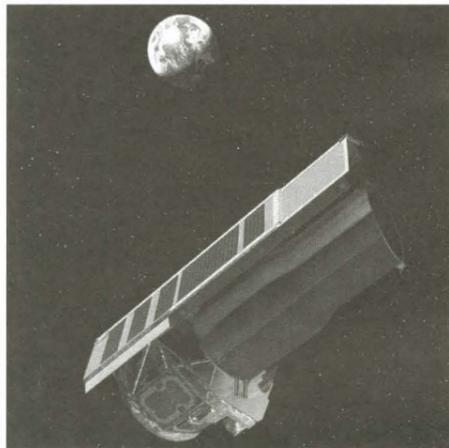


Caltech 336

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

The campus community biweekly

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NASA/JPL-Caltech

SIRTF views space in a new light

There's no giant monitor in the control room as usually seen in the movies, but Caltech's new Space Infrared Telescope Facility (SIRTF) Science Center is a marker of how much has been achieved in the quest to make space-based astrophysical observation an everyday affair.

The telescope is NASA's newest triumph in the ongoing pursuit of understanding the universe by observing it through the pristine view provided by outer space, above the atmosphere and moisture. Following the Hubble Space Telescope, the Compton Gamma-Ray Observatory, and the Chandra X-Ray Observatory, SIRTF is the fourth and final mission of NASA's Great Observatories Program—though by no means the end of space-based observatories.

Occupying the top three floors of Caltech's Keith Spalding Building is the SIRTF Science Center, where the satellite's observations will be scheduled and programmed, and scientific data processed and sent to researchers. In all, about 100 people work at the center, which has close ties with JPL and the Infrared Processing Analysis Center (IPAC) next door.

Now trailing Earth on a path slightly larger and slower than Earth's own annual orbit around the sun, the telescope will soon begin returning images of the infrared sky unlike any seen before. Much larger infrared telescopes exist on the ground, but they're hampered by water vapor and atmospheric distortions, and no infrared instruments in space have been as big as SIRTF.

With such an instrument, astrophysicists hope to gain new insights about star formation, the centers of galaxies, far-away objects that can only be imaged in infrared, brown dwarfs so cool they emit no visible light, and perhaps even very dim, large bodies that have gone undetected at the fringes of our solar system. The telescope will also be able to see light coming through many gas and dust clouds that are impenetrable to regular visible light.

see SIRTF, page 6

Admissions Office is on the move

Undergraduate Admissions, the office charged with sifting through the annual avalanche of applications sent by hopeful high school seniors, is gearing up to relocate to a new office space. The staff will call Steele House home by year's end.

"It's a gorgeous, comfortable building. It's altogether accommodating," says Dan Langdale, Caltech's interim director of undergraduate admissions. "The move is being made in anticipation of visitors feeling more charmed when they come to see Caltech."

A stately old home on Holliston Avenue, Steele House sits directly across the street from a parking structure and offers easy access to the rest of the campus. It has an extensive first floor and a large, open backyard. These conditions add up to an excellent home base for prospective students and their families.

"We'll get back into the mainstream of traffic on campus," Langdale says. "Basically our intention is to get closer to the ground." Currently located on the third floor of the Center for Student Services, the admissions office, Langdale says, feels a little hard to find and somewhat difficult to get to.

"We're actually going to start managing campus tours, so it'll be a good place for people to congregate," he says. Campus tours currently commence from the outskirts of the campus, namely the Public Relations house on Hill Avenue.

Over the years, Steele House has seen a succession of different offices and functions. For years, the three-story clapboard house was the financial aid office, and is currently the residence of the Master of Student Housing.

Equipped with backyard structures known as the pool house and the carriage house, Steele offers the directors and administrative staff a variety of office configurations and storage options.

see Admissions, page 6

Flu, meningitis shots available

Free flu shots will once again be available for campus community members with valid Caltech ID on Wednesday, October 22, from 9 a.m. to 4 p.m. in Winnett lounge. Meningitis vaccinations will also be available to students for \$80 (cash, check, or student account). For more information, call ext. 6393 or visit www.healthcenter.caltech.edu. Sponsored by the Student Health Center and Human Resources.

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Film chief frames his views



Jack Valenti (right), head of the Motion Picture Association of America, visited Caltech October 2 as the fourth DuBridges Distinguished Lecturer. *Los Angeles Times* reporter James Bates interviewed the creator of the movie-rating system on the film industry, free speech, and technology.

GSC speaks in active voice

Graduate students at Caltech not only study and work at one of the most well-funded and well-equipped institutes in the world, but also enjoy a high quality of life, due in large part to the diligent efforts of the Graduate Student Council.

The council, to which every graduate student here belongs, is divided into committees dedicated to the various aspects of life at Caltech. On issues from academics and housing to health insurance and underrepresented students, committee members work closely with students and administrators to address student concerns and to hammer out solutions.

As a result, students can choose from a wide range of clubs and activities, lecture series, event funding, and athletic events.

John Bender, the council's executive director, assists GSC chair Marissa Mock and vice chair Lauren Webb.

"We coordinate the activities of the committees and communicate with the Institute administration and the graduate student body," he said. "Most of the actual work done by the GSC gets performed by the committees."

Jeff Bergthorson, chair of the academics committee, said committee members see GSC, page 6

Benefits will change next year

Caltech community members who take part in this year's benefits open enrollment period, running from October 15 through the 31st, will find several changes and additions in the program.

Most notable of these differences is a switch to a new medical carrier, Health Net, whose PPO and HMO plans will replace the current Blue Cross Prudent Buyer 500 PPO plan and the California Care and CIGNA HMO plans. (The Kaiser Permanente HMO plan will also still be available.)

