

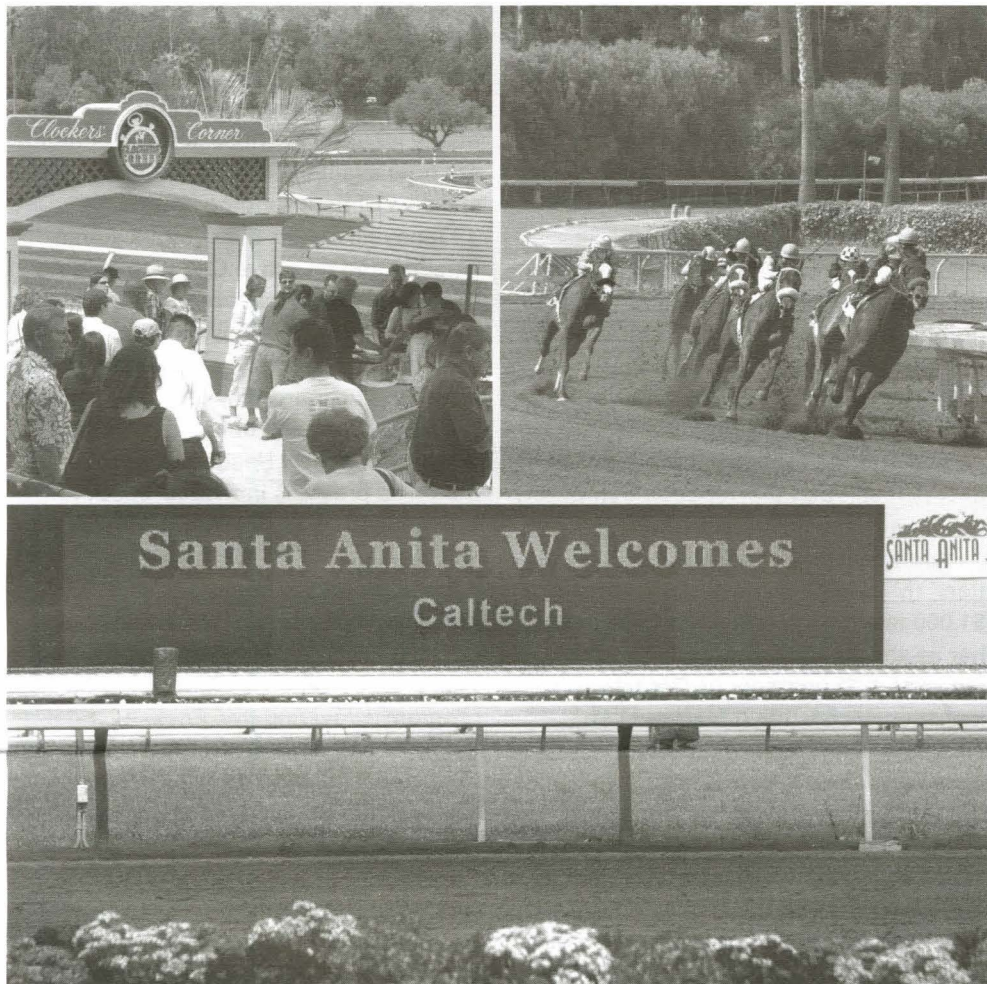
Caltech336

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

The campus community biweekly

April 7, 2005, vol. 5, no. 7

Odds-on-favorite afternoon



About 270 members of the Caltech community, including family and friends, studied racing forms and followed hunches Saturday April 2, at a Day at the Races, at Santa Anita Racetrack. Sponsored by Government and Community Relations and Human Resources, the day featured a buffet lunch at Clockers Corner (top left).

Caltech fencer takes a stab at NAAs

In the midst of basketball madness last month you may have overlooked another NCAA championship taking place—the National Collegiate Men's and Women's Fencing Championships. No doubt the majority of that competition's 144 participants spent the week before the final weekend of March 19 honing their skills—keeping in shape, developing strategies, practicing their parries and thrusts, their hand and foot movements.

But not, alas, Caltech sophomore Katherine Harvard. While she had the distinction of being one of only 24 athletes nationwide who qualified for her fencing event—the épée—she was lucky to squeeze in a single practice. That's because for Harvard, the week prior to the competition was finals.

