.

### Environmental Science and Engineering Seminar

142 Keck, 4 p.m.—“ENSO and Tropical Pacific Climate of the Last Millennium from U/Th-Dated Fossil Corals,” Kim Cobb, graduate student, Scripps Institution of Oceanography, UC San Diego. Refreshments, Keck lobby, 3:40 p.m. Information: [www.ese.caltech.edu/seminars.html](http://www.ese.caltech.edu/seminars.html).

### Neurobiology Seminar

24 Beckman Labs, 4 p.m.—Topic to be announced. Joshua Sanes, professor of anatomy and neurobiology, School of Medicine, Washington University in St. Louis.

### Organic Chemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Self-Assembly of Resorcinarene-Encapsulated Nanoparticles,” Professor Alexander Wei, department of chemistry, Purdue University.



Albert Einstein, riding his bicycle in Santa Barbara circa 1932, will be the subject of the February 28 Harris Lectureship in Beckman Auditorium.

## Thursday, February 28

### Special Biochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 3 p.m.—“Chirality Generation and Recognition,” Professor Reiko Kuroda, University of Tokyo. Refreshments.

### William and Myrtle Harris Distinguished Lectureship in Science and Civilization

Beckman Institute auditorium, 4 p.m.—“Einstein and the German Question,” Fritz Stern, University Professor Emeritus, Columbia University. Refreshments. Information: [www.hss.caltech.edu/ses/SEPP.html](http://www.hss.caltech.edu/ses/SEPP.html).

### W. N. Lacey Lectureship in Chemical Engineering

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Microfluidics: From Fundamentals to Applications,” Dr. Sangtae Kim, Lilly Research Laboratories. Refreshments, 113 Spalding Lab, 3:30 p.m. Information: [www.cheme.caltech.edu/seminars/seminars.html](http://www.cheme.caltech.edu/seminars/seminars.html).

### Physics Research Conference

201 E. Bridge, 4 p.m.—“Alternatives for Building a Quantum Computer,” David DiVincenzo, IBM. Refreshments, 108 East Bridge, 3:45 p.m. Information: [www.pma.caltech.edu/~physcoll/PhysColl.html](http://www.pma.caltech.edu/~physcoll/PhysColl.html).

## Friday, March 1

### Thesis Seminar

153 Noyes, Sturdivant Lecture Hall, 10 a.m.—“Force-Detected NMR in a Homogeneous Field: Experiment Design, Apparatus, and Observations,” Louis Madsen, graduate student in chemistry, Caltech.

### Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—“Contact Line Dynamics,” Professor Stephen Davis, department of engineering sciences and applied mathematics, Northwestern University. Information: [www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html](http://www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html).

### Kellogg Seminar

Lauritsen Library, 4 p.m.—“Charged Particle Multiplicities at RHIC,” Patrick Decowski, Laboratory for Nuclear Science, MIT.

### John D. Roberts Lecture

22 Gates Annex, 4 p.m.—“Liquid Crystal-line Media Offer New Opportunities in NMR Structure Determination,” Dr. Ad Bax, National Institutes of Health. Refreshments.



# March 4–10, 2002

M T W T F S S

## Monday, March 4

### Aeronautics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 1 p.m.—“Space-Based Radar,” Steve Bayliss, Aerospace Corporation. Information: [www.galcit.caltech.edu/seminars.shtml](http://www.galcit.caltech.edu/seminars.shtml).

### Astronomy Tea Talk

106 Robinson, 4 p.m.—“Energy Release in the Central Engines of AGN,” Neal Turner, department of astronomy, University of Maryland at College Park. Information: <http://astro.caltech.edu/~jlc/colloquia.html>.

### Geology and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—Dix Lecture, topic to be announced. Professor Bradford Hager, department of earth, atmospheric, and planetary sciences, MIT. Information: [www.gps.caltech.edu](http://www.gps.caltech.edu).

