

Caltech 336

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

The campus community biweekly

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Project engineer Chris Krok and postdoc Tait Pottebaum demonstrate the workings of the Lucas Adaptive Wind Tunnel during a tour at GALCIT's 75th anniversary celebration. Guests were shown a visualization of the flow around a model of the proposed Thirty-Meter Telescope.

At 75, GALCIT is still learning

It might seem a stretch to see what a 747's flight-control system and the way a boxfish maneuvers in turbulent water have in common. But such thinking is all in a day's work at Caltech's Graduate Aeronautical Laboratories (GALCIT), which observes its 75th birthday this year—fittingly, the same year as the 100th anniversary of flight.

Since its inception in 1928 as the Guggenheim Aeronautical Laboratory, GALCIT has broadened its mission to include research in fluid and solid mechanics, awarded more than 1,800 degrees, and made substantial contributions to research, education, and science policy worldwide through its faculty and students. But the vision of its first director, Theodore von Kármán, has remained intact: that GALCIT should be an institute in the European style, developing "a tradition of research and teaching which stresses an appreciation for real applications in a very broad and deep base of fundamentals."

An anniversary celebration on November 14 and 15 reunited several hundred GALCIT alums and friends for presentations, tours, panel discussions, and social gatherings that recalled past accomplishments, reviewed the current state of research, and forecast trends for the future.

A special daylong symposium on the 14th, "Contemporary Research in Solid and Structural Mechanics," saw more than a dozen alums presenting the latest findings in composites and other materials, processes, and mechanics on the micro- and nanoscales. Speakers were L. Catherine Brinson (PhD '90), Northwestern University; Weinong Chen (PhD '95), University of Arizona; Xiaomin Deng (PhD '90), University of South Carolina; Philippe Geubelle (PhD '93), University of Illinois, Urbana-Champaign; Pradeep Guduru (PhD '01), Brown University; Gilbert Hegemeier (PhD '64), UC San Diego; Sridhar Krishnaswamy (PhD '89), Northwestern University; Adrián Lew (PhD '03), Stanford; Ken Liechti (PhD '80), University of Texas, Austin; Hongbing Lu (PhD '97), Oklahoma State University; Jean-François Molinari (PhD '01), Johns Hopkins; R. Narasimhan (PhD '87), Indian Institute of Science; K. Ravi-Chandar (PhD '82), University of Texas, Austin; and Tony Waas (PhD '88), University of Michigan.

Opening the festivities on the 15th were Hans Hornung, Johnson Professor of Aeronautics and GALCIT director, emeritus, and Richard Murray, professor of mechanical engineering and chair of Caltech's Division of Engineering and Applied Science. Following an address

see GALCIT, page 6

Clues on origins of brain tumors

Researchers in the Division of Biology at Caltech, in collaboration with UCLA's Jonsson Cancer Center, have discovered that brain tumors may be derived from the cells that form the nervous system. These cells, called neural stem cells, may help researchers understand how this cancer begins, a finding that could one day lead to improved diagnosis and treatment.

The study, which is being published in the online edition of the peer-reviewed journal *Proceedings of the National Academy of Sciences*, suggests that pediatric brain tumors develop from cells that have many of the same characteristics as neural stem cells. However, these cells also have an abnormal ability to grow and change.

"We want to understand the transformation process from a normal stem cell to a cancer cell," says Houman Hemmati, the lead author and an MD/PhD student in the UCLA-Caltech Medical Scientist Training Program. "Recent work has shown that some cancers can arise from abnormal cells that are like stem cells in that they self-renew and produce the different kinds of cells that make up a tumor.

"This is a new way of thinking about the fundamental origins of cancer that promises to lead to better diagnostic tests and improved cancer-specific treatments in the future," Hemmati says.

see Tumors, page 2

Discounts offer cheer on the cheap

With the holiday season now upon us, it behooves us to provide friends and relatives with symbols of our regard and tokens of our esteem. It also behooves our financial health to avoid emptying our bank accounts in the process. Members of the Caltech and JPL community have a couple of resources that can safeguard our wallets and chase away the Christmas credit-card blues this year.

Caltech and JPL staff members received their own Pasadena.com VIP cards in the fall. The card offers retailer discounts from establishments throughout the city, typically in the form of a 10 to 20 percent discount off the regular prices. Select merchants provide a flat savings in a fixed dollar amount.

Participating establishments include popular Pasadena restaurants and coffeehouses, nightclubs and bars, shops and boutiques. Bargains are also available on an entire range of personal services and

see Discounts, page 6



From left, Postdoctoral Scholars/Visitors Services manager Eloisa Imel, Zoya Sprintson, and Megumi Ariei enjoy Thanksgiving dinner at a recent meeting of the English conversation club.

Postdocs' spouses chat, find camaraderie

They seemed a bit wary as they spooned the unfamiliar-looking food onto their plates: roast turkey, stuffing, cranberry sauce. But cautious nibbles soon gave way to smiles, along with animated conversation about Thanksgiving and similar traditions in other countries.

"Oishii! Delicious!" proclaimed Hiromi Koga, who came to Pasadena from Japan four months ago with her husband, a visiting researcher. Her tablemates—Takako Yoshida and her young sons, Shin and Hiro, also from Japan; Sung-Eun Kim, from Korea; and Phuong "Phoenix" Hoang, a LIGO staff member who is originally from Vietnam—all seemed to agree.

