

# Caltech 336

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

The campus community biweekly

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## Biotech Club debuts Caltech's new summer RSI

Mark Wheeler

The San Gabriel Valley is fast becoming a center for biotechnology, fueled in part by the research of Caltech scientists and the growing number of area biotech firms, many started by Institute faculty and grads.

What's been missing, ironically, is a strong link between Caltech and this newly emerging biotech sector—a situation Deepshikha (Dee) Datta is out to change.

Datta, a postdoctoral scholar in the lab of Bill Goddard, Ferkel Professor of Chemistry, Materials Science, and Applied Physics, graduated in June with a PhD in biochemistry and molecular biophysics. Along with Jessica Mao, a graduate student in chemistry, she has established the Caltech Biotech Club, to bridge the gap between members of the campus community interested in biotechnology and those who are actively involved in the industry. The focus of the student-run organization is to establish a forum for students and researchers to explore the biotechnology world together with the help of experienced individuals.

Besides meeting weekly, the club will sponsor tours of local biotech companies and a speaker series of distinguished scientists. Its first tour took place at Pasadena's Neurion Pharmaceuticals, a Caltech start-up, in June. The club's fall event will be a talk by Caltech president David Baltimore, "Biotech Is the New, New Thing," on November 19. Open to the campus community, the event will take place at 4 p.m. in Beckman Institute auditorium, followed by a reception in the courtyard. Interested Techers should RSVP to [biotech@caltech.edu](mailto:biotech@caltech.edu).

Founded in June, the club is open to everyone in the Caltech community; so far there are 90 members. "It's odd Caltech doesn't have stronger ties with the biotechnology sector," says Datta. "After all, it's a natural. The chemistry

see *Biotech club*, page 6

Caltech and the Virginia-based Center for Excellence in Education (CEE) have announced the inauguration of the Research Science Institute (RSI), a six-week summer program for academically talented high-school science students.

Based here on campus, the RSI will encourage excellence and leadership in science and technology and further international understanding among future leaders. From June 27 to August 7, 2004, the program will bring together 25 high-achieving U.S. students and 10 students from other nations.

The Caltech program complements another RSI at MIT, which has sponsored the program with CEE for the past 11 years.

Offered free of cost to students, the RSI combines classroom training and research mentorships. Considered one of the most prestigious and competitive high-school science programs in the nation, RSI has more than 1,400 alumni from 46 nations. Students are selected based on grades, SAT scores (generally ranging in the high 1,500s to 1,600), teacher recommendations, participation in science competitions, and community service.

Many RSI alumni go on to win top prizes in science competitions. In 2003, alumni garnered top-prize \$100,000 scholarship awards in both the Intel Science Talent Search and the Siemens Westinghouse Competition.

see *RSI*, page 6

## Another class of winners

This year's incoming frosh class, slated to graduate in 2007, is as always a cross section of the best and brightest students from this country and beyond. A bit fewer in number than in previous years, these students nonetheless share the most notable characteristics of Caltech scholars: off-the-chart grade-point averages and SAT scores, geographic and ethnic diversity, and involvement in a wide range of extracurricular academic, leisure-time, and community-service activities. Following are selected statistics from the class of '07:

Total applications	3,071
Number admitted	520 (17%)
Number registered	189
Women	62 (33%)
Men	127 (67%)
Latino/a	19 (10%)
Asian American	75 (40%)
Other ethnic/geogr. origin	95 (50%)
International	10 (5%)

see *Stats*, page 2

## Shades of Halloween



Ciro Diaz of the ATC was the hippest vampire in sight at the Caltech Bookstore's annual costume contest. More photos, page 6.



Scott Kardel

## Close call for Palomar

Javier Marquez

Twenty-one residents of Palomar Mountain gathered at the Palomar Observatory in late October to wait out the approaching firestorms that threatened to engulf them. Among these resolute—some might say reckless—souls was Robert Thicksten, the facility's superintendent. Even though power lines were down, telephone access was spotty, and intelligence about the fires was contradictory, he managed to keep a cool head.

"I wasn't too concerned," said Thicksten, a few days after the hazard had dissipated. "At no time did the fire ever cross Highway 76. If it had, then I would have gotten worried because that's where Palomar Mountain begins."

Not even the massive solar flares that lashed Earth that week—and fried a couple of Japanese satellites—could compare in destructive force to the fires that threatened the observatory in northern San Diego County.

"The fire at its closest approach was six air miles, but to travel to the observatory it would have had to burn through almost 12 ground miles of wilderness," Thicksten said.

From their perch 5,600 feet above sea level, the evacuees and staff who chose to remain could see clear evidence of the surrounding devastation. To the south, dark clouds of ash billowed from the Cedar fire; the Paradise fire, also to the south, blackened entire mountainsides.

Atmospheric conditions deteriorated rapidly. "We started having problems from the fires to the north of us on Thursday, the 23rd," he said. "The Paradise fire here in San Diego did not break out until Saturday night, and after that, our operations were intermittent."

But the source of Thicksten's confidence, and that of the evacuees, was their knowledge of the observatory's fortified construction, a result of its planners' foresight while building a facility in a fire-prone locale.

"I would suggest that all these people knew that the observatory was a safe place to be," he said. "Because of our construction and our willingness to keep the site open, we are the emergency evacuation site for the mountain."

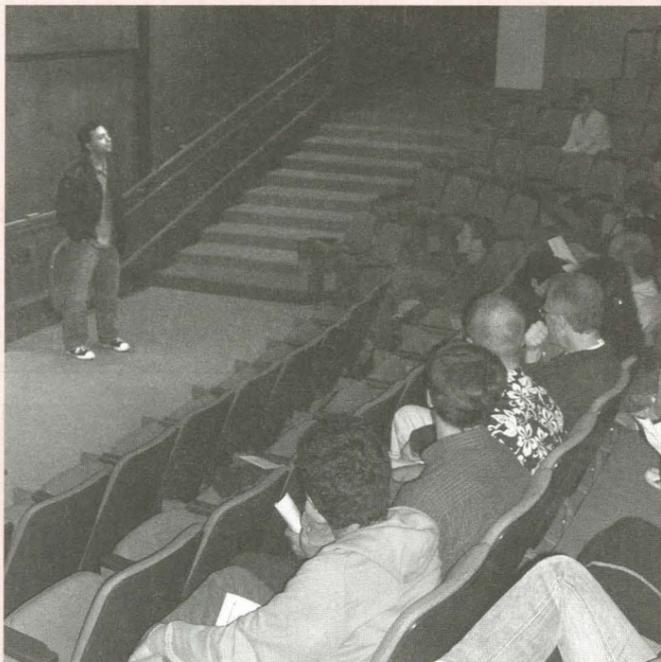
Indeed, the 200-inch Hale Telescope is wrapped in a thick sandwich of concrete and steel, making for a heat- and fire-resistant refuge. The facility also maintains a million-gallon water tank, and the nearest volunteer fire station is just outside the main gate.