## Tuesday, March 5

### Caltech Library System Presents: Life Sciences Information Resources

Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—Learn how to make the most of biology and chemistry information tools and services provided by the Caltech Library System. Registration: <http://library.caltech.edu/learning/form.htm>. Open to Caltech community members only.

### Mechanical Engineering Seminar

206 Thomas, 3 p.m.—“Scaling in Solid Mechanics: From Nano to Mega,” Zdenek P. Bazant, professor of civil engineering, Northwestern University. Information: [www.me.caltech.edu/seminars.html](http://www.me.caltech.edu/seminars.html).

### Carnegie Observatories Colloquium Series

William T. Golden Auditorium, 813 Santa Barbara Street, 4 p.m.—“Central Structural Parameters of Early-type Galaxies: Relics of the Formation Process?,” Dr. Swara Ravindranath, Carnegie Observatories. Refreshments, 3:30 p.m.

### Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Electronic Spectra of Carbon Chains and Their Relevance to Astrophysics,” Professor John P. Maier, Institute of Physical Chemistry, University of Basel, Switzerland.

## Wednesday, March 6

### Mathematical Physics Seminar

351 Sloan, noon—“Energy Growth for Schrödinger Equations on the Circle with Markovian Potentials,” Wilhelm Schlag, associate professor of mathematics, Caltech. Information: [www.math.caltech.edu/events/mathphys.html](http://www.math.caltech.edu/events/mathphys.html).

### Environmental Science and Engineering Seminar

142 Keck, 4 p.m.—“(Per)chlorate-Reducing Bacteria: A Unique and Exceptionally Versatile Group of Microorganisms,” Professor John Coates, department of microbiology, Southern Illinois University. Refreshments, Keck lobby, 3:40 p.m. Information: [www.esse.caltech.edu/seminars.html](http://www.esse.caltech.edu/seminars.html).

### Frontiers in Science Seminar

Pierce College, 6201 Winnetka Avenue, Music Room 3400, Woodland Hills, 4 p.m.—“Structural Studies of Cell-Cell Interactions: What We Can Learn from 3D Structures of Proteins,” Pamela Bjorkman, professor of and executive officer for biology, Caltech, and full investigator, Howard Hughes Medical Institute. Presented jointly by Caltech and Pierce College. Admission is free. Information: 395-6024 or (818) 703-0826.

### Organic Chemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Diversity-Based Approaches to Developing New Asymmetric Reactions,” Professor James P. Morken, department of chemistry, University of North Carolina at Chapel Hill.

### Earnest C. Watson Lecture

Beckman Auditorium, 8 p.m.—“New Materials for Perfect Vision,” Julia Kornfield, professor of chemical engineering, Caltech. Admission is free. Information: 395-4652, 1 (888) 2CALTECH, or [events@caltech.edu](mailto:events@caltech.edu). Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at [www.events.caltech.edu](http://www.events.caltech.edu).

## Thursday, March 7

### Ulric B. and Evelyn L. Bray Seminar

25 Baxter, 4 p.m.—“The Ordinal Nash Social Welfare Function,” Eran Hanany, Center for Mathematical Studies in Economics and Management Science, Northwestern University. Refreshments.

### Physics Research Conference

201 E. Bridge, 4 p.m.—“Why Did Arnold Sommerfeld Never Get the Nobel Prize?,” Valentine Telegdi, CERN. Refreshments, 108 E. Bridge, 3:45 p.m. Information: [www.pma.caltech.edu/~physcoll/PhysColl.html](http://www.pma.caltech.edu/~physcoll/PhysColl.html).

## Friday, March 8

### Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—Topic to be announced. Professor Ellen Longmire, department of aerospace engineering and mechanics, University of Minnesota, Twin Cities. Information: [www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html](http://www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html).

### Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—“The Polymerization of Chiral  $\alpha$ -Olefins by Optically Active Ansa-Zirconocene Catalysts,” Cliff Baar, postdoctoral scholar in chemistry, Caltech.