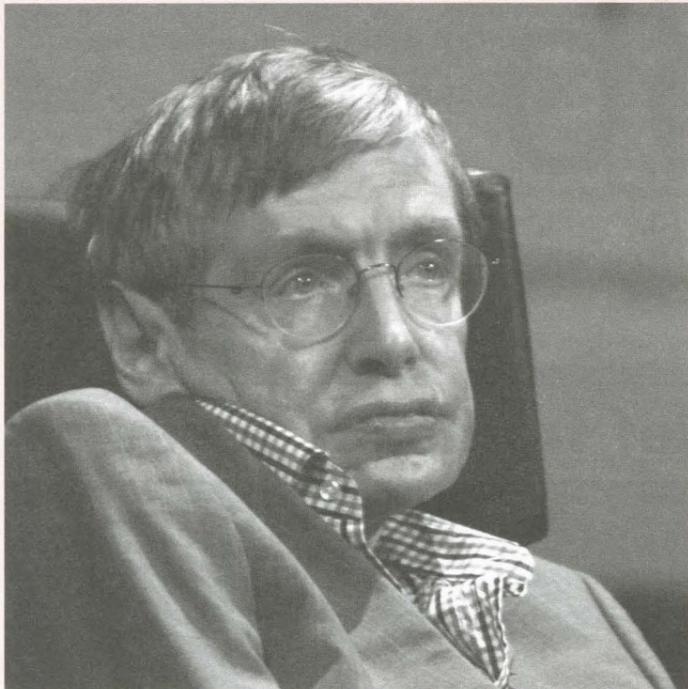
In a letter to employees, President David Baltimore explained that the change will ward off steep cost increases for both Caltech and its employees at a time when health care costs are increasing nationwide and the Institute is facing budget constraints.

"By consolidating most of our coverage with Health Net," he wrote, "we were able to preserve virtually all the service features and access to most of the physicians and hospitals of our current health care plans, while avoiding sharply higher premium and out-of-pocket costs for you and the Institute."

Initially, Human Resources had requested rate proposals from several carriers, including Caltech's current providers, and learned the current providers' 2004 rates would rise an average of 15 percent

see Benefits, page 6

NewsBriefs



Renowned physicist Stephen Hawking made his semiregular pilgrimage to Caltech October 3. Speaking to a packed Beckman Auditorium, he discussed the future of physics and his doubts on the existence of a unified theory of the universe.

Personals

Welcome to Caltech

September

K. Zachary Abbott, network/systems manager, Development and Alumni Relations; **Sara Cervantes**, cashier, Dining Services; **Janine Corsini**, cook, Dining Services; **Elisha Gaston**, research aide A, biology; **Sanjay Hegde**, research engineer, computer science; **Vera Hernandez**, assistant to the vice president, Development and Alumni Relations; **Raymond Jackson**, program manager, Center for Interdisciplinary Remotely Piloted Aircraft Studies; **Valerie Karplus**, research assistant I, biology; **Matthew Keith**, cook, Athenaeum; **Christine Kivork**, assistant animal lab technician, biology; **Linda Schweizer**, assistant editor/instructor, Office of the Provost; **Jeffrey Taylor**, equipment and grounds manager, Athletics; **Alvin Torres**, grant manager, chemistry and chemical engineering.

October

Ibrahim Fatkullin, von Kármán Instructor in Applied and Computational Mathematics; **Valeria Molinero**, associate scientist, chemistry and chemical engineering; **Pamela Nickson**, staff assistant, Athenaeum; **Mika Nystrom**, research scientist, computer science; **Anthony Salter**, research assistant I, biology; **David Schiminovich**, instrument specialist, space astrophysics; **Daniel Zimmerman**, research scientist, computer science.

New positions

Arlana Silver, deputy director of the Alumni Association, has been appointed executive director of the Development Office's Associates program. The Associates of Caltech is a financial support group for the Institute, with over 1,450 members throughout the United States and abroad. Silver began at Caltech 15 years ago as a senior administrative secretary for the Alumni Association, and as deputy director her responsibilities have included the Distinguished Alumni Award program and its selection committee. She has a BA in history with a minor in English, is a member of the Associates and the Gnome Club, and was awarded an Honor Key by the Caltech alumni, an honor previously awarded only to students.

Retirements

Janet Davis will retire on November 1. A member of the administrative support staff for chemistry, she has worked at Caltech for 25 years.

Honors and awards

Jeff Kimble, Valentine Professor and professor of physics, has been awarded the 2004 Lilienfeld Prize by the American Physical Society (APS). Established by the APS Council in 1988 under the terms of a bequest of Beatrice Lilienfeld in memory of her husband, Julius Edgar Lilienfeld, the prize consists of \$10,000 and a certificate citing the contributions made by the recipient, plus expenses for three lectures the recipient will give at an APS meeting, a research university, and a predominantly undergraduate institution. Kimble's citation reads, "For his pioneering work in quantum optics, for his innovative experiments in single-atom optical experiments, and for his skill in communicating the scientific excitement of his research to a broad range of audiences." The prize will be presented at the April 2004 APS meeting in Denver.

Peter Schröder, professor of computer science and applied and computational mathematics, has received the 2003 Computer Graphics Achievement Award from the Association for Computing Machinery and the Special Interest Group on Graphics and Interactive Technology (ACM SIGGRAPH). He is the fifth Caltech-affiliated researcher so honored. Schröder has been the guiding force behind multiresolution modeling—the process of transmitting a curved surface in low resolution and then adding data to sharpen the resolution—and the broader field of digital geometry processing, both important contributions to the quality of Web graphics and 3-D movie animation. Multiresolution modeling has a wide range of practical applications; one such function might be to transmit medical images such as MRI or CT scans over a wireless channel to a personal digital assistant, which doctors could access at a patient's bedside.