Most of these women have been gathering each Tuesday this fall as part of a new English conversation club for spouses of international postdoctoral scholars and visitors. Meeting from 6 to 7:30 p.m. in the Winnett lounge and clubroom, the group is intended to both foster community and to provide a relaxed setting in which to practice language skills. A certified TESOL (Teaching English to Speakers of Other Languages) instructor provides instruction and assistance, and Caltech Children's Center staff provide free child care on a first-come, first-served basis.

The club is one of the means by which Caltech's Postdoctoral Scholars/Visitors Services office hopes to create a smooth adjustment for new international postdoctoral scholars and their families. According to PDS/V manager Eloisa Imel, there are approximately 550 postdocs and 100 visitors at Caltech, of which nearly 60 percent are foreign nationals; of those, almost half are married, many with children.

In late 2002, the Office of Human Resources recognized the need for a position to manage PDS/V, and hired Imel from the Division of the Humanities and Social Sciences. Her role is to oversee administration of the office and to implement programs to

see ESL, page 6

NewsBriefs



San Fernando Middle School students view their new cosmic-ray detector, the 50th one installed at an area school as part of the California High School Cosmic Ray Observatory (CHICOS) project. The students will help Caltech, Cal State Northridge, and UC Irvine astrophysicists study the nature of cosmic rays.

Personals

Welcome to Caltech

November

Francois Ayoub, information services generalist support, geology and geochemistry; **Olivier Beyssac**, visitor in geology; **Patrick Colucci**, maintenance coordinator, Facilities Management; **Thomas Costa**, computing analyst, Owens Valley Radio Observatory; **Michele Cucullu**, investment analyst, Treasurer's Office; **Sayuri Desai**, research assistant I, Humanities and Social Sciences; **Salvador Escobar**, general helper, Dining Services; **Avishay Gal-Yam**, postdoctoral scholar in astronomy; **Lisa Girard**, scientific editor, biology; **Oleksandr Kutana**, postdoctoral scholar in chemical engineering; visitors **Tadashi Iijima**, in civil engineering, and **Dean Lauritzen**, in bioengineering; **Yi Luo**, scientist, chemistry; **Dominic Mayers**, senior scientist, computer science; **Chris Padula**, assistant equipment and grounds manager, Athletics; postdoctoral scholars **Rigo Pantoja**, in biology, **Bradley Plaster**, in physics, **Robert Raussendorf**, in physics, and **Justin Romberg**, in applied and computational mathematics; **Yuling Sheng**, research assistant I, chemistry; **Cherie Silvestre**, loan coordinator, Financial Services; **Robert Storer**, postdoctoral scholar in chemistry; **Albert Swarthout**, guest-relations coordinator, Athenaeum; **Yolenta Tensasmaka**, cook, and **Jesus Valladares**, general helper, both in Dining Services; postdoctoral scholars **Timothy Van Reken**, in environmental science and engineering, and **Mandy Vink**, in chemical engineering; **Huiqun Wang**, research assistant, planetary sciences; **Charles Winters**, assistant animal lab technician, biology; **Iris Yuen**, accounting clerk, Athenaeum.

December

Changhui Yang has been appointed assistant professor of electrical engineering, effective December 1. An expert in optical instrumentation and its applications to biology and medicine, he works in the area of biophotonic devices. He earned dual BSs (in electrical engineering and computer science and in physics) as well as an MEng (electrical engineering and computer science), all in 1997 from MIT, and a BS (mathematics) and his PhD (electrical engineering and computer science), also from MIT, both in 2002.

January

Ralph Adolphs will join Caltech as professor of psychology and neuroscience, effective January 1. He is regarded as a leading authority in social cognitive neuroscience—a subfield of cognitive neuroscience that involves the investigation of the neural basis of sociality and social cognition—with his work bridging the gap between biology and the social sciences. He received his BS and MS from Stanford University, both in 1986, and his PhD from Caltech in 1993.

Retirements

George Scharf will retire on January 1. A member of the maintenance service staff for faculty housing, he has worked at Caltech for 21 years.

Deaths

Mergie Jo Keeney, former assistant to the director of property management in the Treasurer's Office, died on October 30. She had retired in 1986, after 42 years at Caltech.

Honors and awards

David Baltimore, president of Caltech and Nobel laureate, is the seventh most-cited scientist of the last two decades, according to the top-50 list published by Thomson ISI in *Science Watch*. "The rankings are based on the number of times the researchers' papers were cited by their peers between 1983 and 2002 in journals indexed by Thomson ISI." (The organization, which pioneered citation indexing, was founded as the Institute for Scientific Information over 45 years ago.)

Barry Barish, Linde Professor of Physics and director of the Laser Interferometer Gravitational-Wave Observatory Laboratory, has been elected a fellow of the American Association for the Advancement of Science. Barish joined Caltech's faculty in 1963 as a research fellow, and he has been Linde Professor since 1991 and director of the LIGO Lab since 1997.

Philip Hoffman has been named the Richard and Barbara Rosenberg Professor of History and Social Science, effective December 1; this title replaces that of professor of history and social science. Having received his AB from Harvard in 1969, his MA from UC Berkeley in 1971, and his PhD from Yale in 1979, Hoffman joined Caltech's faculty in 1980.