Such is life as a Caltech athlete, where rigorous academics always come before sports. Which makes it all the more remarkable that Harvard, 19, a sophomore electrical engineering major, competed for the second straight year in the prestigious NCAA tournament.

A little context: NCAA sports divide schools by size. Large schools like

see *Fencing*, page 6

New policy benefits postdocs

Imagine being 35 and working all hours for low pay in an attempt to launch your career, hoping to one day land steady employment that includes health-care coverage.

Plight of the English major or outsourced software programmer? No. It's a fact of life for postdoctoral scholars in many fields of study.

But Caltech is helping lead a national trend among universities to boost quality of life and benefits for postdocs, who sometimes toil in these positions for as many as six years after completing their PhD programs.

As of January, Caltech has equalized benefits coverage for all postdocs, regardless of funding sources, to provide such things as uniform health-care and life insurance.

That is one of many improvements for Institute postdocs achieved within the past few years, says Lisa Taneyhill, chair of the Caltech Postdoctoral Association (CPA). A postdoc herself, Taneyhill conducts neural crest cell research in the group of Marianne Bronner-Fraser, Rudbeck Professor of Biology, and hopes to

see *Postdocs*, page 2

Not working 9-to-5

Mark Wheeler

Last April, dropped off by helicopter onto a remote and windswept Himalayan ridge at an altitude of 15,000 feet near the Tibet border, the last thing Caltech's John Galetzka expected to see was another human being.

Yet as he worked alone to install a Global Positioning System (GPS) station, one in a network of stations used by Caltech geologists to measure ground movement, he was surprised to notice a lone figure approach on foot. It was a pilgrim, says Galetzka, a Nepalese man who, it turned out, had built a small Buddhist shrine on the same ridge and had come to pray. Galetzka shared halting pleasantries with the man, and the two got on with their day. Galetzka spent the next 24 hours on the mountain, working and suffering from altitude sickness. That included spending a freezing night in a sleeping bag, huddled under a shelter he roughed together from an equipment tarp. After that, he returned to civilization.

For Galetzka, it was just another day at the office.

Clearly this is not your typical nine-to-five. While Galetzka is a bona fide staff employee, you'll almost never find him sitting behind a desk. For that matter, you'll rarely find him sitting anywhere at Caltech, in Pasadena, or within the continental United States. Last year he spent all of four weeks here. Galetzka doesn't have an office, doesn't own or rent an apartment or house, doesn't own a car. Most of his time is spent either in Nepal, Indonesia, and Taiwan, where he works as a "senior research assistant" (read: field guy) for Caltech geologists Kerry Sieh and Jean-Philippe Avouac.

Galetzka came to Caltech after serving a four-year stint as a U.S. Army Ranger and earning a geology degree at the University of Oregon. He was hired by the U.S. Geological Survey in Pasadena in 1996, but resigned to work with Sieh and Avouac in 2002. Today his primary responsibilities are to install and repair the GPS stations, and download the data the geologists count on to measure local ground movement caused by tectonic activity. To do this, he travels by boat,

see *Galetzka*, page 6



John Galetzka



Loh to speak at Commencement

Writer, performer, musician, humorist Sandra Tsing Loh will be the guest speaker at the 111th annual Caltech commencement ceremony at 10 a.m., June 10, on the Beckman Mall.

"Caltech is a wonderfully unique academic institution whose legacy, aside from outstanding achievement in science, is a rich cultural history with more than its share of quirks and surprises," Loh says. "I intend my comments to fully reflect that."

Loh is a graduate of Caltech, where she received a bachelor's degree in physics in 1983 and where she was awarded the Institute's highest honor bestowed upon graduates, the Distinguished Alumni Award, in 2001.