### Kellogg Seminar

Lauritsen Library, 4 p.m.—“Anapole Moments in a Chain of Fr Isotopes: Possibilities and Current Advances,” Professor Luis Orozco, department of physics and astronomy, SUNY Stony Brook.

### Science, Ethics, and Public Policy Seminar

25 Baxter, 4 p.m.—“Anthropic Explanation in Cosmology,” Dr. Ernan McMullin, director emeritus, Program in History and Philosophy of Science, University of Notre Dame. Refreshments. Information: [www.hss.caltech.edu/ses/index.html](http://www.hss.caltech.edu/ses/index.html).

## Focusing on improved vision

The winter quarter 2002 Watson Lecture Series continues on Wednesday, March 6, with a talk by Julia Kornfield, professor of chemical engineering and director of the Center for the Science and Engineering of Materials. The lecture is free and open to the public, and will begin at 8 p.m. in Beckman Auditorium.

“New Materials for Perfect Vision” will be the topic of Kornfield’s lecture. As most people age, they suffer a loss of visual acuity due to cataracts—a clouding of the lenses of their eyes. Though cataracts are not yet preventable, they can be treated surgically by replacing the opaque lens with a synthetic one—about two million cataract operations are performed in the United States each year. Polymer physicists and chemists at Caltech, working with an eye surgeon at UC San Francisco, have developed new materials to make a laser-adjustable lens to provide optimal vision for every patient. Kornfield will explain these new technologies and their implications for the future.

No tickets or reservations are required for the Watson Lectures. A minimum of 700 seats will be available on a first-come, first-served basis, beginning at 7:30 each lecture evening. For more information, call Caltech Public Events at (626) 395-4652, e-mail [events@caltech.edu](mailto:events@caltech.edu), or visit [www.events.caltech.edu/watson/](http://www.events.caltech.edu/watson/).



# CampusEvents

## Monday, February 25

### Baby Furniture and Household Equipment Pool

234 S. Catalina, 10 a.m. to 1 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech community. Information: 584-9773.

### Ballroom Dance Club

Winnett lounge, 7:30 p.m.—Nightclub two-step for beginners, taught by a professional instructor. This is the third lesson of a five-week series. Fee: \$6 per lesson for Caltech students, \$8 for others. No partner required. Refreshments and a half-hour practice period will follow each class.

### Ballroom Dance Mini Party

Winnett lounge, 9 p.m.—Open dancing; make requests or bring your own music. No partner is required. Refreshments. First half-hour coincides with the nightclub two-step practice session.

## Tuesday, February 26

### Preschool Playgroup

Tournament Park, 10 a.m. to noon—Song and storytime, crafts and free play for toddlers and preschoolers (from walking to age 4). Parents and caregivers sign up in advance to bring snacks and organize crafts. Information: (323) 550-8075 or jmp-h-p@pacbell.net.

### Caltech Folk-Dancing Club

Dabney Lounge, 7:30 p.m.—Meets every Tuesday until midnight. Drop-ins are welcome. Donations accepted.

### Lyrical Jazz Dance Class

Braun Gym, multipurpose room, 10 p.m.—An intermediate-level lyrical jazz dance class, open to members of the Caltech community with Athletic Center membership. Some prior dance experience is required. The cost per term is \$20 for Caltech students and \$30 for nonstudents.

## Wednesday, February 27

### Baby Furniture and Household Equipment Pool

234 S. Catalina, 10 a.m. to 1 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech community. Information: 584-9773.

### Wednesdays in the Park

Tournament Park, 10 a.m. to noon—Conversation and coffee for parents and caregivers, and playtime and snacks for children. Information: 744-9919 or cdd@its.caltech.edu.

### Men's Tennis

at Whittier College, 3 p.m.

### Ballroom Dance Club

Winnett lounge, 7:30 p.m.—Cercoc for beginners, amateur-taught. Cercoc is a swing/hustle variant popular in Australia, New Zealand, and Britain. This is the third lesson of a five-week series. Fee: \$1 per lesson; free for freshmen or those taking it for PE credit. No partner required. Refreshments and a half-hour practice period will follow each class.