Alexander Kechris, professor of mathematics, has been selected to give the 2004 Alfred Tarski Lecture at UC Berkeley. Tarski founded Berkeley's Group in Logic and the Methodology of Science, and each spring a scholar considered outstanding in a field to which Tarski contributed is invited to Berkeley to meet with faculty and students and give several lectures. Kechris received his MS from the National Technological University of Athens in 1969 and his PhD from UCLA in 1972, and he has been a member of the Caltech faculty since 1974. He served as executive officer for mathematics from 1994 to 1997.

Bruce Kennedy, facility manager/senior research associate II in the biology division's Transgenic Mouse Core Facility, has received the George R. Collins Award from the American Association for Laboratory Animal Science (AALAS) "for outstanding contributions to the field of laboratory animal technology." The recipient of several AALAS service awards, Kennedy has been affiliated with various AALAS branches as well as with the Society for Experimental Biology and Medicine, the American Physiological Society, and the *Lab Animal* editorial board, among others. He received his BS in zoology in 1975 and his MS in avian sciences in 1980, both from UC Davis, and he is a registered laboratory animal technologist.



Angels line up for gifts

Adali, 10, wants skates this year. Dario, 9, asked for a camera. Boys and girls from the San Gabriel Valley attached their Christmas wishes to paper angels that adorn a wall in the Human Resources office as part of the Caltech Angel Program.

Every one of these cherubim represents a needy child from the community as well as an appeal to the generosity of Caltech staff and students. And there are many angels that have yet to find a sponsor.

"We started out with 75 angels," says Dlorah Gonzalez, head of Caltech's employment office. "Each one has the child's name, and the things that they want, such as clothes or toys, and their sizes. They're all different ages." Participants may select an angel or two and leave their unwrapped gift at Human Resources by Friday, December 12.

While some of the younger children put Gameboys and PS2s at the top of their wish lists, most children asked only for modest necessities, like Brittney, 16, who needs socks and a jacket. Gift donors are asked to buy presents in the \$15 range.

Although the program has presented a popular holiday giving opportunity in the three years that Caltech has participated, Gonzalez reports that dozens of angels are still available. Caltech community members are invited to select an angel this holiday season and bring some joy into a child's life.

This program is affiliated with Monrovia's Foothill Unity Center, a nonprofit organization that provides holiday gifts to underprivileged children.

Tumors, from page 1

"This study makes an important advance by demonstrating a previously unrecognized connection between stem cells and pediatric brain tumor-derived cells. By viewing tumors as a type of embryonic cell gone awry, this opens up new possibilities for diagnosis and treatment," says Marianne Bronner-Fraser, a developmental biologist and the Ruddock Professor of Biology at Caltech.

"We believe that neural stem cells, found normally within our brain and spinal cords, could transform into cancer cells," says Harley Kornblum, a pediatric neurologist, a member of UCLA's Jonsson Cancer Center, and an associate professor of molecular and medical pharmacology and pediatrics at UCLA.

"This work also demonstrates that major advances can be made by combining different scientific perspectives—tumor biology, stem cell and developmental biology. The joint UCLA/Caltech program fosters this important and cross-disciplinary discovery," says Bronner-Fraser.

In times of crisis, help is available

An estimated 2 to 3 percent of men and 4 to 9 percent of women in the United States are depressed at any given time. Suicide in the young has tripled over the past 45 years, and it is now the second leading cause of death among U.S. college students.

"Though these numbers are staggering, depression can be treated and suicide can be prevented," says Dr. Kevin Austin, Caltech's senior director for health and counseling services. In response to the U.S. Surgeon General's call for increased measures to address depression and prevent suicide, the Caltech Student Counseling Center and the Staff and Faculty Consultation Center (SFCC) are reminding the campus community that help is available right here.

Staff or faculty members who may be feeling depressed or suicidal can contact the SFCC at ext. 8360 to discuss their concerns, and students may contact the Student Counseling Center at ext. 8331. Both centers have professional staff available for consultation and all inquiries are kept strictly confidential.

A comprehensive resource guide on depression and suicide prevention is also available at www.counseling.caltech.edu; go to "Articles on..." and then "Depression." The website includes information on a variety of topics related to mental health, such as stress management, relationships, sleep, anxiety, and eating disorders. Additional resources on issues affecting day-to-day well-being are available at the SFCC site at www.its.caltech.edu/~sfcc.

"We hope this information will help prevent suicide and result in people getting the help they need for depression," says Austin.

Along with several other staff members, Austin is also part of the Crisis Assessment and Response Team (CAR Team), available to Caltech faculty, staff, and students. Comprising campus professionals with experience in risk assessment and response, the team responds to situations in the work or student environment in which there may be potential for violence or harm.

Examples of situations in which the team has intervened include threats against coworkers; possibly suicidal individuals; missing persons; domestic violence; and individuals whose emotional instability caused concern.

Caltech community members who face a situation in which someone poses an immediate risk of harm to herself, himself, or others should call Campus Security at ext. 5000. In developing situations in which an individual's well-being, emotional stability, or potential for violence may be in question, any CAR Team member may be contacted by e-mail, with "CAR Team" in the subject heading, or by phone in more urgent situations.