Robert Tindol, senior science writer with Caltech Media Relations, has been selected by the Council for Advancement and Support of Education (CASE) District VII to receive a 2003 Award for Excellence for Science News in the category of Outstanding Communications—Excellence in News Writing. Awards will be presented at the CASE District VII Conference in Los Angeles on December 4.

Research briefs

Online voting research gets financial boost

The Caltech-MIT Voting Technology Project has received more than \$900,000 to explore the challenges and opportunities of Internet voting. A \$643,085 grant from the John S. and James L. Knight Foundation will fund a model of a more accessible, more accurate, less confusing system and a study of electronic voting security. In addition,

a \$273,200 Carnegie Corporation grant will fund a conference on electronic voting's sociological and technological issues and studies of potential Internet uses to solve voter registration problems and of the possibility that Internet voting may introduce a digital divide in elections.

Professor of Political Science **Michael Alvarez** has received a \$1.8 million contract from the Department of Defense to study the viability of Internet voting for military personnel and overseas civilians. He will cochair the Secure Electronic Registration and Voting Experiment (SERVE) project, which will study the effectiveness and costs of registering and voting online. Alvarez is also a member of the Help America Vote Act (HAVA) California State Plan Advisory Committee, which seeks public input and provides policy guidance to assist California's secretary of state in drafting a plan for compliance with HAVA's federal mandates.

Einstein archives available online

More than 900 scientific and nonscientific documents of one of the most influential intellects of the modern era, Albert Einstein, are available online for the first time. The Einstein Archives Online site, at www.alberteinstein.info, also provides an extensive database of archival information.

Internet protocol sets long-range speed record

Scientists at Caltech and the European Organization for Nuclear Research (CERN) have set a new Internet2 long-range speed record using the next-generation protocol IPv6. The team sustained a single-stream transmission control protocol rate of 983 megabits per second for more than one hour between CERN, in Geneva, and Chicago—over 7,000 kilometers away. This is equivalent to transferring a full CD in 5.6 seconds. Such a major step in demonstrating IPv6's effectiveness should encourage scientists and engineers to deploy the new protocol, the researchers say.

Scientists propose global HIV vaccine project

With over 40 million people worldwide now living with HIV/AIDS and millions more each year becoming infected, scientists including Caltech president **David Baltimore** are emphasizing the urgent need for a vaccine and outlining a coordinated global plan to speed the development and testing of promising candidates.

Without a vaccine, if current trends continue, 45 million more people will become infected by 2010 and 70 million people will die by 2020, the Joint United Nations Program on HIV/AIDS and the World Health Organization predict. The group of scientists proposes a network of six to ten coordinated vaccine development centers, each devoted to a particular approach, which should increase the rate of development, decrease overlap between laboratories, and get more potential vaccines into clinical trials.

Palomar survey to make "digital movies" of the sky

A major new study by Caltech, JPL, Yale University, and Indiana University, the Palomar-QUEST survey, will explore the universe from our solar system to the most distant quasars, more than 10 billion light-years away. Utilizing Palomar Observatory's newly refurbished 48-inch Oschin Telescope, the survey will generate data at a record rate, about one terabyte—a million megabytes—per month.

The survey will feature many repeated observations of the same areas of sky, enabling researchers to find moving objects like asteroids and comets, and objects that vary in brightness, such as supernovas and quasars, at an unprecedented scale. "Previous sky surveys provided essentially digital snapshots of the sky," says Caltech professor of astronomy **S. George Djorgovski**. "Now we are starting to make digital movies of the universe."

A call for talented, innovative teachers

Provost Steve Koonin is once again seeking candidates for the Richard P. Feynman Prize for Excellence in Teaching, awarded each year to a professor with more than the usual ability and creativity in helping Caltech's exceptional undergraduates and grad students absorb knowledge.

"Teaching is one of the primary functions of the Institute and it is appropriate that we recognize those who do it well," Koonin says.

Funded by an endowment from Ione and Robert E. Paradise and contributions from Mr. and Mrs. William H. Hurt, the Feynman Prize—a \$3,500 cash award and an equivalent increase in the honoree's annual salary—was established in appreciation of the Nobel Prize-winning physicist's own contributions to excellent teaching.

All Institute professorial faculty are eligible, and any Caltech community member may propose a candidate by sending a letter of nomination and detailed supporting material (which can include a curriculum vitae, course syllabus or description, and supporting recommendation letters) to the Office of the Provost, Caltech, Mail Code 206-31, Pasadena, California 91125. Nominations are due by December 15. For more information, contact Stacey Scoville at ext. 6320 or staceys@caltech.edu.

Libraries up security

Caltech library administrators have recently increased computer security measures in order to minimize vulnerability to attacks and misuse.

Currently, the system provides two levels of network access: quick-access workstations, which allow unrestricted use of the library's online catalog and Web pages, the Web of Science database, and government Web resources; and full-access workstations, which require a personal log-in and which allow use of all Web-based resources, client program services such as SciFinder Scholar, productivity software, and peripherals.

"The essential issue is that use of the library's full-access computers must involve individual authentication," says Kimberly Douglas, acting director of libraries. To that end, the library has now formalized its requirements for Caltech users and campus visitors, and advance planning will be necessary for anyone expecting to use full-access workstations.

Caltech faculty, students, and staff must use their ITS account and password to use the full-access workstations and may need to change their passwords to meet standards for complexity. Other campus-community members—immediate Caltech family members, Alumni Association members, Caltech Associates, Caltech and JPL retirees, JPL staff, Huntington Library Readers, and Carnegie Observatory staff—may apply for a log-in at the Millikan Library circulation desk from 8 a.m. to 5 p.m. weekdays.