## Thursday, February 28

### Caltech Architectural Tour

Athenaeum, 11 a.m. to 12:45 p.m.—Meet in the entry hall of the Athenaeum. Led by members of the Caltech Architectural Tour Service. Reservations: Susan Lee, 395-6327 or suze@caltech.edu.

### Amnesty International Monthly Meeting

Caltech Y lounge, 7:30 p.m.—Amnesty International Group 22 holds its monthly meeting to discuss current activities and plans. All are welcome. Refreshments. Information: (818) 354-4461 or lkamp@lively.jp1.nasa.gov.

### Taping of NPR's *Wait, Wait . . . Don't Tell Me!*

Beckman Auditorium, 7:30 p.m.—Pasadena City College's NPR-affiliate radio station, KPCC, will present National Public Radio's *Wait, Wait . . . Don't Tell Me!* on the Caltech campus. The one-hour weekly news quiz will be taped for nationwide broadcast on the following Saturday. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

## Friday, March 1

### Baseball

vs. Cal Lutheran, 2:30 p.m.

### Kitka Women's Vocal Ensemble

Beckman Auditorium, 8 p.m.—Kitka's unaccompanied singers blend a contemporary sensibility with specialized vocal techniques from Eastern Europe. Their material ranges from ancient village duets to complex choral works. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

### Love's Labour's Lost

Ramo Auditorium, 8 p.m.—Theater Arts at Caltech presents the play by William Shakespeare. Runs weekends through March 9. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

## Saturday, March 2

### Men's Tennis

vs. Cal Lutheran University, 9:30 a.m.

### Women's Tennis

at Cal Lutheran University, 9:30 a.m.

### Planning for Your Child's Educational Future

Verdugo Hills Hospital, 182 Verdugo Boulevard, Glendale, 4th Floor Council Rooms, 10 a.m. to noon—David Levy, assistant dean and director of financial aid, Caltech, and Catherine Thomas, associate dean of admissions and financial aid, USC, will discuss financial planning for your child's college education. The free seminar is hosted by the Child Educational Center and the Verdugo Hills Hospital Foundation. Continental breakfast, 9:45 a.m. Reservations and information: (818) 354-3418, ceconline@ceconline.org, or hruppel@caltech.edu.

### Track and Field

SCIAC 4-way, at Caltech, 10:30 a.m.

### Ballet Classes

Braun Gym, multipurpose room, 1 p.m.—The Caltech Dance Troupe offers free ballet classes to members of the Caltech community with Athletic Center membership. No prior dance experience or special shoes or clothing are required for the beginners' class. Intermediate dancers meet from 1 to 2:30, beginners from 2:30 to 3:30.

### Love's Labour's Lost

Ramo Auditorium, 8 p.m.—Theater Arts at Caltech presents the play by William Shakespeare. Runs weekends through March 9. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

## Sunday, March 3

### Love's Labour's Lost

Ramo Auditorium, 2 p.m.—Theater Arts at Caltech presents the play by William Shakespeare. Runs weekends through March 9. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

### Paco A. Lagerstrom Chamber Music Concert

Beckman Auditorium, 3:30 p.m.—The California Classical Ensemble will perform works by Berio, Bach, Korngold, Pärt, Bartok, and Moszkowski. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

## Monday, March 4

### Baby Furniture and Household Equipment Pool

234 S. Catalina, 10 a.m. to 1 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech community. Information: 584-9773.

### Men's Golf

vs. Pomona-Pitzer College, at Brookside, 12:30 p.m.

### Ballroom Dance Club

Winnett lounge, 7:30 p.m.—Nightclub two-step for beginners, taught by a professional instructor. This is the fourth lesson of a five-week series. Fee: \$6 per lesson for Caltech students, \$8 for others. No partner required. Refreshments and a half-hour practice period will follow each class.