"All of our buildings are built to be relatively secure in a forest fire. The fire department comes through on an annual basis and looks at our facility and makes recommendations," he said. "It gives you a warm, fuzzy feeling."

The Palomar Fire Department, the California Department of Forestry, the U.S. Forest Service, and the Red Cross had developed an Emergency Action Plan that designated the observatory site as the evacuation center for Palomar Mountain.

see *Palomar fires*, page 6

# NewsBriefs



Madjid Niroumand, the star of the acclaimed Iranian film *The Runner* (1985), speaks to a Caltech audience after the film's screening on Sunday night, November 9. The event was cosponsored by the International Film Club (IFILM), the Friends of Iranian Culture at Caltech (FICCIT), and International Student Programs (ISP).

## Personals

### Welcome to Caltech

#### September

**Vincenzo Cirigliano**, Sherman Fairchild Postdoctoral Scholar in Physics; **Joseph Hora**, visitor in astronomy; **Jesse Kroll**, postdoctoral scholar in environmental science and engineering; visitors **Amanda Mainzer** and **Matthias Schoeck**, both in astronomy; **Pin Wang**, postdoctoral scholar in chemistry.

#### October

**Fernando Auil**, visitor in mathematics; **Mark Barfield**, utility-plant operator, Facilities Management; **Hans Kristian Ulf Bjerklov**, visitor in mathematics; postdoctoral scholars **Kimberly Chenoweth**, in chemistry, **Wu-Cheng Chi**, in geophysics, **Karin Crowhurst**, in biology, **Frederic Gabern**, in control and dynamical systems, and **Michael Gordon**, in chemical engineering; **Jennifer Gu**, assistant biologist, biology; **Cecile Guieu**, visitor in geochemistry; postdoctoral scholars **James Harris** and **Chad Haynes**, both in chemistry, **Soonsung Hong**, in aeronautics, **Mihoko Kato**, in biology, and **Satoru Kobayashi**, in JPL's radar science and engineering section; **Denis Kosygin**, visitor in mathematics; **John Kovac**, Robert A. Millikan Postdoctoral Scholar in Physics; **Dennis Lattka**, collaborative environment development engineer, high-energy physics; visitors **Andrea Loettgers**, in history, **Maddalena Mantovani**, in physics, and **Thomas Megeath**, in astronomy; **Raymond Merlin**, plumber, Facilities Management; **Daniel Meulemans**, postdoctoral scholar in biology; **Dae-Sik Moon**, Robert A. Millikan Postdoctoral Scholar in Astronomy; visitors **Elisabeth Nadin**, in geology, and **Sheldon Newhouse**, in mathematics; **Claire Newman**, O. K. Earl Postdoctoral Scholar in planetary science; **David Perz**, task lead, Infrared Processing and Analysis Center; **Zheng Ou**, postdoctoral scholar in JPL's mission systems engineering section; **Ezequiel Ramos**, security officer, Campus Security and Parking Services; **Erika Reyes**, assistant animal laboratory technician, biology; visitors **Thomas Roellig**, in astronomy, and **Maria Saprykina**, in mathematics; postdoctoral scholars **Georg Seelig**, in applied physics, and **Eric Shipp**, in chemistry; **Barbara Simoni**, visitor in physics; postdoctoral scholars **Troy Smith**, in control and dynamical systems, and **Robert Strittmatter**, in JPL's in situ technology and experiments systems section; **Giovanna Tinetti**, visitor in astronomy; postdoctoral scholars **Radovan Urban**, in physics, and **Lorraine Washburn**, in biology; **Erin Watkin**, research assistant I, biology; postdoctoral scholars **Sarah Yost**, in physics, and **Hongbin Yu**, in chemistry; **Qiu Autumn Yuan**, research assistant II, biology; **Veronica Zaldana**, server, Athenaeum; **Lihi Zelnik-Manor**, postdoctoral scholar in electrical engineering.

### New positions

**Stephen Quake**, associate professor of applied physics and physics, has been appointed professor of applied physics and physics, effective November 1. He received his BS from Stanford University in 1991 and his doctorate from the University of Oxford in 1994. He joined Caltech's faculty in 1996.

### Marriages

**Michael Landry**, a Caltech postdoctoral scholar at the LIGO Hanford Observatory in Washington State, and Marilyn Krickhan were married in Canada on October 12.

## Honors and awards

**Robert Grubbs**, Atkins Professor of Chemistry, has received the 2003 Pauling Award Medal, which is presented annually by the Oregon, Portland, and Puget Sound Sections of the American Chemical Society. Named after the late Linus Pauling—a Caltech alumnus and former Caltech professor, a two-time Nobel Prize winner, and a native of the Pacific Northwest—the medal recognizes “outstanding contributions to chemistry . . . that have merited national and international recognition.” The award symposium and banquet took place at the University of Oregon on November 1. A 1963 graduate of the University of Florida, Grubbs received his PhD from Columbia University in 1968 and joined Caltech as professor of chemistry in 1978.

**Fred Raichlen**, professor of civil and mechanical engineering, emeritus, has received the 2003 International Coastal Engineering Award from the Coasts, Oceans, Ports, and Rivers Institute of the American Society of Civil Engineers “in recognition of his outstanding achievements and contribution to the advancement of coastal engineering through research, education, engineering practice, and professional leadership.” The award was presented at the International Association for Hydraulic Research Long Waves Symposium in Thessaloniki, Greece, in August. A 1953 graduate of Johns Hopkins University, Raichlen received his doctorate from MIT in 1962. He joined Caltech that same year as an assistant professor, becoming full professor in 1972. He became professor emeritus in 2001.

**Ahmed Zewail**, Pauling Professor of Chemical Physics and professor of physics, has been elected a Foreign Member of the Russian Academy of Sciences “in recognition of his scientific accomplishments.” Zewail received his BSc from Alexandria University in 1967 and his PhD from the University of Pennsylvania in 1974, and he joined Caltech's faculty in 1976. His many honors include the 1999 Nobel Prize in chemistry and the 1997 Welch Award, and he is director of the National Science Foundation Laboratory for Molecular Sciences.

## Concerts bring in holiday spirit

The holidays are nearly upon us again, and student music groups are preparing to add to the festive air with songs of the season. All concerts are free and open to the public.

Opening the series will be the Caltech Occidental Symphony Orchestra on Saturday, November 22, at 8 p.m. in Ramo Auditorium. Directed by Allen Robert Gross and featuring violinist Lawrence Sonderling and cellist David Garrett, the performance will offer Brahms's Double Concerto and Shostakovich's Symphony no. 5. The concert will be repeated on Sunday, November 23, at 8 p.m. in Thorne Hall at Occidental College, 1600 Campus Road, Los Angeles. For more information, call (323) 259-2785.