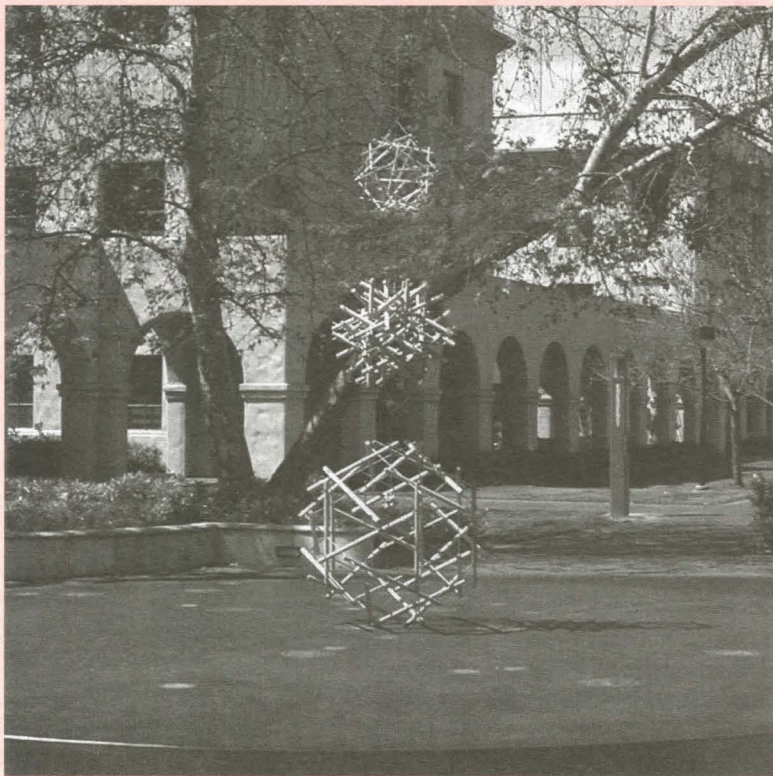
"We are pleased that Sandra is the first alumna to give the Caltech commencement address," said Caltech president David Baltimore. "She will no doubt bring a refreshing sense of humor and unique perspective to the ceremony. As a graduate of the Institute she can relate to the great accomplishments of our students when they reach this milestone. The talent and perseverance that helped her graduate from Caltech have obviously held her in good stead in her diverse and successful career."

That career has included offering insightful radio commentary locally and nationally, writing and performing one-woman shows, composing and performing music for film, creating traffic-stopping performance art, and writing for the *New York Times*, *Elle*, *Harper's Bazaar*, and *Vogue*.

Loh has a national monthly radio commentary on the public-radio business program *Marketplace*. She has been a regular commentator on NPR's *Morning Edition* and on Ira Glass's *This American Life*. She also does a weekly commentary, *The Loh Life*, which has aired in Southern California on KPCC-FM 89.3 since 2004. She came to KPCC after the accidental airing of a profanity on Santa Monica-based KCRW-FM. The station management fired her, and the resulting flurry of media coverage kept the story in the public eye for several months. Although the station offered to rehire her, she chose to stay at KPCC instead.

see *Loh*, page 2

NewsBriefs



As the saying goes, art happens, just like it did a couple of weeks ago when a piece of art materialized on the dais at the end of Moore Walk. Three globes of varying sizes, which appear to be constructed of wooden pegs and metal rods, hang from a line over the largest sphere. The artist, as yet unidentified, was possibly inspired by the British artist Banksy, who has recently, and surreptitiously, installed his own slightly daft artworks in Paris, London, and New York City museums. Credit, anyone?

Personals

Welcome to Caltech

February

Dmitriy Gioyev, visitor in mathematics.

March

Postdoctoral scholars **Nadine Bremeyer**, in chemistry, **Ariane Briegel**, in biology, and **Richard Briggs**, in geology; **Robert Butler**, research support assistant, biology; **Elizabeth Camarena**, administrative assistant, Seismo Lab; **Sowmya Chandrasekar**, research technician, chemistry and chemical engineering; **Mikhail Gorshteyn**, postdoctoral scholar in biology; **Ritchie Ho**, research technician assistant, biology; **Roberto Jimenez**, dishwasher/general helper, Athenaeum; postdoctoral scholars **Tracy La Grassa**, in biology, and **De-Ling Liu**, in JPL's planetary science and life-detection section; **Carlos Ochoa**, security officer, Campus Security and Parking Services; **Domenico Pacifici**, postdoctoral scholar in applied physics; **Janna Prolisko Arout**, guest-relations coordinator, Athenaeum; **Vanessa Ross**, server, Dining Services; custodian **Jesus Sanchez** and painter **Martir Sanchez**, both in Physical Plant; **Paola Sgobbo**, visitor in biology; **Sascha Wyss**, research technician, biology.

April

Wendell Jack has returned to Caltech as director of athletics, physical education, and recreation, effective April 1. From 1989 to 2000 he held several positions at the Institute, including that of acting director of intercollegiate athletics, physical education, and recreation. For the past three years he has served as director of athletics at Whittier College, where he oversaw a variety of programs, including NCAA intercollegiate sports, recreational services, and intramural and club sports.