In addition to Austin (ext. 8331, kpa@its.caltech.edu), the team includes Susan Cross, director of counseling services, SFCC (ext. 8360, shcross@its.caltech.edu); Helen Hasenfeld, director, Ombuds Office (ext. 6990, helenh@its.caltech.edu); Gregg Henderson, chief of campus security (ext. 4701, gregg.henderson@caltech.edu); and April White, director of consulting services, SFCC (ext. 8360, april@caltech.edu).

All concerns will remain confidential and the team will work with the requester to develop an action plan. Requesters are also encouraged to involve their supervisors, department heads, or resident advisors in any situation of concern.

For future reference, visit www.counseling.caltech.edu/carteam.html.

December 8–14, 2003

M T W T F S S

Monday, December 8

High Energy Physics Seminar

469 Lauritsen, 4 p.m.—“Eta Transitions in Heavy Quarkonium Enhanced by the Axial Anomaly in QCD,” and “Relative Yield of B^+B^- and $B^0\bar{B}^0$ at Upsilon(4S),” Professor Misha Voloshin, department of physics and astronomy, University of Minnesota, Twin Cities. Information: www.theory.caltech.edu/people/helen/seminar1.html.

Inorganic-Electrochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Designing Porphyrinoid and Nitrogen/Sulfur Complexes for Hydrolysis, Oxygen-Atom-Transfer Reactions, and Other Biomimetic Themes,” David P. Goldberg, assistant professor of chemistry, Johns Hopkins University.

Molecular, Cellular, and Developmental Biology Seminar

119 Kerckhoff, 4 p.m.—Topic to be announced. Pernille Rørth, European Molecular Biology Laboratory, Heidelberg, Germany.

Tuesday, December 9

Thesis Seminar

147 Noyes, Sturdivant Lecture Hall, 9 a.m.—“Delivery and Activation of Contrast Agents for Magnetic Resonance Imaging,” Matthew Allen, graduate student in chemistry, Caltech.

Thesis Seminar

151 Crellin, 10 a.m.—“Development of a New Lewis Acid-Catalyzed Claisen Rearrangement and Studies Toward the Total Synthesis of Erythrolide E,” Tristan Lambert, graduate student in chemistry, Caltech.

Caltech Library System Presents: Patents

Sherman Fairchild Library, multimedia conference room, noon to 1:30 p.m.—This session will provide a quick review of the patenting process, searching for patents and patent equivalents, legal status issues, and current awareness techniques. Information: <http://library.caltech.edu/learning/default.htm>.

Mechanical Engineering Seminar

206 Thomas, 3 p.m.—“Acoustic Absorption by a Perforated Liner with Mean Bias Flow,” Jeff D. Eldredge, assistant professor of mechanical and aerospace engineering, UCLA. Refreshments, 210 Thomas, 2:45 p.m.

Carnegie Observatories Colloquium Series

William T. Golden Auditorium, 813 Santa Barbara Street, 3:30 to 5 p.m.—“Evolution of Gas and Ice in Star-Forming Regions: A VLT-ISAAC 3–5 Micron Spectroscopic Survey of Low-Mass Protostars,” Ewine van Dishoeck, Moore Distinguished Scholar in astrophysics, Caltech. Refreshments, 3:30 p.m.

Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Spectroscopy and Astrophysics of Aromatic Compounds,” Dr. Lou Allamandola, NASA Ames Research Center.

General Biology Seminar

119 Kerckhoff, 4 p.m.—“MicroRNAs and Growth Control,” Stephen Cohen, European Molecular Biology Laboratory, Heidelberg, Germany.

Post Your Event Here

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Wednesday, December 10

Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—Topic to be announced. Stanford Woosley, professor of astronomy and astrophysics, UC Santa Cruz. Information: www.astro.caltech.edu/~gma/colloquia.html.

Biochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Damage Sensing and Checkpoint Activation in Human Cells,” Dr. Lei Zou, Harvard Medical School. Refreshments.

Empirics Seminar Series

25 Baxter, 4 p.m.—“Do Shareholders Vote Strategically? Evidence from Corporate Voting,” Kristian Rydqvist, Zurack Professor of Finance and Economics, Binghamton University (SUNY) and CEPR. Refreshments.

Thursday, December 11

Von Karman Lecture Series

JPL, von Karman Auditorium, 7 p.m.—“Pointing the Way to Exoplanetary Systems: New Initiatives in Space Astronomy and the Legacy of the Hubble Space Telescope,” John Trauger, senior research scientist, earth and space sciences division, JPL. Admission is free. Information: www.jpl.nasa.gov/lecture.

Friday, December 12

High Energy Physics Seminar

469 Lauritsen, 11 a.m.—Topic to be announced. Sergei Gukov, department of physics, Harvard. Information: www.theory.caltech.edu/people/seminar/schedule.html.

Condensed Matter Physics Seminar

107 Downs Lab, noon—Title to be announced. Dr. Vivien Zapf, Millikan Postdoctoral Scholar in Physics, Caltech.

High Energy Theory Seminar

469 Lauritsen, 1 p.m.—“On Low Rank Classical Groups in String Theory, Gauge Theory, and Matrix Models,” Masaki Shigemori, department of physics and astronomy, UCLA. Information: www.theory.caltech.edu/people/seminar/schedule.html.

Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—“Kinetic Resolution of Chiral Alpha-Olefins Using Ziegler-Natta Polymerization Catalysts,” Jeffery Byers, graduate student in chemistry, Caltech.

Von Karman Lecture Series

Pasadena City College, 1570 E. Colorado, the Vosloh Forum (south of Colorado on Bonnie), 7 p.m.—“Pointing the Way to Exoplanetary Systems: New Initiatives in Space Astronomy and the Legacy of the Hubble Space Telescope,” John Trauger, senior research scientist, earth and space sciences division, JPL. Admission is free. Information: www.jpl.nasa.gov/lecture.

Events for entrepreneurs

Pasadena Entretec, a nonprofit corporation that is located on the Caltech campus and that helps high-tech start-ups gain financing and resources, will be sponsoring several events this month.

On Tuesday, December 9, James L. Brown & Co. will present “Venture Physics,” a practical workshop on turning a research idea into an enterprise. Attendees are encouraged to bring their current business plans for critique. The session is \$15 for members, \$35 for nonmembers, and will be held from 7:30 to 9 a.m. at Pasadena Entretec, 295 South Hill Avenue. Reservations should be made by December 5; call (626) 356-9933 or e-mail scy@pasadenaentretec.com.

Later that week, Pasadena Entretec and Nestlé will present the Signature Luncheon, featuring G. Steven Burrill, founder and chief executive officer of Burrill & Company. The event will take place on Thursday, December 11, from 11:30 a.m. to 2 p.m. at the Athenaeum.

Regarded as an original architect of the biotechnology industry and one of its most avid developers, Burrill heads a venture capital fund with \$485 million under management. His talk, “Biotechnology and Investment: Expectations for 2004,” will review the past year and forecast investment trends in the industry for the coming 12 months.

Cost for the luncheon is \$20 for members and \$30 for nonmembers; seating is limited and reservations are required by December 8. Contact Janine Sabin, events manager at Pasadena Entretec, at (626) 356-9933 or scy@pasadenaentretec.com. The event is also supported by Hogan & Hartson, LLP.

A one-day workshop on Tuesday, December 16, will give prospective entrepreneurs the tools and techniques to write successful SBIR (Small Business Innovation Research) proposals targeting the NIH. Participants will receive expert advice and leave with a proposal outline. Cost is \$200; register online at www.nasaincubator.csupomona.edu. This event will take place at the NASA Commercialization Center, 3660 Temple Avenue, Suite 1330, Pomona. Registration begins at 7:30 a.m., and the workshop will be from 8 a.m. to 5 p.m.

More information is available at www.pasadenaentretec.com.

December 15, 2003–January 11, 2004

M T W T F S S

Tuesday, December 16

Carnegie Observatories Colloquium Series

William T. Golden Auditorium, 813 Santa Barbara Street, 3:30 to 5 p.m.—“CNO Abundances and Globular Cluster and Halo Formation,” David Burstein, Arizona State University. Refreshments, 3:30 p.m.

General Biology Seminar

119 Kerckhoff, 4 p.m.—Topic to be announced. Professor Michael Merzenich, Keck Center for Integrative Neuroscience, UC San Francisco School of Medicine.

Wednesday–Friday December 24–26

Christmas Holiday

Wednesday–Thursday December 31–January 1

New Year's Holiday

Monday, January 5

Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Composition and Petrogenesis of the Martian Crust,” Harry Y. McSween Jr., professor of planetary geoscience, University of Tennessee, Knoxville.

Tuesday, January 6

Biochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Biosynthesis of the Antitubercular Antibiotic Rifamycin by a Modular Protein Assembly Line,” Dr. Suzanne Admiraal, department of biological chemistry and molecular pharmacology, Harvard Medical School. Refreshments.

General Biology Seminar

119 Kerckhoff, 4 p.m.—“From Peppers to Peppermints: The Molecular Logic of Nociception,” Professor David Julius, department of cellular and molecular pharmacology, UC San Francisco.

Wednesday, January 7

Ulric B. and Evelyn L. Bray Seminar

25 Baxter, 4 p.m.—Topic to be announced. Jacob Goeree, professor of economics, University of Amsterdam. Refreshments.

General Biology Seminar

119 Kerckhoff, 4 p.m.—Topic to be announced. Polly Matzinger, Laboratory of Cellular and Molecular Immunology, National Institute of Allergy and Infectious Disease, NIH.

Materials Research Lecture

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—Topic to be announced. Caroline A. Ross, Flemings Career Development Associate Professor of Materials Science and Engineering, MIT. Refreshments, 113 Spalding Lab, 3:45 p.m. Information: www.matsci.caltech.edu/seminars.html.

Organic Chemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Five Natural Products and Five Solutions to the Sequence-Selective Recognition of Duplex DNA,” Professor Dale L. Boger, Scripps Research Institute.

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Thursday, January 8

Biophysics Lecture

153 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Eukaryotic Cellular Chemotaxis: Sensing Chemical Signals at Membrane Surfaces,” Professor Joseph Falke, department of chemistry and biochemistry, University of Colorado, Boulder.

Physics Research Conference

201 E. Bridge, 4 p.m.—“The Neutrino World: Present and Future,” Boris Kayser, Fermilab. 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.—Topic to be announced. Efi Gildor, Gildor Investments. Refreshments.