To accommodate campus visitors and sponsored groups, Caltech faculty or administrative support staff should e-mail library@caltech.edu at least one workday in advance of a visitor's arrival.

"We believe the new procedures reflect a workable balance between computer security requirements and providing the Caltech community with a reliable research environment at this time," Douglas says. The library staff continues to be committed to excellent service and welcomes any questions or concerns at (626) 395-3404.

October 20–26, 2003

M T W T F S S

Monday, October 20

Everhart Lecture Series Applications/Nominations

The Everhart Lecture Series selection committee is seeking applications and nominations for the 2003–04 lecture series. This is the last day to submit an application/nomination. Selections will be made by December. Information: www.its.caltech.edu/~els or els@its.caltech.edu.

Aeronautics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 1 p.m.—“Things That Fly,” James Small, Raytheon Missiles. Information: www.galcit.caltech.edu/seminars.shtml.

Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Accretion of the Earth,” Thomas J. Ahrens, professor of geophysics, Caltech.

History and Philosophy of Science

25 Baxter, 4 p.m.—“From Monkeylike Action Recognition to Human Language: An Evolutionary Framework for Neuro-linguistics,” Professor Michael Arbib, computer science department, USC. Refreshments.

Inorganic-Electrochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Metal Catalysis: From Polymer Synthesis to Nanomotors,” Ayusman Sen, professor of chemistry, Pennsylvania State University.

Applied and Computational Mathematics Colloquium

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“The Onset of Oscillations,” Professor Peter Lax, department of mathematics, New York University. Refreshments, 3:45 p.m. Information: www.acm.caltech.edu/colloq.shtml.

A Conversation with Dean Kamen

Baxter Lecture Hall, 4:30 p.m.—This conversation between Segway inventor and entrepreneur Dean Kamen and President David Baltimore is sponsored by the President’s Office. 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.

Tuesday, October 21

Quick Review of Electronic Theses

Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—Caltech requires that theses be submitted in both paper and electronic versions. This presentation will offer a brief overview of techniques useful in the production and publication of electronic theses. The session will include tips on formatting, intellectual-property considerations, turning paper to pixels, creating PDFs, how to submit a thesis, and availability (who can see it and when) issues. Information: 395-4008 or annpi@library.caltech.edu.

Institute for Quantum Information Seminar

74 Jorgensen, 3 p.m.—“Recent Progress in Quantum Shannon Theory,” Igor Devetak, IBM.

Carnegie Observatories Colloquium Series

William T. Golden Auditorium, 813 Santa Barbara Street, 4 p.m.—“Narrow-Line Seyfert 1 Galaxies and AGN Evolution,” Joseph Shields, associate professor, department of physics and astronomy, Ohio University. Refreshments, 3:30 p.m.

General Biology Seminar

119 Kerckhoff, 4 p.m.—Topic to be announced. Professor Michael Cahalan, department of physiology and biophysics, UC Irvine.

Wednesday, October 22

Mathematical Physics Seminar

351 Sloan, noon—“Global Spectrum Fluctuations of Large Beta-Hermite (Gaussian) and Beta-Laguerre Ensembles,” Ioana Dumitriu, UC Berkeley. Information: www.math.caltech.edu/events/mathphys.html.

Social Cognition/Neuroscience Series

25 Baxter, noon—“Behavioral Choice and the Human Orbitofrontal Cortex,” John O’Doherty, research fellow, Wellcome Department of Imaging Neuroscience, University College London. Refreshments.

Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Frontiers in Understanding the Origin of Structure in the Universe,” Tom Abel, assistant professor of astronomy, Penn State. Information: www.astro.caltech.edu/~gma/colloquia.html.

Empirics Seminar Series

25 Baxter, 4 p.m.—Topic to be announced. Severin Borenstein, Grether Professor of Business Administration and Public Policy, UC Berkeley. Refreshments.

Environmental Science and Engineering Seminar

142 Keck, 4 p.m.—Topic to be announced. Professor John Eiler, associate professor of geochemistry, Caltech. Refreshments, Keck Labs lobby, 3:40 p.m.

Materials Research Lecture

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Plasmons, Excitons, and 4f Shells in Nanophotonic Integrated Circuits,” Albert Polman, visiting associate in applied physics, Caltech. Refreshments, 113 Spalding, 3:45 p.m. Information: www.matsci.caltech.edu/seminars.html.

Organic Chemistry Seminar

153 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Heteroelements, Useful Tools for the Study of Reaction Profiles,” Dr. Didier Bourissou, Laboratoire Hétérochimie Fondamentale et Appliquée, Université Paul Sabatier, France.

Thursday, October 23

Crystal Structure Databases Workshop

Sherman Fairchild Library, multimedia conference room, 2 to 3:30 p.m.—Intended as a follow-up to the Introduction to Crystal Structure Databases class, this workshop will be a hands-on session for specific search and structure questions. Laptop computers will be provided to attendees. Registration: <http://library.caltech.edu/learning/form.htm>.

Physics Research Conference

201 E. Bridge, 4 p.m.—“Coherence in Josephson-Junction Qubits,” John Martinis, National Institute of Standards and Technology, Boulder. Refreshments, 114 E. Bridge, 3:45 p.m. Information: www.pma.caltech.edu/~physcoll/PhysColl.html.

Social Cognition/Neuroscience Series

25 Baxter, 4 p.m.—“Brain Mechanisms and Antisocial Behavior,” Adrian Raine, Wright Professor of Psychology, USC. Refreshments.