The Caltech Glee Clubs and Chamber Singers will hold their annual holiday concert on Friday, December 5, at 8 p.m. in Ramo Auditorium, and Saturday, December 6, at 8 p.m. at Oneonta Congregational Church, 1515 Garfield Avenue, South Pasadena (just north of Huntington Drive). Highlighting the evening will be Bach's Magnificat in D Major for chorus, solo, and orchestra, conducted by Donald Caldwell and sung by the women's and men's choruses.

According to Caldwell, Bach's complex work presents a special challenge for choral singers, but this year's group of 80 vocalists is “exceptionally capable.” He calls the Magnificat, whose text is taken from Mary's song of praise in the book of Luke, “one of the composer's true gems,” with outstanding orchestral passages and choral sections and solo movements that will feature faculty and students. The combined Men's Glee and Chamber Singers and the Women's Glee will also perform holiday music ranging from medieval to contemporary and from the traditional to the unusual. Featured composers include Lauridsen, Stroope, Hodson, and Holland. A reception for all will follow the concert.

Last but not least, the Glee Clubs will lead the ever-popular *Messiah* sing-along on Friday, December 12, from noon to 1 p.m., directed by Caldwell and accompanied by Wendy Caldwell. Musical scores will be provided. As always, all are welcome, and students or others interested in solo parts can contact Caldwell at [dgc@caltech.edu](mailto:dgc@caltech.edu) or ext. 6197.

## Working together for a better economy

Social norms instruct much of human interaction in all societies. But how do such norms develop and change over time? How do they influence a population's economy? Jean Ensminger, professor of anthropology and chair of the Division of the Humanities and Social Sciences, will address these questions in a Watson lecture, “Experimenting with Social Norms,” on Wednesday, November 19.

In her talk, Ensminger will draw on several decades of work with a nomadic cattle-herding community in East Africa, as well as on experimental economics research by a collaboration of anthropologists working in hunting-and-gathering, horticultural, and industrial societies. Data from controlled experiments around the globe are helping to flesh out the processes involved in the evolution of market institutions governed by social norms of cooperation, fairness, and trust.

The free public lecture will begin at 8 p.m. in Beckman Auditorium. For more information, contact Public Events at 1 (888) 2CALTECH, (626) 395-4652, or [events@caltech.edu](mailto:events@caltech.edu), or visit [www.events.caltech.edu](http://www.events.caltech.edu). Individuals with a disability can call 395-4688 (voice) or 395-3700 (TDD).

### Stats, from page 1

Crew coxswains	1
Debate-team members	8
Fencers	3
Football players	4
Harvard Book Award winners	1
Hospital ER volunteers	2
Irish-whistle players	1
National Merit Scholar finalists	50
Pianists	4
Science Olympiad participants	20
Solar racing-team members	2
Tennis players	10
Tutors	19
“Weird Nerd Guy” awardees	1
YESS participants	2
Youth-orchestra musicians	16

## 336 holiday schedule

The last fall-term Caltech 336 will be December 4. We will resume publishing on January 8. Happy holidays to all from the 336 staff.

## Leonid meteor shower roars in

### Scott Kardel

Observers of the night skies, take delight. Arriving fresh on the heels of the recent total lunar eclipse is the annual Leonid meteor shower. Make plans to watch the show on the night of Tuesday, November 18.

To catch the outbreak of meteors, one every two to three minutes, interested viewers should seek out clear dark skies away from any interfering city lights. Essential meteor-watching equipment includes good company and a lawn chair or blanket from which to enjoy the view.

The Leonid meteor shower gets its name because the meteors appear to radiate from the constellation of Leo, the lion, which rises in the east around 1 a.m. PST. For West Coast observers, Leo will still be below the horizon; meteors will be visible, but be sure to look eastward to catch the shower. As the night wears on, Leo will rise, bringing meteors to more parts of the sky.

To understand what meteors are, it's useful to know a little bit about comets. Astronomers often describe comets as being dirty snowballs. These aren't your average snowballs—comets orbit the sun and are miles across. As a comet's orbit brings it into the inner solar system, the sun warms the comet's surface, releasing gas and dust that form the comet's tail. After several trips around the sun, the comet's orbit begins to fill up with dusty debris, and when Earth passes through such a dust swarm, a meteor shower results.

A comet known as Tempel-Tuttle produces the dust that causes the Leonid meteor shower. Each dust grain that we encounter hits our atmosphere with enough energy to cause the familiar bright streak that many people refer to as a “shooting” or “falling” star.

Scott Kardel is the Palomar Observatory's public affairs director. He has been watching the night sky for the last 30 years and explaining it to broadcast and print media for the last 20.

# November 17–23, 2003

M T W T F S S

## Monday, November 17

### Keck Symposium

Ramo Auditorium, 8 a.m. to 5 p.m.—The two-day symposium, open to the public, is titled "Information and Biological Networks." Information: [www.biology.caltech.edu/kecksymposium/index.html](http://www.biology.caltech.edu/kecksymposium/index.html).

### Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—"Jupiter's Icy Galilean Satellites: What Are They Made Of?", Thomas McCord, senior scientist, Planetary Science Institute, Northwest Division.

### High Energy Physics Seminar

469 Lauritsen, 4 p.m.—"Warped Compactifications: Flavor, Precision Tests, and Grand Unification," Kaustubh Agashe, department of physics and astronomy, Johns Hopkins University. Information: [www.theory.caltech.edu/people/helen/seminar1.html](http://www.theory.caltech.edu/people/helen/seminar1.html).

### Inorganic-Electrochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—"Template-Controlled Synthesis in the Solid State: Gaining Control Over the Organization of Matter for Applications in Chemical Synthesis and Materials Science," Professor Leonard R. MacGillivray, assistant professor of chemistry, University of Iowa.

### William Bennett Munro Memorial Seminar

25 Baxter, 4 p.m.—"The 'Jew' in Cinema: From *The Golem* to *Don't Touch My Holocaust*," Omer Bartov, John P. Birkelund Distinguished Professor of European History and professor of history, Brown University. Refreshments.

### Applied and Computational Mathematics Colloquium

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—"The Role of Microlocal Analysis in Seismic Inverse Scattering," Maarten V. de Hoop, department of mathematical and computer sciences, Colorado School of Mines. Refreshments, 3:45 p.m. Information: [www.acm.caltech.edu/colloq.shtml](http://www.acm.caltech.edu/colloq.shtml).

## Tuesday, November 18

### Keck Symposium

Ramo Auditorium, 8 a.m. to noon—A continuation of the two-day symposium, "Information and Biological Networks." Information: [www.biology.caltech.edu/kecksymposium/index.html](http://www.biology.caltech.edu/kecksymposium/index.html).