Friday, January 9

Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—“Viscosity of Argon at Temperatures > 2,000 K from Measured Shock Thickness,” Dr. Michael Macrossan, senior lecturer, department of mechanical engineering, University of Queensland. Information: www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html.

Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—“Forays into Palladium(II) Oxidation Chemistry,” Raissa M. Trend, graduate student in chemistry, Caltech.

CampusEvents

Monday, December 8

Baby Furniture and Household Equipment
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.

Almost Heaven: The Story of Women in Space

Avery Library, noon—Join author Bettyann Kevles as she discusses her latest book, for which she interviewed 40 women who have been in space. Kevles recently held the Charles A. Lindbergh Chair at the National Air and Space Museum, in Washington, D.C., and is now an instructor at Yale. Reservations: wcenter@studaff.caltech.edu.

FOCAL's Annual Authors Dinner

Athenaeum, Hall of Associates, 6 p.m.—Friends of the Caltech Libraries (FOCAL) presents Bettyann Kevles, who will speak about her new book, *Almost Heaven: The Story of Women in Space*. Fee: \$70 for FOCAL members and their guests, \$75 for nonmembers. Paid reservations by December 3. Information and registration: 395-6411.

Tuesday, December 9

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 with the Shorinji Kempo club. 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.

Amnesty International Letter Writing

Athenaeum Rathskeller, 7:30 p.m.—Caltech/Pasadena AI Group 22 will host an informal meeting to write letters on human-rights abuses around the world. All are welcome. Refreshments. Information: (818) 354-4461 or lkamp@lively.jpl.nasa.gov. Visit our website at www.its.caltech.edu/~aigp22.

Wednesday, December 10

Baby Furniture and Household Equipment
See Monday, December 8, 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.

Asbestos Awareness Training

118 Keith Spalding Building, 3 p.m.—This course is designed to enhance employee awareness of asbestos and its potential health hazards, as well as to provide guidelines for safely working around asbestos-containing materials. Registration: 395-6727 or safety.training@caltech.edu.

Thursday, December 11

Reel Women's Series: Nu Shu—A Hidden Language of Women in China

Caltech Women's Center, noon—This film uncovers the written language and rich subculture of Nu Shu, which was developed by peasant women in one county in Hunan province at a time when women were denied educational opportunities and lived a life of social isolation.

Caltech Shorinji Kempo Club

See Tuesday, December 9, for details.

Friday, December 12

Messiah Sing-Along

Ramo Auditorium, noon—Join us for this annual community tradition. Bring your voice; musical scores will be provided. Admission is free.

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Saturday, December 13

Children's Holiday Party

Winnett lounge, 11 a.m. to 2 p.m.—There will be holiday crafts for the children, storytelling, and a possible appearance by Santa at this potluck sponsored by the Caltech Women's Club. Bring your family and your favorite dish to share; paper products and beverages will be provided.

Men's Basketball

at Chapman University, 2 p.m.

Sunday, December 14

Caltech Shorinji Kempo Club

Braun Gym, multipurpose room, 3:30 p.m.—See Tuesday, December 9, for details.

Monday, December 15

Women's Basketball

at Cal State-Monterey Bay, 6 p.m.

Tuesday, December 16

Preschool Playgroup

See Tuesday, December 9, for details.

Caltech Shorinji Kempo Club

See Tuesday, December 9, for details.

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Wednesday, December 17

Baby Furniture and Household Equipment

See Monday, December 8, for details.

Wednesdays in the Park

See Wednesday, December 10, for details.

Women's Basketball

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

Office Ergonomics Training

118 Keith Spalding Building, 3 p.m.—This course discusses ergonomic design of office environments, specifically computer use. Low-budget techniques are emphasized. Space is limited. Registration: 395-6727 or safety.training@caltech.edu.

Thursday, December 18

Women's Wellness Series

Caltech Women's Center, noon—"A Manner of Living: Nutrition, Diet, and Weight Loss" will be presented by registered dietician Carole Bartolotto, who will share her expertise on nutrition, the food pyramid, diet planning, and safe weight loss. Registration: wcenter@studaff.caltech.edu.

Men's Basketball

vs. St. Mary's University of Minnesota, 3 p.m.

Caltech Shorinji Kempo Club

See Tuesday, December 9, for details.

Friday, December 19

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Saturday, December 20

Men's Basketball

vs. Luther College, 3 p.m.

Caltech Folk Music Society Presents Cyntia Smith and the Water Lilies

Winnett lounge, 8 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 the Folk Music Society at <http://folkmusic.caltech.edu>.

Sunday, December 21

Caltech Shorinji Kempo Club

Braun Gym, multipurpose room, 3:30 p.m.—See Tuesday, December 9, for details.

Monday, December 22

Baby Furniture and Household Equipment

See Monday, December 8, for details.

Tuesday, December 23

Preschool Playgroup

See Tuesday, December 9, for details.

Caltech Shorinji Kempo Club

See Tuesday, December 9, for details.

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Wednesday, December 24

Christmas Holiday

Credit Union Closure

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

Wednesdays in the Park

See Wednesday, December 10, for details.