Mouse in the house

Caltech and Radio Disney have teamed up to produce "The Caltech and Radio Disney Science and Technology Minutes." These daily segments are geared to the Radio Disney audience of children, ages five to 12 years old, to promote kids' interest in science. The segments are composed of 30-second, kid-friendly science "factoids," brought to you by "the experts at Caltech in Pasadena," that provide answers to children's questions such as "Why Is the Night Dark?" and "How Far Away Are the Stars?" The spots run Monday through Friday, approximately hourly, from 7:30 a.m. until 7 p.m., on KDIS-AM 1110.

Caltech RSI alumni do good

Here's more proof that Caltech attracts the best. Two high school students who attended last summer's Research Science Institute (RSI) program at Caltech took two of the top 10 places at the 2005 Intel Science Talent Search, held this March in Washington, D.C.

Robert Cordwell, 17, who worked with Richard Wilson, professor of mathematics, took fourth place with his project in math theory. Cordwell, from Albuquerque, New Mexico, took home the \$25,000 prize.

Po-Ling Loh, from Madison, Wisconsin, took tenth place with her finite group theory project in mathematics. During her RSI summer, Loh, 18, worked under the direction of Michael Aschbacher, the Hanisch Professor of Mathematics at Caltech. Loh won the \$10,000 prize.

Some 35 talented high school students are chosen from U.S. and foreign schools each year to spend six weeks at Caltech receiving classroom training and research mentorships. The program, established at Caltech in 2003, is free of cost to students.

This RSI program complements the Research Science Institute at MIT, which has been sponsored by the Virginia-based Center for Excellence in Education for the past 11 years. The RSI is considered one of the most prestigious and competitive science programs for high school students in the nation.

Loh, from page 1

Apropos of that experience, she recently acted in the stage performance *Fired!*, a series of comic monologues about losing a job, at the Skirball Cultural Center in Los Angeles. It is being produced by L.A. Theatre Works and will air on NPR at a later date.

Loh has also been a solo performer and writer. Her latest one-woman show was *Sugar Plum Fairy*, performed in Los Angeles, San Jose, and Seattle in 2004. She also performed *I Worry* at the Kennedy Center.

Recently named a contributing editor to the *Atlantic Monthly*, she is the author of the books *A Year in Van Nuys*, *Depth Takes a Holiday: Essays from Lesser Los Angeles*, *Aliens in America*, and *If You Lived Here, You'd Be Home By Now*, which is based on Loh's solo off-Broadway show that ran in New York in the summer of 1996. She returned to the New York stage for *Bad Sex With Bud Kemp*, another solo show, in 1998.

Loh composed and performed on the score for Jessica Yu's 1997 Oscar-winning documentary *Breathing Lessons: The Life and Work of Mark O'Brien*, and scored Yu's documentary about the Living Museum on HBO.

She has appeared on tour in *Aliens in America*, her darkly comic semi-autobiographical tale of growing up middle-class Chinese-German in Southern California.

Loh began her career as a performance artist. In 1989, nearly a thousand people attended "Night of the Grunion," in which Loh and the Topanga Symphony played a midnight concerto for spawning fish on a Malibu beach. In "Self Promotion" (March 1988), an assistant flung \$1,000 in autographed dollar bills over her as she performed before a stampeding crowd. "Spontaneous Demographics" (September 1987) featured Loh playing a piano aboard a flatbed truck in a concert for rush-hour commuters on the Harbor Freeway in Los Angeles.

Loh's family has been associated with Caltech for many years. Her father, Eugene Loh, earned a master's degree in physics in 1953 and a PhD in mechanical engineering in 1954, and her brother Eugene received a bachelor's degree in physics in 1980.

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Lisa Taneyhill

Postdocs, from page 1

become a developmental biology professor one day.

In the meantime, when she isn't pursuing her research, she is trying to improve working conditions for Caltech's 576 postdocs. Her two-year term ends in May.

"It's pretty ridiculous that, depending on where you get your funding, you will either have these benefits or you won't. We're talking basic things like health insurance, which everyone should have. Now that it is equalized, everybody is getting health and dental insurance, and everyone has equal access to benefits such as life insurance and long-term disability insurance. Those sorts of benefits are now available to all postdocs irrespective of their funding source."