### Beckman Institute Seminar Series

Beckman Institute auditorium, 10:30 a.m. to noon—"Frontiers of Mass Spectrometry: From Cosmochemistry to Proteomics," Jack Beauchamp, Ferkel Professor of Chemistry and principal investigator for the Beckman Institute's Mass Spectrometry Resource Center. Refreshments, 10 a.m. Information: 395-2791 or [www.its.caltech.edu/~bi/seminars200304.html](http://www.its.caltech.edu/~bi/seminars200304.html).

### Caltech Library System Presents:

**Beilstein/Gmelin Workshop**  
Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—Intended as a follow-up to the introductory class, this workshop will be a hands-on session for specific compound searching. Laptop computers will be provided for attendees (priority given to those who sign up). Information: <http://library.caltech.edu/learning/default.htm>.

### Institute for Quantum Information Seminar

74 Jorgensen, 3 p.m.—"Dynamic Symmetry Approach to Entanglement," Professor Alexander Klyachko, department of mathematics, Bilkent University, Turkey. Information: [www.iqi.caltech.edu/seminar\\_abstracts.html#klyachko03](http://www.iqi.caltech.edu/seminar_abstracts.html#klyachko03).

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

25 Baxter, 4 p.m.—"The Economics of Color-Blind Affirmative Action," Professor Glenn Loury, department of economics, Boston University. Refreshments.

**Caltech/JPL Association for Gravitational-Wave Research Seminar**  
114 E. Bridge, 4 p.m.—"Data Analysis for LISA Capture Sources," Curt Cutler, Albert Einstein Institute, Potsdam.

### Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—"Example of Non-Linear Problems in Magnetic Resonance," Professor Matthew P. Augustine, department of chemistry, UC Davis.

### Caltech/MIT Enterprise Forum

Baxter Lecture Hall, 5:30 to 9 p.m.—The program, titled "Federal R&D Grants: A Practical Lab Course," begins with networking and dinner in Chandler Dining Hall. Fee: \$35 (\$10 for students with full-time student ID); free for Caltech students and faculty. Information: [www.entforum.caltech.edu](http://www.entforum.caltech.edu). Registration: 395-3916 or [entfor@caltech.edu](mailto:entfor@caltech.edu).

## Wednesday, November 19

### Mathematical Physics Seminar

351 Sloan, noon—"Asymptotic Completeness in Lattice Quantum Field Theory," Fernando Aul, visiting professor of mathematics, Caltech. 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.—"The SAURON Project: Reading the Fossil Record of Galaxy Formation," Tim de Zeeuw, Leiden University. Information: [www.astro.caltech.edu/~gma/colloquia.html](http://www.astro.caltech.edu/~gma/colloquia.html).

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

25 Baxter, 4 p.m.—Topic to be announced. Szilvia Papai, assistant professor, department of finance, Notre Dame. Refreshments.

### Environmental Science and Engineering Seminar

142 Keck, 4 p.m.—Topic to be announced. Alex Sessions, assistant professor of geobiology, Caltech. Refreshments, Keck Labs lobby, 3:40 p.m.

### Materials Research Lecture

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—"Multiferroic Materials," Dr. Ramamoorthy Ramesh, Center for Superconductivity Research, University of Maryland. Refreshments, 113 Spalding Lab, 3:45 p.m. Information: [www.matsci.caltech.edu/seminars.html](http://www.matsci.caltech.edu/seminars.html).

### Organic Chemistry Seminar

153 Noyes, Sturdivant Lecture Hall, 4 p.m.—"Oxone-Mediated Chemistry: New Oxidative Reactions and Cyclizations Inspired from Novel Arachidonic Acid Metabolites," Professor Babak Borhan, department of chemistry, Michigan State University.

### Ernest C. Watson Lecture Series

Beckman Auditorium, 8 p.m.—"Experimenting with Social Norms," Jean Ensminger, professor of anthropology, Caltech. 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, November 20

### Endnote for Absolute Beginners

Sherman Fairchild Library, multimedia conference room, 2 to 3:30 p.m.—Learn what Endnote is and how it can work for you to create bibliographies within a document, and as a search interface to online databases and catalogs allowing you to directly export records to your computer. Space is limited. Registration: <http://library.caltech.edu/learning/form.htm>.

### Applied and Computational Mathematics Special Seminar

308 Firestone Lab, 4 p.m.—"Heterogeneous Multi-Scale Methods," Bjorn Engquist, applied and computational mathematics department, Princeton University. Information: [www.acm.caltech.edu/colloq.shtml](http://www.acm.caltech.edu/colloq.shtml).

### Physics Research Conference

201 E. Bridge, 4 p.m.—"Ripples on a D-Wave Sea: Quasiparticle Wavefunction Imaging in Cuprate Superconductors," J. C. Séamus Davis, professor of physics, Cornell University. Refreshments, 114 E. Bridge, 3:45 p.m. Information: [www.pma.caltech.edu/~physcoll/PhysColl.html](http://www.pma.caltech.edu/~physcoll/PhysColl.html).

### Social and Information Sciences

**Laboratory Seminar Series**  
25 Baxter, 4 p.m.—Topic to be announced. Colin Camerer, Axline Professor of Business Economics, Caltech. Refreshments.

### Von Karman Lecture Series

JPL, von Karman Auditorium, 7 p.m.—"The Deep Space Network Challenge for 2003–2004: Tracking Dozens of Mission-Critical Spacecraft Events." Speaker to be announced. Admission is free. Information: [www.jpl.nasa.gov/lecture](http://www.jpl.nasa.gov/lecture).

## Friday, November 21

### High Energy Theory Seminar

469 Lauritsen, 11 a.m.—Topic to be announced. Lubos Motl, Harvard. Information: [www.theory.caltech.edu/people/seminar/schedule.html](http://www.theory.caltech.edu/people/seminar/schedule.html).

### Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—Topic to be announced. Tapio Schneider, assistant professor of environmental science and engineering, Caltech. 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.—"Corroles, Proteins, and the Periodic Table," Jeremy Weaver, graduate student in chemistry, Caltech.

### Kellogg Seminar

Lauritsen Library, 4 p.m.—"New 8B Beta Spectrum Measurement," Professor Stuart Freedman, faculty senior scientist, Institute for Nuclear and Particle Astrophysics, Lawrence Berkeley National Laboratory.

### Von Karman Lecture Series

Pasadena City College, 1570 E. Colorado, the Vosloh Forum (south of Colorado on Bonnie), 7 p.m.—"The Deep Space Network Challenge for 2003–2004: Tracking Dozens of Mission-Critical Spacecraft Events." Speaker to be announced. Admission is free. Information: [www.jpl.nasa.gov/lecture](http://www.jpl.nasa.gov/lecture).