Thursday, December 25

Christmas Holiday

Credit Union Closure

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

Friday, December 26

Christmas Holiday

Credit Union Closure

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

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Monday, December 29

Baby Furniture and Household Equipment

See Monday, December 8, for details.

Tuesday, December 30

Preschool Playgroup

See Tuesday, December 9, for details.

Men's Basketball

vs. Manchester College, 5 p.m.

Caltech Shorinji Kempo Club

See Tuesday, December 9, for details.

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Wednesday, December 31

New Year's Holiday

Credit Union Closure

All branches of the Caltech Employees Federal Credit Union will be closed in observance of the New Year's holiday.

Wednesdays in the Park

See Wednesday, December 10, for details.

Men's Basketball

Consolation game, 2 p.m. Championship game, 4 p.m.

Thursday, January 1

New Year's Holiday

Credit Union Closure

All branches of the Caltech Employees Federal Credit Union will be closed in observance of the New Year's holiday.

Friday, January 2

Women's Basketball

vs. Washington College, 6 p.m.

Caltech Tai Chi Club

See Tuesday, December 9, for details.

Saturday, January 3

Men's Basketball Tournament

At Caltech. Participants: Caltech, Whitworth College, Cabrini College, and UC Santa Cruz, 5 p.m.

Sunday, January 4

Men's Basketball Tournament

At Caltech. Participants: Caltech, Whitworth College, Cabrini College, and UC Santa Cruz, 1 p.m.

Monday, January 5

Women's Basketball

vs. Gallaudet University, 6 p.m.

Tuesday, January 6

Preschool Playgroup

See Tuesday, December 9, for details.

Wednesday, January 7

Wednesdays in the Park

See Wednesday, December 10, for details.

Bloodborne Pathogens

118 Keith Spalding Building, 3 p.m.—This course, designed for individuals who are exposed to blood or other potentially infectious agents, presents information on preventing exposure to bloodborne pathogens, including hepatitis B and human immunodeficiency viruses. Registration: 395-6727 or safety.training@caltech.edu.

Saturday, January 10

Swimming and Diving

at Pomona-Pitzer, 11 a.m.

Post Your Event Here

Over 5,000 readers would have seen the announcement of your event if you had posted it in Caltech's master calendar. Call 395-3630 or e-mail debbieb@caltech.edu to get signed up.

GALCIT, from page 1

by Hans Mark, a professor from the University of Texas, Austin, a cross section of alums from the past 30 years presented their current research: Brian Cantwell (PhD '76), Stanford; Stelios Kyriakides (PhD '80), University of Texas, Austin; Petros Koumoutsakos (PhD '93), ETH Zurich; and Raúl Radovitzky (PhD '98), MIT.

A panel discussion featured a half-century of alumni opining on challenges facing graduate education today: Arthur Bryson (PhD '51), Stanford; Sébastien Candel (PhD '72), École Centrale; Paul MacCready (PhD '52), AeroVironment Inc.; Yuan-Cheng (Bert) Fung (PhD '48), UC San Diego; Roddam Narasimha (PhD '61), Indian Institute of Science; Tom Tyson (BS '54, PhD '67), General Electric; and Max Williams (PhD '50), University of Pittsburgh. The celebration concluded with a gala Athenaeum dinner and a talk by Paul Bevilacqua, chief scientist for Advanced Development Projects, Lockheed Martin Skunk Works, on "The Challenge of Heavier Than Air Flight."

From its beginnings under Director von Kármán—a pioneer in the aeronautics field—GALCIT was at the forefront of aeronautical research in Southern California, ultimately leading to the modern aerospace industry and the beginning of U.S. supremacy in aeronautics research, particularly for commercial and military aviation.

GALCIT's most famous project was the founding of JPL. In 1935, GALCIT students and staff, including Frank Malina, A. M. O. Smith, H. S. Tsien, and W. Arnold, joined two young explosives entrepreneurs, Jack Parsons and Ed Forman, to build and test rockets. The group created the first long-duration solid-propellant rocket motors, enabling development of takeoff rockets used in World War II; and spontaneously ignitable liquid propellants, later used in the Apollo program and the Titan missile. JPL became an independent entity in 1943 and today is NASA's lead institute in robotic deep-space and planetary exploration.

Originally, GALCIT's mission was strictly aeronautics—the development and operation of aircraft—and many contributions were made to aircraft structures, aerodynamics, and propulsion. But over the years the field has been interpreted to be a much broader discipline that includes basic and applied problems in fluid dynamics and mechanics of materials, leading to research in these areas and the use of specialized facilities like the Lucas Adaptive Wall Wind Tunnel, supersonic shear layer facility, free surface shear flow tunnel, T5 hypervelocity shock tunnel, and Ludwig tube. In addition, smaller laboratories study every-

thing from cardiovascular fluid dynamics, combustion, and detonation, to fracture, the mechanics of materials, and shock waves.

All of which leads to the boxfish and the 747—part of the work of Mory Gharib, Caltech's Liepmann Professor of Aeronautics and Bioengineering. Gharib believes the next wave of smart propulsion devices will be based on the biomechanics of flying and swimming. So he studies the humble boxfish, which, he notes, is capable of staying within one millimeter of a sharp coral reef in highly turbulent water using "seven fins that are flapping and creating vortices here and there, keeping the fish right there, dead accurate." By examining nature's engineering, he hopes to glean further insight into aircraft design.