Friday, October 24

Avery China Adventure Program Information Session

102 Spalding Lab, noon to 1:30 p.m.—The Avery China Adventure Program provides travel grants to students, staff, faculty, and recent alumni (up to seven years from graduation) to carry out projects in China lasting from three weeks to a year. Proposals are due by November 24. Information: caa@caltech.edu or visit www.averychina.org.

Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—“Stratocumulus Entrainment,” Bjorn Stevens, assistant professor, department of atmospheric sciences, UCLA. Information: www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html.

Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—“Arene-Bridged Diuranium Complexes Supported by Amide and Ketimide Ligands,” Paula Diaconescu, postdoctoral scholar in chemistry, Caltech.

October 27–November 2, 2003

M T W T F S S

Monday, October 27

Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Earth’s Earliest Fossils: Solution to Darwin’s Dilemma,” J. William Schopf, professor of paleobiology, UCLA.

Inorganic-Electrochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Tuning an Enzyme Redox Potential over Hundreds of mV via Manipulation of Hydrogen Bonding to a Coordinated Solvent,” Anne-Frances Miller, associate professor of chemistry and biochemistry, University of Kentucky.

Applied and Computational Mathematics Colloquium

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“Complex Approach to the Solution of the Time-Dependent Maxwell’s Equations Using High-Order Accuracy Numerical Methods,” Eugene Kashdan, applied mathematics department, Tel Aviv University. Refreshments, 3:45 p.m. Information: www.acm.caltech.edu/colloq.shtml.

Tuesday, October 28

Introduction to SciFinder Scholar

Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—The presentation includes a review of database content and a quick comparison with Beilstein/Gmelin and the Combined Chemical Dictionary. Examples of search/display techniques will be shown. A handout will be provided, along with practice questions and structures. Registration: <http://library.caltech.edu/learning/form.htm>.

Institute for Quantum Information Seminar

74 Jorgensen, 3 p.m.—Topic to be announced. Leonid Gurvits, Los Alamos National Laboratory.

Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Applications of Mass Independent Isotope Effects: The Origin of the Solar System, Mars, Paleoclimates, and the Evolution of Life,” Mark Thieme, dean of the division of physical sciences and professor of chemistry, UC San Diego.

General Biology Seminar

119 Kerckhoff, 4 p.m.—“Mechanisms and Signals Governing the Resculpting of Proteins and the Proteome by the Clp/Hsp100 ATPases,” Professor Tania Baker, department of biology, MIT.

Wednesday, October 29

Mathematical Physics Seminar

351 Sloan, noon—“Synthetic Aperture Radar and Microlocal Analysis,” Professor Margaret Cheney, department of mathematical sciences, Rensselaer Polytechnic Institute. Information: www.math.caltech.edu/events/mathphys.html.

Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Multifrequency Observations of the Sunyaev-Zel’dovich Effect with the SuZIE Experiment,” Sarah Church, assistant professor, Stanford University. Information: www.astro.caltech.edu/~gma/colloquia.html.

Environmental Science and Engineering Seminar

142 Keck, 4 p.m.—“The Eddy-Driven Thermocline,” Paola Cessi, professor of oceanography, Scripps Institution of Oceanography, UC San Diego. Refreshments, Keck Labs lobby, 3:40 p.m.

Materials Research Lecture

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Aspects of Nanoscience: Molecular STM at 4K, Cell Sonics, and Art,” Jim Gimzewski, UCLA. Refreshments, 113 Spalding, 3:45 p.m. Information: www.matsci.caltech.edu/seminars.html.

Organic Chemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 to 5:30 p.m.—“Using Dendrimers to Study Protein-Carbohydrate Interactions,” Professor Mary Cloninger, department of chemistry and biochemistry, Montana State University.

USGS Public Lecture Series

Ramo Auditorium, 8 to 9:15 p.m.—“The Physics of Earthquakes: What Makes the Ground Shake?,” Dr. Brad Aagaard, USGS Pasadena Office. Information: 583-6801 or <http://pasadena.wr.usgs.gov/info/lectures>.

Thursday, October 30

Biochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“New Strategies to Combat Antimicrobial Resistance: Connections between Peptidoglycan Biosynthesis and Cell Wall Protein Anchoring in Gram-Positive Bacteria,” Dewey McCafferty, assistant professor of biochemistry and biophysics, University of Pennsylvania.

Chemical Engineering Seminar

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“A System Biology Approach to Robustness Analysis of Circadian Rhythm,” Professor Frank J. Doyle, Mellichamp Chair in Process Control, department of chemical engineering, UC Santa Barbara. Refreshments, 113 Spalding Lab, 3:30 p.m.

Physics Research Conference

201 E. Bridge, 4 p.m.—“Dissipationless Quantum Spin Current in Semiconductors,” Shoucheng Zhang, professor of physics and applied physics, Stanford. Refreshments, 114 E. Bridge, 3:45 p.m. Information: www.pma.caltech.edu/~physcoll/PhysColl.html.

Social and Information Sciences Laboratory Seminar Series

25 Baxter, 4 p.m.—“The Communication Requirements of Social Choice Rules,” Ilya R. Segal, Anderson Professor in the Humanities and Sciences, department of economics, Stanford University. Refreshments.

Friday, October 31

High Energy Theory Seminar

469 Lauritsen, 11 a.m.—Topic to be announced. David Mateos, Perimeter Institute. Information: www.theory.caltech.edu/people/seminar/schedule.html.

High Energy Theory Seminar

469 Lauritsen, 1 p.m.—“PP-Wave Holography for Dp-Brane Backgrounds,” Yasuhiro Sekino, KEK. Information: www.theory.caltech.edu/people/seminar/schedule.html.

Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—“Molecular Suppression of Turbulence: Physics and Computation of Drag Reduction by Dilute Polymer Solutions,” Rayhaneh Akhavan, associate professor, department of mechanical engineering, University of Michigan, Ann Arbor. Information: www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html.