Taneyhill credits the campus administration and an active CPA with helping to achieve the spate of recent improvements. The office of Postdoctoral Scholars/Visitors Services, created in the Office of Human Resources in late 2002, tries to improve the quality of life for postdocs and their families. Headed by Eloisa Imel, the office provides individual check-in orientations for incoming postdocs to discuss benefits, tax issues, and other transitional topics. Given Caltech's high percentage of international scholars, these issues often include visas. The office also hosts an "ESL Club for Postdoc Spouses" program, providing free English-language instruction and child-care services, and transitional housing services in conjunction with the Housing office.

"We are extremely fortunate at Caltech," says Taneyhill, who recently returned from a national postdoctoral conference. The stories and accounts she heard there underscored the hardships experienced by postdocs at many universities. She applauds the Institute for adopting postdoc benefit standards, as well as providing funding for CPA programs, including monthly social hours and career events.

The relationship between a postdoc and a university is symbiotic. As young scholars carry out vital research that helps a university advance research frontiers, they gain valuable experience and education.

Two or three decades ago, PhDs could often go straight to independent research positions, and perhaps tenure-track jobs at universities. "Nowadays, particularly in the life sciences, more people go on to postdoctoral positions, but in some cases there are fewer jobs out there to move on to," Taneyhill says.

As a result, reaching the goal of landing an independently funded, self-supporting position is taking longer and longer. According to Taneyhill, the median age for moving into an independent position is now 38.

Postdoc minimum pay starts at \$35,000 annually at Caltech, but many divisions pay more. Supply and demand drives the salary for some disciplines, Taneyhill says.

For its part, the CPA is not inclined to rest on its laurels. Among its future goals, Taneyhill says, is persuading the administration to standardize pay for postdocs according to their years of postdoctoral experience, as is done at many comparable institutions. "We're pretty cheap labor," she says, adding that postdocs should be paid an amount commensurate with their years of experience and education.

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April 11–17, 2005

M T W T F S S

Monday, April 11

Geological and Planetary Sciences Seminar
155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Chemical Heterogeneities and Diffusion in Garnet as Markers of the Dynamics of Geological Systems,” Daniel Vielzeuf, visiting professor of geology, Caltech.

Materials Research Lecture
106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“‘Nano-Ionics’: Size Effects on Ion Transport,” Professor Joachim Maier, Max Planck Institute.

Social and Information Sciences Laboratory (SISL) Seminar Series
25 Baxter, 4 p.m.—“Asset Pricing, Portfolio Selection, and Welfare Analysis in Hierarchical Segmented Markets,” James Primbs, assistant professor of management science and engineering, Stanford University.

Applied Mathematics Colloquium
101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“Towards the Ultimate Solver for the Wave Equation,” Professor Thomas Hagstrom, mathematics department, University of New Mexico.

Tuesday, April 12

Carnegie Observatories Colloquium Series
William T. Golden Auditorium, 813 Santa Barbara Street, 3:30 to 5 p.m.—“Deep Spitzer Observations of the Distant Universe from the Great Observatories Origins Deep Survey,” Mark Dickinson, National Optical Astronomy Observatory. Refreshments.

General Biology Seminar
119 Kerckhoff, 4 p.m.—“Cell Size Homeostasis: The Ribosome Biogenesis Connection,” Professor Mike Tyers, Samuel Lunenfeld Research Institute, Mt. Sinai Hospital, Toronto.

Wednesday, April 13

Mathematical Physics Seminar
351 Sloan, noon—“The Non-Equilibrium Quantum Statistical Mechanics,” Vojkan Jaksic, associate professor of mathematics, McGill University.

Environmental Science and Engineering Seminar
142 Keck, 3:40 to 5 p.m.—Topic to be announced. Kenneth Bruland, professor of ocean sciences, UC Santa Cruz.

Astronomy Colloquium
155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Debris Around Young Suns,” Lynne Hillenbrand, assistant professor of astronomy, Caltech.

Organic Chemistry Seminar
147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Asymmetric Synthesis with Organoboranes, and the Design of Non-Leaching Mesoporous Supported Pd Catalysts,” Professor Cathleen Crudden, department of chemistry, Queen’s University, Ontario.