# November 24–December 7, 2003

M T W T F S S

## Monday, November 24

**Inorganic-Electrochemistry Seminar**  
147 Noyes, Sturdivant Lecture Hall, 3 p.m.—“Chemistry and Mechanism of New Alkane CH Activation and Functionalization Catalysts,” Roy Periana, associate professor, Loker Hydrocarbon Research Institute, department of chemistry, USC.

### Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“A Tropical Thermostat,” Kerry Emanuel, professor of atmospheric science, MIT.

### History and Philosophy of Science

25 Baxter, 4 p.m.—“Making Empirical Sense of Probability as a Set of Measures,” Terrence L. Fine, professor, School of Electrical and Computer Engineering, and director, Center for Applied Mathematics, Cornell University. Refreshments.

## Tuesday, November 25

### Institute for Quantum Information Seminar

74 Jorgensen, 3 p.m.—Topic to be announced. Professor Dorit Aharonov, department of computer science and engineering, Hebrew University.

### Mechanical Engineering Seminar

206 Thomas, 3 p.m.—Topic to be announced. Naomi Leonard, professor of mechanical and aerospace engineering, Princeton University. Refreshments, 210 Thomas, 2:45 p.m.

### Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Single Molecule Chemistry Inside a Protein Nanoreactor,” Hagan Bayley, professor and chair, department of chemical biology, Oxford University.

### General Biology Seminar

119 Kerckhoff, 4 p.m.—“How Do You Feel? Molecular Mechanisms of Temperature Sensation,” Ardem Patapoutian, assistant professor, department of cell biology, Scripps Research Institute.

### Special High Energy Physics Seminar

469 Lauritsen, 4 p.m.—“Power Corrections and the Pion Form Factors: A New Approach to an Old Problem,” Professor Ira Rothstein, department of physics, Carnegie Mellon University. Information: [www.theory.caltech.edu/people/helen/seminar1.html](http://www.theory.caltech.edu/people/helen/seminar1.html).

### William Bennett Munro Memorial Seminar

25 Baxter, 4 p.m.—“Masaccio to Leonardo: The Renaissance at Foot Level,” Carlo Pedretti, professor emeritus, UCLA. Refreshments.

## Wednesday, November 26

**Mathematical Physics Seminar**  
351 Sloan, noon—“Approximation and Orthogonal Polynomials with Varying Weights and Random Matrices,” Professor Vilmos Totik, department of mathematics, University of South Florida. Information: [www.math.caltech.edu/events/mathphys.html](http://www.math.caltech.edu/events/mathphys.html).

### Materials Research Lecture

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Epitaxial Oxide Heterostructures,” Darrell Schlom, professor of materials science and engineering, Penn State. Refreshments, 113 Spalding Lab, 3:45 p.m. Information: [www.matsci.caltech.edu/seminars.html](http://www.matsci.caltech.edu/seminars.html).

## Thursday, November 27

Thanksgiving holiday

## Friday, November 28

Thanksgiving holiday

## Monday, December 1

### General Biology Seminar

119 Kerckhoff, 4 p.m.—“Cryo-electron Tomography of Large Macromolecular Assemblies and Cells: Slow But Steady Progress,” Wolfgang Baumeister, Max Planck Institute for Biochemistry, Martinsried, Germany.

### Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Dissimilatory Metal Reduction: From Early Life to Genome-Enabled Bioremediation and Energy Harvesting,” Derek Lovley, Distinguished University Professor and department head, department of microbiology, University of Massachusetts, Amherst.

### High Energy Physics Seminar

469 Lauritsen, 4 p.m.—“Cold Dark Matter Caustics,” Pierre Sikivie, professor of physics, University of Florida. Information: [www.theory.caltech.edu/people/helen/seminar1.html](http://www.theory.caltech.edu/people/helen/seminar1.html).

### Ernest H. Swift Lecture

22 Gates Annex, 4 p.m.—“Chemistry and Electrochemistry of Metal Nanoparticles and Quantum Dots,” Professor Royce W. Murray, Kenan Professor of Chemistry, University of North Carolina, Chapel Hill. Refreshments, 3:30 p.m.

### Applied and Computational Mathematics Colloquium

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“Mathematical Modeling of the Ear and Sound Signal Processing,” Jack Xin, professor, department of mathematics and Institute for Computational Engineering and Sciences, University of Texas at Austin. Refreshments, 3:45 p.m. Information: [www.acm.caltech.edu/colloq.shtml](http://www.acm.caltech.edu/colloq.shtml).

## Tuesday, December 2

**Caltech Library System Presents: Life Sciences Information Resources**  
Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—Learn the various bibliographic databases to consider for interdisciplinary information retrieval related to life sciences, as well as options for automatically updating yourself on new literature on your topic, use of subheadings in PubMed/Medline, and other database functions and features. Information: <http://library.caltech.edu/learning/default.htm>.

### Inorganic-Electrochemistry Seminar

153 Noyes, Sturdivant Lecture Hall, 2 p.m.—“Electron Transfers in Molecular Melts,” Professor Royce W. Murray, Kenan Professor of Chemistry, University of North Carolina, Chapel Hill.

### Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Ultrafast Wave Packet Dynamics and Soft X-Ray Probing,” Stephen R. Leone, professor of chemistry and physics, UC Berkeley.

### General Biology Seminar

119 Kerckhoff, 4 p.m.—“Molecular Architecture of Pheromone Sensing,” Catherine Dulac, professor of molecular and cellular biology, Harvard University.

## Wednesday, December 3

### Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“From Molecular Cores to Protoplanetary Disks: Evolution of Gas and Dust,” Ewine van Dishoeck, Moore Distinguished Scholar in physics, Caltech. Information: [www.astro.caltech.edu/~gma/colloquia.html](http://www.astro.caltech.edu/~gma/colloquia.html).

### Environmental Science and Engineering Seminar

142 Keck, 4 p.m.—“Oxygenated Volatile Organic Chemicals (OVOC) in the Troposphere: What Do We Know about Their Sources and Fate?” Dr. Hanwant Singh, Earth Science Division, NASA Ames Research Center. Refreshments, Keck Labs lobby, 3:40 p.m.

### Wiersma Lecture

100 Broad Center, 4 p.m.—Topic to be announced. Harvey Karten, M.D., graduate program in neurosciences, UC San Diego.

## Thursday, December 4

### ME 72 Design Contest

Beckman Auditorium, 2 to 3:30 p.m.—The 19th annual culmination of Caltech’s famed ME 72 mechanical engineering course, in which devices designed and built by teams of undergraduate students compete against one another. Spectators are welcome. Admission is free.