History and Philosophy of Science

25 Baxter, 4 p.m.—“Historical Roots of Gauge Invariance,” J. D. Jackson, professor emeritus, department of physics, UC Berkeley. Refreshments.

Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—“Structure-Activity Relationships in Enantioselective Oxidations of Alcohols by Pd(II) Complexes,” Smith Nielsen, graduate student in chemistry, Caltech.

Really super computing

An upcoming Watson Lecture will feature Thomas Sterling, Caltech faculty associate in the Center for Advanced Computing Research, discussing the newest supercomputing technology. “From PCs to Petaflops: The Future of Really Big Computers” will take place on Wednesday, November 5, at 8 p.m. in Beckman Auditorium.

In the past decade, advances in semiconductor technology and hardware architecture have allowed unprecedented increases in computational power, with the world’s fastest machines nearly doubling in capacity each year. Future architectures could employ 100 times as many processors as we use today. Among these are logic-intensive structures, with processors incorporating large arrays of functional units, and processor-in-memory architectures, whose processing logic is embedded directly on memory chips. Sterling will explore the range of alternative architectures that promise even further breakthroughs in supercomputing.

Seating for the free public lecture will be first-come, first-served, starting at 7:30 p.m. For more information, contact Public Events at 1 (888) 2CALTECH, (626) 395-4652, or events@caltech.edu, or visit www.events.caltech.edu. Individuals with a disability can call 395-4688 (voice) or 395-3700 (TDD).

CampusEvents

Monday, October 20

Standard First-Aid/CPR Training

Brown Gym classroom, 7:30 a.m. to 5 p.m.—Standard first-aid and CPR training will be offered by Caltech's Safety Office in conjunction with the American Red Cross. Fee: \$20 for materials. Registration: 395-6727 or safety.training@caltech.edu.

Baby Furniture and Household Equipment Pool

234 S. Catalina, 10 a.m. to 12:30 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech community. Information: 584-9773.

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, October 21

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: 792-7808 or julia@astro.caltech.edu.

Women's Center Fall Open House

Caltech Women's Center, 4 to 5:30 p.m.—Please join us as we welcome to campus new students, staff, and faculty and unveil the photographic work of graduate student Sarah Monahan. Drinks and hors d'oeuvres. Open to the entire Caltech/JPL community.

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.

Volleyball

at Claremont-Mudd-Scripps, 7:30 p.m.

Wednesday, October 22

Baby Furniture and Household Equipment Pool

See Monday, October 20, for details.

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.

Men's Soccer

at Claremont-Mudd-Scripps, 4 p.m.

Men's Water Polo

at Claremont-Mudd-Scripps, 7 p.m.

Salsa Club

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.

Self-Defense: Safety on the Streets

Caltech Women's Center, 7 p.m.—Safety and self-defense expert Lauren Hines will discuss security in public places, including how to respond to being followed, skills for confronting harassment, and safety in parking structures and elevators and while using ATMs. Learn assertiveness strategies and physical techniques to help keep yourself safe. Reservations: emery@studaff.caltech.edu.

Voices of Vision: Al Franken

Beckman Auditorium, 8 p.m.—Political satirist Al Franken will discuss his new book, *Lies and the Lying Liars Who Tell Them: A Fair and Balanced Look at the Right*. A book signing will follow the reading. Presented in collaboration with Caltech's Words Matter program and Vroman's Bookstore. Admission is free. 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.

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, October 23

Women's Wellness Series: Wake Up to Sleeping Well

Caltech Women's Center, noon—Nearly 35 percent of Americans complain of difficulty with either falling asleep or remaining asleep. For these millions of sufferers, sleep-related disorders can result in loss of productivity at work, strained relations at home, loss of strength or stamina, and other problems. Dr. Jane Wallace, of Huntington Memorial Hospital's Sleep Center, will discuss sleep disorders and strategies for a better rest. Reservations: emery@studaff.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.

Caltech Shorinji Kempo Club

See Tuesday, October 21, for details.

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.

Cha-Cha Lessons

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

Volleyball

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

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 Rumba Lessons

Winnett lounge, 9:30 p.m.—Join the Caltech Ballroom Dance Club as we learn international-style rumba. No experience or partner is necessary.

Friday, October 24

Caltech Tai Chi Club

See Tuesday, October 21, for details.

Volleyball

at Cal Lutheran University, 7:30 p.m.

Caltech Chess Club

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

Saturday, October 25

Men's Soccer

at University of Redlands, 11 a.m.

Men's Water Polo

at University of Redlands, 11 a.m.

Introduction to Self-Defense for Women

Caltech Women's Center, 1 to 5 p.m.—An introduction to the physical techniques involved in self-defense. Participants learn a variety of hands-on techniques along with the opportunity to rehearse verbal role-play scenarios. Reservations: emery@studaff.caltech.edu.

Volleyball

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

Flying Leap Players

Beckman Auditorium, 8 p.m.—Experience the broadcast of a live 1940s-style radio show, featuring *The Glamorous Gourmet*, *The Shadow*, *The Whole Town's Sleeping*, and *Buck Rogers in the 25th Century*. A talk for subscribers and Friends of Beckman Auditorium will be held at 7 p.m. 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, October 26

Men's Soccer

vs. Cal State Hayward, 11 a.m.

Skeptics Society Lecture

Baxter Lecture Hall, 2 p.m.—"Phantom Words, Auditory Illusions, and Other Curiosities," Dr. Diana Deutsch, editor of *The Psychology of Music*, and author. Donation is \$8 for nonmembers, \$5 for members and non-Caltech students. Free to the Caltech/JPL community. Information: 794-3119 or skepticmag@aol.com. Visit the Skeptics Society at www.skeptic.com.