Seventy-five years, and GALCIT is still learning.

For more information, visit www.galcit.caltech.edu.

Discounts, from page 1

conveniences; the card can provide a deal on a day at the spa and a markdown on the oil change.

A sampling of participating businesses includes Burger Continental (15 percent), Moose McGillycuddy's (15 percent), Hooters (15 percent), the Pasadena Playhouse (buy one ticket, get another free), Outland Mountain Co. (10 percent), 24 Hour Fitness (no enrollment fee), and many more. A list of participating businesses can be viewed online at www.pasadena.com. The 2004 VIP cards may be purchased through the site for \$20.

If the object of one's gifts has a taste for home electronics, namely a new computer or flat-screen television, a deal is available in the form of a discount at one of the nation's largest home-entertainment stores. Good Guys makes good on its name with an offer of 10 percent off purchases at any of the chain's stores.

Unlike the credit card-size VIP card, the Good Guys discount requires a coupon at the time of purchase. These coupons, available at the Caltech Human Resources office, are valid through the end of December, and list details and restrictions that may apply.

In addition to these deals, Caltech staff members can purchase passes to major local amusement parks at Human Resources and discounted movie tickets at the Caltech Y. Members of the Caltech credit union have long been able to buy new cars from local dealers at significant discounts. Visit Human Resources to view the *Fleet Discount Book*, which provides details on the service.

ESL, from page 1

improve the quality of life for postdocs, visitors, and their families. The PDS/V office, located in Human Resources on South Holliston, also includes Barbara Avouac, Leah Carlson, and Fran Manley.

Imel has hands-on experience with the challenges facing postdocs. When she started at Caltech more than 12 years ago, she was herself the spouse of one, David Imel (now a staff member at IPAC). She says, "Postdocs are often faced with social, cultural, and financial struggles, and we hope the PDS/V office can serve as a resource that can help address those challenges."

Barbara Avouac, who with Imel coordinates the English conversation club, also has personally experienced many of these issues, having moved to Pasadena from France earlier this year with her husband, Professor of Geology Jean-Philippe Avouac, and their three children. While postdocs and visitors work long hours in Caltech labs, she notes, their spouses often feel isolated as they struggle to adjust to a new culture and language, sometimes while caring for children and dealing with tight finances.

Imel and Avouac hope the club will become a place where these spouses can socialize and find support, as well as feel comfortable practicing English conversation. It has been gratifying to see most of the attendees returning regularly and making friends.

"The idea is to help postdocs adapt to Caltech and Southern California culture," Avouac says, "but we can do that only if the spouses and families are happy too."

The PDS/V office is also working with the Caltech Postdoc Association, academic divisions, and international clubs on a "buddy program" that will pair a newcomer with a "veteran" postdoc, ideally from the same research group and home country. The "buddy" would contact the newcomer before arrival, meet the postdoc at the airport, and oversee an orientation to help ease the transition and provide support in Pasadena.

For more information on the conversation club, call Avouac at (626) 395-2307 or Imel at (626) 395-2098. The winter-term session is scheduled to start the week of January 5. To register, e-mail barbara.avouac@caltech.edu or eloisa.imel@caltech.edu; please indicate whether you will need child care, and the children's ages.

News extras**Make sure your child is safe**

Ninety-five percent of car seats for children are improperly installed. Don't take a chance on yours—come to a free checkup on Saturday, December 6, from 10 a.m. to 2 p.m. at the southeast corner parking lot at Del Mar Boulevard and Michigan Avenue. Staff from SafetyBeltSafe U.S.A. will explain how to correctly install child seats in your car. Call (310) 222-6860 for an appointment. Sponsored by the Caltech Women's Club, Campus Life, and State Farm Insurance Companies.

Change in emergency plan

The all-campus emergency evacuation assembly location has been temporarily changed to the south athletic field and track until construction on the north athletic field is completed. This location is only for use in a campuswide evacuation; for building-specific evacuations, contact your building coordinator or the Safety Office to determine where to assemble. For more emergency information, visit www.safety.caltech.edu or call ext. 6727.

Update on SARS

There are currently no suspected cases of Severe Acute Respiratory Syndrome (SARS) at Caltech, but winter's arrival brings the potential for an outbreak. To help prevent the spread of SARS and other contagious illnesses, campus community members should avoid traveling to known SARS areas, cover the mouth when sneezing or coughing, and wash hands often. If experiencing a fever of 100.5° F or higher, a dry cough, and shortness of breath, individuals should limit contact with others and call a physician. For more information, visit www.healthcenter.caltech.edu or www.cdc.gov/ncidod/sars/index.htm.

Annual asbestos advisory

The Safety Office has released its annual written notice of the presence of asbestos-containing building materials, as required by California Health and Safety Code 25915.2. Copies of this legislation, as well as records of asbestos sampling and air monitoring performed during campus asbestos abatement work, are available for review at the Safety Office; call ext. 6727 to make an appointment. Asbestos in building materials does not necessarily pose a health hazard unless fibers become airborne and are inhaled. Because it is crucial to handle asbestos-containing materials carefully, Caltech restricts such work to properly trained and equipped personnel. For more details, visit <http://safety.caltech.edu/publications/asbestos.html>.

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