### Biophysics Lecture

153 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Towards Understanding Membrane Channels,” Klaus Schulten, Swanlund Professor of Physics and professor of physics, chemistry, and biophysics and computational biology, University of Illinois, Urbana-Champaign.

### Chemical Engineering Seminar

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Computer Simulation of Protein Aggregation,” Carol Hall, Alcoa Professor, department of chemical engineering, North Carolina State University. Refreshments, 113 Spalding Lab, 3:30 p.m.

### Civil Engineering Seminar

210 Thomas Laboratory, 4 p.m.—“The Business of Earthquake, Structural, and Risk Engineering: Lessons I Have Learned Since Finishing School in 1970 and My First Earthquake in 1971 (San Fernando),” Peter Yanev, cofounder and former president, EQE International. Refreshments, 3:45 p.m.

### Physics Research Conference

201 E. Bridge, 4 p.m.—“Control of Light: (Precision-) Frequency Meets (Ultrafast-) Time,” Jun Ye, fellow of JILA and assistant professor of physics, University of Colorado. Refreshments, 114 E. Bridge, 3:45 p.m. Information: [www.pma.caltech.edu/~physcoll/PhysColl.html](http://www.pma.caltech.edu/~physcoll/PhysColl.html).

### Social and Information Sciences Laboratory Seminar Series

25 Baxter, 4 p.m.—Topic to be announced. Professor Christos Papadimitriou, Computer Science Division, UC Berkeley. Refreshments.

## Friday, December 5

### High Energy Theory Seminar

469 Lauritsen, 11 a.m.—Topic to be announced. Brian Wecht, department of physics, UC San Diego. Information: [www.theory.caltech.edu/people/seminar/schedule.html](http://www.theory.caltech.edu/people/seminar/schedule.html).

### Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—“Structure Functions Relations and Similarity in Locally Isotropic Turbulent Flows,” Luminita Danaila, assistant professor, CORIA. 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.—“Biomimetic Photosynthesis with Ru-bpy: Fuel from Sunlight and Water?”, Malin Abrahamsson, postdoctoral scholar in chemistry, Caltech.

### Kellogg Seminar

Lauritsen Library, 4 p.m.—“Measuring Theta13 and the Future of Reactor Neutrino Oscillation Experiments,” Karsten Heeger, Lawrence Berkeley National Laboratory.

### William Bennett Munro Memorial Seminar

25 Baxter, 4 p.m.—“The Passions: Thought and Action,” Professor Philip Fisher, department of English and American literature and language, Harvard University. Refreshments.

# CampusEvents

## Monday, November 17

**Baby Furniture and Household Equipment**  
234 S. Catalina, 10 a.m. to 12:30 p.m.—Kitchen and household necessities and baby furniture are loaned to members of the Caltech community. Must call 395-6174 for appointment.

### West Coast Swing Lessons

Winnett lounge, 7:30 p.m.—Join the Ballroom Dance Club as we learn West Coast swing. No experience or partner is necessary. Fee: \$1 per class. Refreshments.

### Advanced Ballet Class

Braun Gym, multipurpose room, 10 p.m.—Free class taught by experienced members of the Caltech Dance Troupe. Prior dance experience is required. Dance shoes and clothing are recommended.

## Tuesday, November 18

### 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). Information: 793-4099 or camila\_bruns@hotmail.com.

### Caltech Shorinji Kempo Club

Brown Gymnasium, 7 p.m.—Learn effective self-defense and martial arts. Sessions are free. No experience required. Wear comfortable clothing.

### Caltech Tai Chi Club

Winnett lounge, 7 p.m.—Meets Tuesdays and Fridays weekly. Sessions are free. Information: www.its.caltech.edu/~taichi.

## Wednesday, November 19

**Baby Furniture and Household Equipment**  
234 S. Catalina, 10 a.m. to 12:30 p.m.—Kitchen and household necessities and baby furniture are loaned to members of the Caltech community. Information: 584-9773.

### Wednesdays in the Park

Tournament Park, 10 a.m. to noon—Every Wednesday there's conversation and coffee for parents and caregivers, and playtime and snacks for children. Information: 403-7163 or ktclark@caltech.edu.

### Laboratory Safety 101

118 Keith Spalding Building, 3 p.m.—This course is designed to prepare incoming researchers to work in a laboratory at the Institute. Please call 395-6727 or e-mail safety.training@caltech.edu to reserve a place.

### Salsa Dance Classes

Winnett lounge, 7 p.m.—Learn fundamentals of Cuban-style salsa dancing and incorporate them into a Rueda de Casino (casino wheel). Rueda is a circular style of salsa dancing involving frequent partner exchanges and coordinated group movements. The beginners' session starts at 7 p.m. The intermediate/advanced lesson starts at 8:30 p.m. Fee: \$28 for 5 classes; \$7 per class.

## Thursday, November 20

**Changes and Trends in Today's English Usage**  
Brown Gym classroom, 8:30 a.m. to 4 p.m.—This all-day class can help reduce writing stress and improve the clarity of your written communications. This practical, hands-on workshop is designed to provide you with a quick and easy review of the current rules of good writing as they relate to your job. Registration: 395-8055 or diane.williams@caltech.edu.

### Caltech Architectural Tours

Athenaeum, 11 a.m. to 12:30 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.

### Women's Wellness Series: What You Need to Know about Infertility

Caltech Women's Center, noon—"Getting Pregnant! What You Need to Know about Infertility," presented by Dr. David E. Tourgeman, assistant professor of obstetrics and gynecology at the University of Southern California—Keck School of Medicine, and an infertility specialist at Women's and Children's Hospital. Registration: wcenter@studaff.caltech.edu.

### Caltech Shorinji Kempo Club

See Tuesday, November 18, for details.

### American Tango Lessons

Winnett lounge, 7:30 p.m.—Join the Ballroom Dance Club as we learn the American tango. No experience or partner is necessary. Refreshments. Fee for students: \$20 for the series, \$6 per class. Others: \$28, \$8. Refreshments.

### Amnesty International Monthly Meeting

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

### Hip-Hop Dance Class for Advanced Beginners

Braun Gym, multipurpose room, 9:30 p.m.—Hip-hop for advanced beginners, taught by a professional instructor. No special clothing or shoes are required. Open to all who have a valid gym membership. The trial class costs \$5. Fees for the full term: \$30 for Caltech students, \$40 for other Caltech community members. Sponsored by the Caltech Dance Troupe.

### International Quickstep Lessons

Winnett lounge, 9:30 p.m.—Join the Caltech Ballroom Dance Club as we learn international-style quickstep. No experience or partner is necessary. Fee not yet determined.

## Friday, November 21

### Caltech Tai Chi Club

See Tuesday, November 18, for details.

### Men's Basketball

vs. Loras College, Dubuque, 7:30 p.m.