Lagerstrom Chamber Music Concerts

Barnes Park Memorial Bowl, 350 S. McPherrin Avenue, Monterey Park, 2:30 p.m.—The Westwind Brass will perform. Admission is free. 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, October 21, for details.

Monday, October 27

Baby Furniture and Household Equipment Pool

See Monday, October 20, for details.

West Coast Swing Lessons

See Monday, October 20, for details.

Advanced Ballet Class

See Monday, October 20, for details.

Tuesday, October 28

Preschool Playgroup

See Tuesday, October 21, for details.

TheatreworksUSA: Sarah, Plain and Tall

Beckman Auditorium, 10 a.m.—TheatreworksUSA, America's largest and most prolific professional not-for-profit theatre for young and family audiences, presents a new musical based on Patricia MacLachlan's Newbery Award-winning book *Sarah, Plain and Tall*. There will be a second performance at noon. Tickets: TheatreworksUSA, (800) 497-5007.

Caltech Shorinji Kempo Club

See Tuesday, October 21, for details.

Caltech Tai Chi Club

See Tuesday, October 21, for details.

Volleyball

at Pomona-Pitzer, 7:30 p.m.

Wednesday, October 29

Baby Furniture and Household Equipment Pool

See Monday, October 20, for details.

Wednesdays in the Park

See Wednesday, October 22, for details.

Men's Soccer

vs. Whittier College, 4 p.m.

Men's Water Polo

at University of La Verne, 4 p.m.

Salsa Club

See Wednesday, October 22, for details.

Beginning Ballet Class

See Wednesday, October 22, for details.

Thursday, October 30

Blood Drive

Winnett lounge, 8 a.m. to 2 p.m.—Give the gift of life at Caltech. Appointments: 395-8095 or Magnolia.Ycasas@caltech.edu. Walk-ins are welcome.

Caltech Shorinji Kempo Club

See Tuesday, October 21, for details.

Volleyball

at Chapman University, 7 p.m.

Cha-Cha Lessons

See Thursday, October 23, for details.

Hip-Hop Dance Class for Advanced Beginners

See Thursday, October 23, for details.

International Rumba Lessons

See Thursday, October 23, for details.

Friday, October 31

Caltech Tai Chi Club

See Tuesday, October 21, for details.

Volleyball

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

Caltech Chess Club

See Friday, October 24, for details.

Sweeney Todd

Ramo Auditorium, 8 p.m.—Theater Arts at Caltech presents Christopher Bond's *Sweeney Todd: The Demon Barber of Fleet Street*. (This play is not Sondheim's musical.) Performances will take place on Fridays, Saturdays, and Sundays through November 16. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit TACIT at www.tacit.caltech.edu.

Saturday, November 1

Cross Country

SCIAC Championships, at La Mirada, 9 a.m.

Men's Soccer

vs. Pomona-Pitzer, 11 a.m.

Men's Water Polo

vs. Pomona-Pitzer, 11 a.m.

Introduction to Self-Defense for Moms and Daughters

Caltech Women's Center, 1 to 5 p.m.—This workshop offers participants an introduction to verbal strategies and physical techniques involved in self-defense. This program is open to Caltech women and their daughters over 12 years of age. Reservations: emery@studaff.caltech.edu.

Sweeney Todd

See Friday, October 31, for details.

Sunday, November 2

Men's Soccer

vs. Colorado College, 1 p.m.

Sweeney Todd Matinee

Ramo Auditorium, 2 p.m.—See Friday, October 31, for details.

Caltech Shorinji Kempo Club

Braun Gym, multipurpose room, 3:30 p.m.—See Tuesday, October 21, for details.

SIRTF, from page 1

Caltech professor of physics Tom Soifer, who has directed the center since its inception in 1997, admits he was nervous watching SIRTF being launched from Cape Canaveral in late August, but says he is pleased at how things have gone so far.

Just a week after its launch, the telescope returned its first picture—a star field—part of the “aliveness test” to demonstrate that the three scientific instruments on board successfully survived the launch and deployment into solar orbit. The image’s bright red stars hint at the vivid visual displays that will be made available to the public during SIRTF’s mission.

Like the Hubble Space Telescope’s remarkable images over the last 13 years, the SIRTF pictures should be popular with the general public. “Education and public outreach are important aspects of the science center, and we’re working closely with JPL on public affairs activities,” Soifer notes.

SIRTF’s operations will resemble Hubble’s as well; both will view a huge variety of objects in our solar system and far beyond. In addition, SIRTF will observe giant molecular clouds, some of which contain organic molecules, and will look for signatures of planet formation around other stars.

Unlike the Hubble, however, SIRTF will have a more defined mission and lifespan. Its instruments must be cooled to an extremely low temperature with on-board cryogenic liquid; thus, most observations will end when the coolant runs out. Many of the telescope’s operations are meticulously designed to minimize heat and thereby conserve coolant—hence its unique orbit, which keeps it farther away from the sun than Earth is.

Soifer expects the mission to last for about five years, with the chance of a few limited observations for another four years. At that point, the telescope will be some 80 to 90 million miles from Earth and getting farther all the time. After about 60 years, Earth will catch up with SIRTF, but there would be no advantage in rejuvenating the telescope then.

“It wouldn’t be worth it,” Soifer says. “The technologies are all advancing, so it would be better to go with that generation’s technology. So there’s a very clear end.”

“In fact, the end will be approximately when I get to retirement age,” he adds, smiling. “I’m not really sure how I feel about that.”

More information and the first-light image are available at <http://sirtf.caltech.edu>.