### Ballroom Dance Mini Party

Winnett lounge, 9 p.m.—Open dancing; make requests or bring your own music. No partner is required. Refreshments. First half-hour coincides with the nightclub two-step practice session.

## Tuesday, March 5

### Preschool Playgroup

Tournament Park, 10 a.m. to noon—Song and storytime, crafts and free play for toddlers and preschoolers (from walking to age 4). Parents and caregivers sign up in advance to bring snacks and organize crafts. Information: (323) 550-8075 or jmp-h-p@pacbell.net.

### Caltech Folk-Dancing Club

Dabney Lounge, 7:30 p.m.—Meets every Tuesday until midnight. Drop-ins are welcome. Donations accepted.

### Lyrical Jazz Dance Class

Braun Gym, multipurpose room, 10 p.m.—An intermediate-level lyrical jazz dance class, open to members of the Caltech community with Athletic Center membership. Some prior dance experience is required. The cost per term is \$20 for Caltech students and \$30 for nonstudents.

## Wednesday, March 6

### Baby Furniture and Household Equipment Pool

234 S. Catalina, 10 a.m. to 1 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech community. Information: 584-9773.

### Wednesdays in the Park

Tournament Park, 10 a.m. to noon—Conversation and coffee for parents and caregivers, and playtime and snacks for children. Information: 744-9919 or cdd@its.caltech.edu.

### Ballroom Dance Club

Winnett lounge, 7:30 p.m.—Cercoc for beginners, amateur-taught. Cercoc is a swing/hustle variant popular in Australia, New Zealand, and Britain. This is the fourth lesson of a five-week series. Fee: \$1 per lesson; free for freshmen or those taking it for PE credit. No partner required. Refreshments and a half-hour practice period will follow each class.

## Thursday, March 7

### Digital Media Center Presents Hands-On Scanning Workshop

New Media Classroom, 363 S. Hill Avenue, 10 a.m. to noon—Learn solid techniques for accurate scanning. Basic image enhancement techniques with Adobe Photoshop will also be covered. Registration: 395-3420 or dmc@caltech.edu. Information: http://twing.caltech.edu/workshops. Open to Caltech community members only.

### Women's Water Polo

vs. Whittier College, 7:30 p.m.

### Love's Labour's Lost

Ramo Auditorium, 8 p.m.—Theater Arts at Caltech presents the play by William Shakespeare. Runs weekends through March 9. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

## Friday, March 8

### Men's Tennis

vs. University of Puget Sound, 3 p.m.

### Women's Tennis

vs. University of Puget Sound, 3 p.m.

### Armchair Adventures Series

Beckman Auditorium, 8 p.m.—"China, the 21st Century," narrated by Buddy Hatton. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

### Love's Labour's Lost

Ramo Auditorium, 8 p.m.—Theater Arts at Caltech presents the play by William Shakespeare. Runs weekends through March 9. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

## Saturday, March 9

### Women's Tennis

vs. Southwestern College, 9:30 a.m.

### Track and Field

SCIAC 4-way, at Pomona-Pitzer College, 10:30 a.m.

### Baseball

at University of Redlands, 1 p.m.

### Lazer Vaudeville

Beckman Auditorium, 2 p.m.—A high-tech laser and juggling show for the entire family. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

### Love's Labour's Lost

Ramo Auditorium, 2 p.m.—Theater Arts at Caltech presents their final performance of the play by William Shakespeare. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

### Men's Tennis

vs. Southwestern College, 2:30 p.m.

## Sunday, March 10

### Caltech-Occidental Symphony Concert

Ramo Auditorium, 8 p.m.—Allen Robert Gross conducts the Caltech-Occidental Symphony Orchestra in performances of music by Weber, Prokofiev, and Beethoven. Nicole Elliott is the violin soloist. Admission is free. No tickets are required.



**Caltech Y**, from page 1

ing current president John Gee, class of 1953, as well as members John Fee, class of 1951, and Frank Dryden, class of 1954. "It's great to see alums coming back," Castro says. "I think it's exciting for them to give back to something they enjoyed when they were students."