### Caltech Chess Club

Page House dining room, 8 p.m.—Be you master or novice, you will enjoy the chess club's weekly meetings. Information: www.its.caltech.edu/~citchess.

### Umbilical Brothers in Thwak

Beckman Auditorium, 8 p.m.—One of this pair of "human cartoons" replicates a world of sounds, from frying bacon to a pesky insect, while his supple partner pantomimes the action in perfect sync. 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, November 22

### Beginning Belly-Dancing

Braun Gym, multipurpose room, 12:45 p.m.—Learn basic belly-dance technique. No special clothing or shoes are required. Open to all with a valid gym membership. The trial class costs \$5. Fees for the full term: \$30 for Caltech students, \$60 for other Caltech community members. Class size is limited. Reservations: 395-6763 or Kathy.Kelly@caltech.edu. Sponsored by the Caltech Dance Troupe.

### Women's Basketball

vs. Southwestern College, Phoenix, 2 p.m.

### Caltech-Occidental Symphony Orchestra

Ramo Auditorium, 8 p.m.—Program to be announced. A reception for all will follow the concert. 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, November 23

### Women's Basketball

vs. Pacific Union College, Angwin, California, 2 p.m.

### Caltech Shorinji Kempo Club

Braun Gym, multipurpose room, 3:30 p.m.—See Tuesday, November 18, for details.

### Coleman Chamber Concert

Beckman Auditorium, 3:30 p.m.—Musica Antiqua Köln will perform works by Caldara, Albinoni, Vivaldi, and Pergolesi. Features soprano Nancy Argenta and contralto Nathalie Stutzmann. 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, November 24

**Baby Furniture and Household Equipment**  
See Wednesday, November 19, for details.

### West Coast Swing Lessons

See Monday, November 17, for details.

## Tuesday, November 25

### Preschool Playgroup

See Tuesday, November 18, for details.

### Caltech Shorinji Kempo Club

See Tuesday, November 18, for details.

### Caltech Tai Chi Club

See Tuesday, November 18, for details.

### Women's Basketball

vs. Chapman University, 7 p.m.

## Wednesday, November 26

### Baby Furniture and Household Equipment

See Monday, November 17, for details.

### Wednesdays in the Park

See Wednesday, November 19, for details.

### Salsa Dance Classes

See Wednesday, November 19, for details.

## Thursday, November 27

### Thanksgiving holiday

### Credit Union Closure

All branches of the Caltech Employees Federal Credit Union will be closed in observance of the Thanksgiving holiday.

## Friday, November 28

### Thanksgiving holiday

### Credit Union Closure

All branches of the Caltech Employees Federal Credit Union will be closed in observance of the Thanksgiving holiday.

### Men's Basketball

vs. Wisconsin-Whitewater, at Colorado College, 6 p.m.

### Women's Basketball

Tournament: Southwestern vs. Simpson, 6 p.m.; San Jose vs. Caltech, 8 p.m.

### Caltech Tai Chi Club

See Tuesday, November 18, for details.

### Caltech Chess Club

See Friday, November 21, for details.

## Saturday, November 29

### Women's Basketball

Consolation and championship games, noon.

## Sunday, November 30

### Caltech Shorinji Kempo Club

Braun Gym, multipurpose room, 3:30 p.m.—See Tuesday, November 18, for details.

## Monday, December 1

### Baby Furniture and Household Equipment

See Wednesday, November 19, for details.

### West Coast Swing Lessons

See Monday, November 17, for details.

### Advanced Ballet Class

See Monday, November 17, for details.

## Tuesday, December 2

### Preschool Playgroup

See Tuesday, November 18, for details.

### Caltech Shorinji Kempo Club

See Tuesday, November 18, for details.

### Caltech Tai Chi Club

See Tuesday, November 18, for details.

## Wednesday, December 3

### Baby Furniture and Household Equipment

See Wednesday, November 19, for details.

### Wednesdays in the Park

See Wednesday, November 19, for details.

### Watch Your Back! Back Safety Training

118 Keith Spalding Building, 3 p.m.—This course includes information on back anatomy and proper methods and realistic approaches to handling and moving materials. Space is limited. Please call 395-6727 or e-mail safety.training@caltech.edu to reserve a place.

### Beginning Ballet Class

Braun Gym, multipurpose room, 10 p.m.—Free class taught by experienced members of the Caltech Dance Troupe. All experience levels are invited. No special clothing or shoes are required.

## Thursday, December 4

### Caltech Opera Club

Center for Student Services, Chris Brennen Conference Room, third floor, noon—A guest speaker will present an informal talk on the upcoming production of Gluck's *Orfeo ed Euridice* at the Los Angeles Opera. Bring your lunch. Information: www.its.caltech.edu/~opera.

### Caltech Shorinji Kempo Club

See Tuesday, November 18, for details.

### American Tango Lessons

See Thursday, November 20, for details.

### Hip-Hop Dance Class for Advanced Beginners

See Thursday, November 20, for details.

### International Quickstep Lessons

See Thursday, November 20, for details.

## Friday, December 5

### Caltech Tai Chi Club

See Tuesday, November 18, for details.

### Women's Basketball

vs. Whitworth College, Spokane, 7 p.m.

### Caltech Chess Club

See Friday, November 21, for details.

### Caltech Glee Clubs Holiday Concert

Ramo Auditorium, 8 p.m.—Program to be announced. A reception for all will follow the concert. 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, December 6

### Beginning Belly-Dancing

See Saturday, November 22, for details.

### Caltech Glee Clubs Holiday Concert

Oneonta Congregational Church, 1515 Garfield Avenue, South Pasadena, 8 p.m.—See Friday, December 5, for details.

## Sunday, December 7

### Lagerstrom Chamber Music Concerts

The Old Mill, 1120 Old Mill Road, San Marino, 2:30 p.m.—Calico Winds will perform. Admission is free. (In the event of rain, this performance will take place June 6, 2004.) 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.

### Caltech Shorinji Kempo Club

Braun Gym, multipurpose room, 3:30 p.m.—See Tuesday, November 18, for details.

**Biotech club**, from page 1

and biology departments are the second and third largest on campus, so you would think there would be a natural relationship between these two entities."

Instead, Mao says, the relationship between the two is so flimsy that, according to Caltech's Career Development Center, biotech companies don't bother coming to campus to recruit new graduates. They don't need to, presumably because they have enough candidates coming to them.

Building relationships for future jobs is important, says Datta, but it's not the club's only goal. "It's also a chance to give Caltech graduates some idea of how science and conducting research in private industry is different from doing so in academia," she says.

More information is available at [www.its.caltech.edu/~biotech](http://www.its.caltech.edu/~biotech) or [biotech@caltech.edu](mailto:biotech@caltech.edu).