Earnest C. Watson Lecture Series
Beckman Auditorium, 8 p.m.—“Art and Science: A Da Vinci Detective Story,” John Brewer, Broad Professor of Humanities and Social Sciences and professor of history and literature, Caltech.

Thursday, April 14

Professor Amnon Yariv’s 75th Birthday Symposium
Beckman Institute auditorium, 8:30 a.m. to 5 p.m.—This symposium is celebrates Amnon Yariv’s 75th birthday. Dr. Yariv is Caltech’s Summerfield Professor of Applied Physics and professor of electrical engineering. For details of the day’s events, go to www.its.caltech.edu/~aphyariv/birthday.

ESE & Society Discussion Group
151 Arms, Buwalda Room, 9 a.m.—Discussion groups are held on Thursdays 9 to 10 a.m. Refreshments.

Caltech Library System Presents: Web of Knowledge
Sherman Fairchild Library, multimedia conference room, 2 to 3:30 p.m.—The Web of Knowledge offers the extensive Web of Science database for science, engineering, humanities, and social science, plus Journal Citation Reports. This session will cover linking to full-text articles, navigating, exporting records, conducting searches, and more. Information: <http://library.caltech.edu/learning/default.htm>.

Chemical Engineering Seminar
106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Sticking Molecules Together: Introduction of DNA Base Pairs Using Living Polymerization Strategies,” Professor Timothy Long, department of chemistry, Virginia Polytechnic Institute and State University.

Physics Research Conference
201 E. Bridge, 4 p.m.—“Bose Condensation, Superfluidity, and the Quantum Hall Effect,” Jim Einstein, Rosheck Professor of Physics, Caltech. Refreshments, 114 E. Bridge, 3:45 p.m.

Friday, April 15

High Energy Theory Seminar
469 Lauritsen, 11 a.m.—“Towards Generalized Complex Mirror Symmetry,” Alessandro Tomasiello, postdoctoral scholar, Institute for Theoretical Physics, Stanford.

Inorganic-Organometallics Seminar
151 Crellin, 4 p.m.—Topic to be announced. Jason Keith, graduate student in chemistry, Caltech.

William Bennett Munro Memorial Seminar
Treasure Room, Dabney Hall, 4 p.m.—“Using ‘Error’ as a Probe in Historical Analysis: The Case of Galileo vs. Kepler,” Giora Hon, University of Haifa and the Dibner Institute.

Number Theory Seminar
257 Sloan, 4 p.m.—“Serre’s Modularity Conjecture in Cases of Small Level and Weight,” Professor Luis Dieulefait, mathematics department, University of Barcelona.

Nanodevice to weigh molecules

Caltech physicists have created the first nanodevices capable of weighing individual biological molecules. This technology may lead to new forms of molecular identification that are cheaper and faster than existing methods, as well as revolutionary new instruments for biotechnology.

Michael Roukes, professor of physics, applied physics, and bioengineering at Caltech and the founding director of Caltech’s Kavli Nanoscience Institute, announced the technology at a news conference on March 24, during the annual American Physical Society convention.

According to Roukes, the breakthrough shows the immense potential of nanotechnology for creating transformational new instrumentation for the medical and life sciences. The new devices are at the nanoscale, he explains, since their principal component is significantly less than a millionth of a meter in width.

Called “nanoelectromechanical resonators,” these devices are essentially tiny tuning forks that have a very specific frequency at which they vibrate when excited. The researchers continually monitor the frequency of the vibrating bar while they expose the nanodevice to an atomic or molecular beam, in this case a very fine “spray” of xenon atoms or nitrogen molecules. The molecules condense on the cooled bar and add their mass to it, thereby lowering its frequency.

Because frequency can be precisely measured in physics labs, researchers are able to evaluate extremely subtle changes in the mass of the nanodevice, and therefore, the weight of the added atoms or molecules.

Roukes says that their current generation of devices is sensitive to added mass at the level of a few zeptograms, a few billionths of a trillionth of a gram. In their experiments this represents about thirty xenon atoms, the typical mass of an individual protein molecule.

“We hope to transform this chip-based technology into systems that are useful for picking out and identifying specific molecules one-by-one—for example, certain types of proteins secreted in the very early stages of cancer,” Roukes says.

Roukes says his group has the technology in hand to push mass-sensing devices to even more sensitive levels, probably to the point that individual hydrogen atoms can be weighed.