She believes the Y's staying power and loyalty-inspiring ability are due to its immediacy and relevance to students: "Our strength is that we're an integral part of campus, providing great services and programs that really enhance student life." People often don't realize it was the Y that birthed many Caltech

traditions, she says, including Frosh Camp and the *little t* freshman hand-book—"things that are now institutionalized. That's really exciting, and it feels good to be a part of this."

In addition to Castro, the Y staff has grown to include four other members: Armida McGill, community service accountant; Diana Salazar, bookkeeper; Greg Fletcher, activities coordinator; and Molly Hood, board programs and office coordinator. There is also the board of directors, comprising Caltech alumni, Caltech and JPL faculty and staff, and community members; and the ExComm, a committee of both undergraduate and graduate students that plans and governs the Y's day-to-day activities, which are myriad.

A typical academic term might include collaborating with other campus groups on a cultural celebration such as Black History Month, Semana Latina, or Asian Pacific Heritage Week; numerous community service opportunities; and global and political awareness events such as Earth Day and a Social Activism Speaker Series lecture. Add in Decompression, a weekend-long social just before finals that features the Y's traditional chili; several noon concerts; hikes; a camping trip; and a museum or symphony outing. Multiply everything by three school terms, and it adds up to a heaping plate, which suits the Y just fine.

To Castro, that means the organization is excelling at its task of involving Caltech students in the world beyond academia, not always easy at such a study-intensive institution. She notes with satisfaction that this year's Alternative Spring Break community service trips to Tecolote, Mexico, and the Navajo Nation in Utah had nearly reached its capacity of 40 by the end of the first day of sign-ups. "We're getting some pretty awesome numbers," she says, even as she and her staff continue "racking our brains" to bring in more and more students.

Plans for this year include an anniversary celebration for students, board members, and alums on Sunday, May 19, Alumni Seminar Day weekend. In addition, Castro explains, "There's always confusion about the Y and its relationship with Caltech," so a committee, formed in 2000, has been expanding public relations outreach to the campus community.

And, as always, the focus will remain on fulfilling the ideals that have fueled the Y for more than fourscore years. As Castro says, "We're planning to continue doing what we do best—to provide experiences for students to learn about themselves and broaden their perspectives." For more information on the Caltech Y, call ext. 6163, e-mail [caltechy@caltech.edu](mailto:caltechy@caltech.edu), or visit [www.caltechy.org](http://www.caltechy.org).

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**Selected events from the Caltech Y's first 85 years**

compiled by John Fee '51, board treasurer

- October 1, 1916** Eleven students of Throop College of Technology petition for a campus YMCA, later to be called the Caltech Y.
- 1918** Primarily a service organization, the Y provides refreshments to soldiers training locally during World War I.
- 1920** Throop College becomes the California Institute of Technology.
- 1924** An advisory board, composed of faculty, clergy, and alumni, is formed.
- 1925–34** Many programs are begun, such as student counseling, assembly speakers, a club to assist foreign students, faculty-student mixers, the *little t* freshman hand-book, and a student loan fund.
- 1930s–1940s** As World War II approaches, the Y meets student interests with speakers on peace, government reforms, labor issues, and other moral and political questions. The Y also fills a huge need by assisting students with wartime anxieties.
- 1949** The Y incorporates and gains nonprofit status.
- 1951** Board chair Stan Johnson donates \$4,000 to establish the Leaders of America program, bringing Martin Luther King, Jr., Justice William O. Douglas, and other personalities to Caltech to speak.
- 1961** The Friends of the Y program is founded to assist in raising needed funds.
- 1960s** The Y's China Institute and the Ghetto and the City conference address racial and civil rights issues.
- 1970s** With female undergraduates entering Caltech, the board realizes Y students are not all young, men, or Christian. It votes on a friendly separation from the national YMCA, keeping the name Caltech Y.
- 1980s** The Y begins renting event and camping equipment to students; expands its program of free or subsidized student cultural events tickets; and establishes noon concerts and Noon Update talks.
- 1990** A community volunteering program for students is started.
- 1996** The first Alternative Spring Break is established by a trip to the Navajo Nation.
- 1999** The first Compression is held, and the Social Activism Speaker Series is begun.
- 2001** Make-a-Difference Day is established, expanding the Y's community service program.