Benefits, from page 1

for employees and 25 percent for retirees, with no guaranteed rate cap for 2005. Institute and JPL benefits staff, along with faculty and staff from Caltech’s Benefits Committee, then met with the four carriers who appeared most competitive, including Blue Cross and Health Net. After months of analysis, it was decided that Health Net offered the best value while keeping cost increases to a minimum for the next two years.

Overall rates for 2004 will be slightly higher than this year. For example, to purchase coverage for themselves only, employees will pay \$108 monthly for the Health Net PPO, compared to the current Blue Cross price of \$102, and \$45 for the Health Net HMO, versus \$42 for California Care and \$43 for CIGNA. Kaiser HMO costs will also increase from \$38 to \$41 monthly for individual coverage.

Human Resources staff believe the transition will result in only a few disruptions to employees’ coverage. The Health Net PPO works in the same way as Blue Cross; patients can choose any care provider but pay less if using a Health Net provider. According to HR, many of the physicians in the Blue Cross PPO are also part of Health Net, while approximately 95 percent of those in the CIGNA and California Care HMOs are Health Net members as

GSC, from page 1

organize the Everhart Lecture series and the GSC teaching awards. It recently polled PhD alumni to assemble a database of lab reviews.

“We are currently implementing a lab review website that will allow new students to find an advisor whose personality and style match their own,” Bergthorson said. “We are also working with the administration to implement a course review website to assist graduate and undergraduate students in selecting courses.”

When funds are tight, grad student clubs can turn to the budget committee, chaired by Alex Tobias, who is also the treasurer.

“The GSC collects about \$36,000 every year in dues from graduate students,” Tobias said. The many activities that the GSC provides funding for include term parties, cooking lessons, the GSC newsletter, and jazz socials.

One of the first events that new students participate in upon their arrival is one of many GSC-sponsored orientation activities organized by the Graduate Review Board.

“We just finished new student orientation, which is our most important scheduled event of the year,” said John Murphy, chair of the GRB. The board’s chief function is to educate students about the Caltech Honor System, he said, and follow through on reported violations.

well. Employees whose current providers are not in Health Net may be eligible for transition of care coverage and can call (800) 628-2707 or visit www.healthnet.com/caltech for more information.

Also new for 2004, in addition to the Child Care Assistance Program (see 336, September 18), is an Employee Plus Child[ren] coverage option that offers more flexibility for some participants, and a long-term disability plan with two levels of coverage that now includes all employees eligible for benefits. If someone is unable to work due to a qualifying disability, these plans provide 40 or 60 percent of her or his regular pay, plus continued enrollment in health and retirement plans. Eligible employees can rely on the 40 percent coverage paid for by Caltech, or can enroll at the 60 percent level at a lower additional cost than this year.

Detailed information on the new program and changes is included in the packages mailed out this week, or you can visit <http://cit.hr.caltech.edu/Benefits/anenroll.htm>, where you may view your benefits and the costs (both employee and Institute) and make changes online with ease. A series of informational meetings and other activities will also be held on campus during the enrollment period.

Chip Sumner chairs the bylaws committee, which is charged with keeping the council’s activities public.

“Bylaws lay a foundation to make sure that the GSC operates in a transparent and representative fashion and that we are accountable to students,” Sumner said. “Our first goal is to draft amendments to permit electronic voting [for GSC elections].”

A decade of work is paying off for residents of Caltech’s grad student housing complex on Catalina Avenue, said Catharine Larsen, the housing committee chair.

“After nearly 10 years of effort by former and current GSC members, Ethernet will be installed in the Catalinas,” she said, adding that dish satellite TV will also be provided.

The GSC’s quality of life committee, chaired by Jonathan Galownia, works to maintain and improve Caltech-provided student health insurance. It also works to improve lab safety and to solve campus parking problems. A website on this topic is at www.its.caltech.edu/~gscqol.

A roundup of the GSC’s news is posted at <http://gsc.caltech.edu/>. Bender invites students to sign up to serve on a committee or the board of directors. They can contact the council at gsc@caltech.edu.

Admissions, from page 1

Langdale, who served as director of undergraduate admissions from 1988 to 1991, says the move to the larger space is warranted because the office is faced with more demands. “The staff has grown, and the number of applications has gone up a tad,” he says.

In addition to the benefits and perks that come with the house, perhaps the most interesting will be the joke that Langdale says he’ll be using with guests: “If you come to visit, you should bring your swimsuit—there’s a pool out back.”

News extras**Help save lives—give blood**

Human Resources and the American Red Cross are partnering to hold a campus blood drive on Thursday, October 30. Come to the Winnett lounge any time between 8 a.m. and 2 p.m., or make an appointment by e-mailing [Magnolia.Ycasas@caltech.edu](mailto:Ycasas@caltech.edu) or calling ext. 8095.

Ghouls and boys invited

The Caltech Bookstore will hold its annual Halloween costume contest on Friday, October 31. Contestants who gather on the Winnett patio at noon will receive a number for judging, which will take place in three categories: originality, humor, and scare factor. Four Disneyland tickets await the first-place winner, with two tickets each for second and third place.

Speak up on commencement

The Commencement Speaker Advisory Committee is seeking suggestions from the Caltech community to help identify the 2004 speaker. Preference will be given to input from graduating seniors, but all suggestions are welcome. Visit http://pr.caltech.edu/commencement_speaker by October 31 for more information and to take the survey.

Security report available

Caltech’s 2003 campus security report is now available online at <http://security.caltech.edu/report.htm> or as hard copy by calling the Security Office at ext. 4701.

2004 salary rates available

Fiscal year 2004 salary ranges, effective as of October 1, are now posted on the Human Resources website at <http://cit.hr.caltech.edu/policies/PM/PM10-1.pdf>. Contact the Compensation Office with any questions at ext. 3203.

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