**RSI**, from page 1

According to CEE president Joann DiGennaro, "A program like RSI is more essential today than ever before in the history of our nation. U.S. competitiveness in science and technology depends on strong math and science skills, and on opportunities that go beyond what is offered in a typical high school."

Caltech president David Baltimore is enthusiastic about the new program. "Caltech is proud to cosponsor the Research Science Institute. RSI is a natural fit for us since Caltech is an institution that strongly supports and values student research," he says. "We look forward to our new partnership with the Center for Excellence in Education, and the ability to serve many more young scholars."

Gayle Wilson, former first lady of California and trustee of both Caltech and CEE, says, "I am delighted at the establishment of the new Research Science Institute at Caltech. It is a testament to the success of the Center for Excellence in Education's existing programs. Now that RSI has found another home at Caltech, the Center will be able to offer its programs to more students who, though highly qualified, could not previously be accepted into the program because of space limitations."

Students can apply for the program online at [www.cee.org/rsi](http://www.cee.org/rsi), where forms will be available starting November 15.

The Center for Excellence in Education coordinates programs for academically talented high-school and college students, including the RSI and the USA Biology Olympiad. Founded in 1983 by DiGennaro and the late Admiral H. G. Rickover, the center has among its board members former President Jimmy Carter, Senators Joseph Lieberman and Bill Frist, and former Defense Secretary Frank Carlucci.

**Palomar fires**, from page 1

"I've personally been through three large fires before, one that came within half a mile of the observatory," added Thicksten, who celebrated his 25th anniversary at the observatory on November 6.

Some 300 people live on Palomar Mountain, but after the voluntary evacuation order was issued on October 28, the dozen or so mountain residents who remained slept in the museum over two nights.

One of the factors that kept the California fires going for so long was the large number of dead or dying trees that fed the conflagration, a circumstance that can turn any forest into a tinderbox. Observatory personnel are responsible for some 2,000 acres of cedar, pine, oak, and redwood trees, and many had succumbed to insects.

"The forest is very unhealthy right at this point because of a five-year drought," Thicksten said. "Between 10 and 15 percent of trees on the grounds are dead or dying."

Another factor that added to the fires' lethal power was the unusually hot weather paired with strong Santa Ana winds that whipped up the flames and pushed them across hillsides and city blocks alike.

"In the fires of '87 and '89, we rarely saw more than two to three thousand acres burn. This fire was different because it had such enormous wind speed behind it," he said.

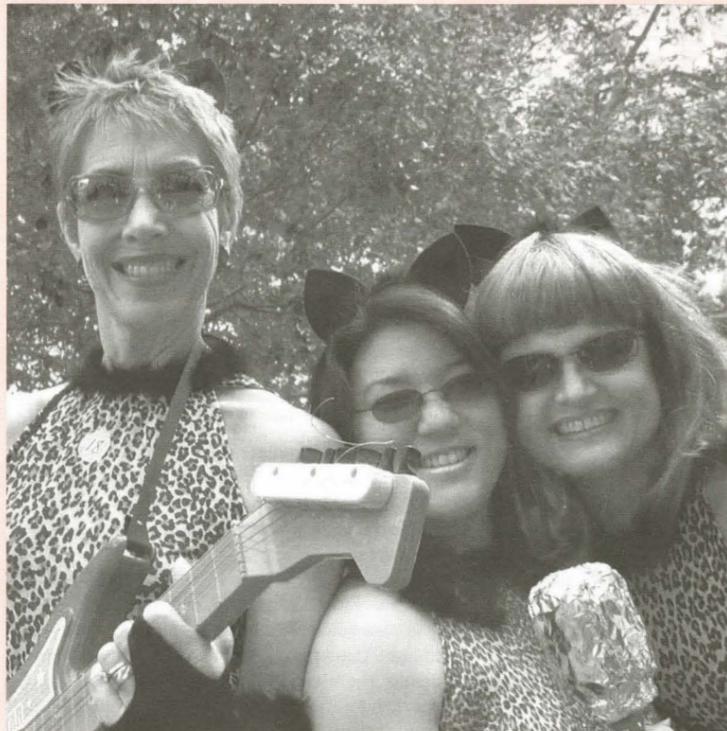
Richard Ellis, the Steele Family Professor of Astronomy and director of the Caltech Optical Observatories, said that despite the confusion and haze of misinformation, he knew that everything possible had been done to save the observatory and keep Palomar's residents safe.

"The important thing is that Thicksten had done a lot of preparatory work," he said. "He had a contractor clear all those dead trees over the summer. My judgment is that he did extremely well, because there was a lot of conflicting information and reports, so it's just wonderful to have a guy who's able to keep calm during a crisis."

Thicksten had called in a local lumber company to remove the dead and dying trees—at no cost to the observatory, he added.

In the end, the fires burned across more than 740,000 acres in Los Angeles, Ventura, Riverside, San Bernardino, and San Diego counties and claimed 22 lives. The observatory and the grounds on which it sits were spared.

"As far as how it feels, it's one less worry on my plate. The stress level has diminished," Thicksten said, adding that he knows he must remain vigilant. "Wild-fire is to be expected and to be prepared for. As they say, it is not if, it is when."

**Halloween hoopla**

Top: Cynthia "Josie" Gilbert, center, and Pussycats Teri Buchanan, left, and Laura Quattro, all of Development, made a purr-ty good impression. Bottom left: Mad professor Leah Carlson (left) and a bewitching Fran Manley, both of Postdoctoral Scholars Services, chat with skeletal bride Sharon Borbon of the Provost's Office. Bottom right: Carmen Miranda and her Latin lover (Doug Smith and Susan Lee of Public Relations) shimmied their way to first place, winning tickets to Disneyland.

**19th annual ME 72 contest set**

Ah, December at Caltech: holiday office parties, decorations, warm spirits . . . and the ME 72 Design Contest. Now in its 19th year, the renowned battle of student wits will take place Thursday, December 4, at 2 p.m. in Beckman Auditorium.

Pairs of students in the ME 72 Engineering Design Laboratory course have been laboring all the fall term to fashion two radio-controlled devices that will be pitted in tandem against another team's. In this year's contest, "Cage Against the Machine," the robotic creations, starting inside a cage on a table, will attempt to move the cage into a scoring zone in a double-elimination tournament of matches.

The goal of the course and contest, originated by Professor of Mechanical Engineering Erik Antonsson, is to expose students to the essence of engineering—designing solutions to open-ended problems. At the beginning of the term, each student received a "bag of junk"—assorted motors, gears, springs, screws, brackets, and other paraphernalia—from which to build his or her machine. Adding ingenuity and strategy, each team has been striving to design the fastest, strongest pair of devices that will outperform all others in completing the task at hand.

The public and media are welcome to attend this free event. For more information, visit <http://me72.caltech.edu>.

**Caltech 336**

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

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