**Winners and losers**

Elsa Echeagaray

A little staff rivalry emerged for this year's Super Bowl, with Physical Plant cheering the Rams and others favoring the Patriots (who bested the Rams 20-17). The "losers," top: Rene Stone (front); from left, Orlando Villegas, Fred Maldonado, Ronald Anderson, Raul Turcios, George White, Davy Stone, Don Thomas, and Ernie Garcia. "Winners," bottom, from left: Luana Lovato, Susan Davis, Eloisa Imel, Bob O'Rourke, Chris Smith, Jean Grinols, and Tom Schmitt.

**Microlaser**, from page 1

linear regime wherein conventional rules for light propagation break down. In the Caltech work, the molecules of the glass bead itself are distorted, resulting in a process called Raman emission and lasing. Because Raman lasers require enormous intensities to function, they are usually power-hungry devices, but Vahala's team uses the physics of the sphere to reduce both power and size.

Central to this breakthrough was the ability to couple directly to the sphere's ring orbits while preserving the sphere's exquisite ability to store and concentrate light. The Caltech team uses stretched optical fiber to achieve coupling efficiencies, in which loss is negligible, both to and from the sphere.

Because Raman lasers and amplifiers can operate over a very broad range of wavelengths, they are important devices that extend other lasers into new or previously inaccessible wavelength bands. For example, Raman amplifiers are now used widely in commercial long-distance fiber communications systems because of their wavelength flexibility. Also, it is possible to cover even greater wavelength bands by using one Raman laser as the pump for another, called cascading. In this way, a whole series of wavelengths can be generated in a kind of domino effect.

The article, "Ultralow-threshold Raman laser using a spherical dielectric microcavity," is available at [www.nature.com](http://www.nature.com). More information can also be found at [www.its.caltech.edu/~vahalagr](http://www.its.caltech.edu/~vahalagr).

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**VP search**, from page 1

ning and organizing phase, there is a sense of urgency to find a successor. The kickoff is planned for the fall.

According to Jenkins, the successful candidate will be a seasoned development professional who must take charge of a range of development, fund-raising, and outreach functions. His or her duties will be to identify, cultivate, and attract new donors; solicit and procure gifts to support the Institute's priorities; plan and direct programs to meet annual fund-raising goals; and meet or surpass the goals set for the capital campaign. Through staffing and creative partnerships both within Caltech and with outside entities, the new vice president will also establish an efficient fund-raising organization that will serve the Institute through the coming decade.

The office of development and alumni relations includes the Alumni Association, whose members have graduated as far back as the 1920s; Gift and Estate Planning, which raises funds through deferred gifts and bequests; the Alumni Fund, which contacts 17,000 alumni every year for support; and Corporate Relations, which develops mutually beneficial relationships with corporations.

The new officer will also oversee Foundation Relations, which works with faculty and the administration to establish relationships with private foundations; Development Services, which comprises Donor Relations, Gift Processing, and Research; Principal and Major Gifts, which works to increase support from select individuals; and the Associates, a support group of dedicated friends of Caltech who provide the Institute with private donations.

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**Caltech 336**

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Editor: Daryn Kobata  
(626) 395-6240; [daryn@caltech.edu](mailto:daryn@caltech.edu)  
Assistant Editor: Javier Marquez  
(626) 395-6624; [jmarquez@caltech.edu](mailto:jmarquez@caltech.edu)  
Calendar Administrator: Debbie Bradbury  
(626) 395-3630; [debbieb@caltech.edu](mailto:debbieb@caltech.edu)  
Graphic Artist: Doug Cummings  
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