The Caltech team behind the zepto result included Dr. Ya-Tang Yang, a former graduate student in applied physics; Dr. Carlo Callegari, a former postdoctoral associate; Xiaoli Feng, a current graduate student in electrical engineering; and Dr. Kamil Ekinci, a former postdoctoral associate.

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April 18–24, 2005

M T W T F S S

Monday, April 18

Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Volatile Recycling in Subduction Zones: Integrating the Melt Inclusion and Volcanic Gas Records,” Paul Wallace, assistant professor, department of geological sciences, University of Oregon.

High Energy Physics Seminar

469 Lauritsen, 4 p.m.—Topic to be announced. Paul Sorensen, Lawrence Berkeley National Laboratory.

Inorganic-Electrochemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Chemistry and Cellular Biochemistry of the Vitamin B12 Derivatives Thiolatocobalamins,” Nicola Brasch, assistant professor, department of chemistry, Kent State University.

Applied Mathematics Colloquium

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“Separated Representations and Their Applications,” Professor Gregory Beylkin, applied mathematics department, University of Colorado, Boulder.

Tuesday, April 19

Institute for Quantum Information Seminar

74 Jorgensen, 3 p.m.—Topic to be announced. Jiri Vala, department of chemistry, UC Berkeley.

Carnegie Observatories Colloquium Series

William T. Golden Auditorium, 813 Santa Barbara Street, 3:30 to 5 p.m.—“Stellar Abundance Observations and the Formation of the Heavy Elements,” Professor John Cowan, department of physics and astronomy, University of Oklahoma. Refreshments.

General Biology Seminar

119 Kerckhoff, 4 p.m.—Topic to be announced. Professor Marc Kirschner, department of systems biology, Harvard University Medical School.

Wednesday, April 20

Environmental Science and Engineering Seminar

142 Keck, 3:40 to 5 p.m.—Topic to be announced. Professor Richard Luthy, civil and environmental engineering department, Stanford University.

Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Geology of the Mars Exploration Rover Landing Sites: Climate Change from Wet to Dry,” Matthew Golombek, project scientist, JPL.

Caltech Presidential Lecture Series on Achieving Diversity in Science, Math, and Engineering

Beckman Institute auditorium, 4 p.m.—“Women in Science and Engineering: Personal and Institutional Journeys, Obligations, and Opportunities,” Charles Vest, president emeritus and member of the mechanical engineering faculty, MIT. Admission is free.

Organic Chemistry Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“DNA Binding Natural Products: Synthetic and Mechanistic Studies,” Professor Dale Boger, department of chemistry, Scripps Research Institute.

Thursday, April 21

ESE & Society Discussion Group

151 Arms, Buwalda Room, 9 a.m.—Discussion groups are held on Thursdays from 9 to 10 a.m. Refreshments.

Caltech Library System Presents: Quick Review for Electronic Theses

Sherman Fairchild Library, multimedia conference room, 2 to 3:30 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, how to submit a thesis, and availability (who can see it and when) issues. No reservations are required.

Geology Club Seminar

151 Arms, Buwalda Room, 4 p.m.—“Neutron Computer Tomography and the Search for Life in Rocks,” Dawn Sumner, associate professor, department of geology, UC Davis.

Number Theory Seminar

257 Sloan, 4 p.m.—“Zeros of Approximations of Zeta Functions,” Professor Haseo Ki, mathematics department, Yonsei University.

Physics Research Conference

201 E. Bridge, 4 p.m.—“Titan at H+3 Months,” Jonathan Lunine, professor of planetary science and physics, and chair of the theoretical astrophysics program, University of Arizona. Refreshments, 114 E. Bridge, 3:45 p.m.

Von Karman Lecture Series

JPL, von Karman Auditorium, 7 p.m.—“The Galaxy Evolution Explorer (GALEX): New Window on the Evolving Universe,” Dr. Christopher Martin, GALEX principal investigator, JPL.

Friday, April 22

High Energy Theory Seminar

469 Lauritsen, 11 a.m.—Topic to be announced. Professor Sergio Ferrara, department of physics and astronomy, UCLA; European Organization for Nuclear Research (CERN); and the Italian National Institute for Research in Nuclear and Subnuclear Physics (INFN).

Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—“Exploring the Unusual Bonding Modes of Main Group Substrates with Tris(phosphino)borate Iron and Cobalt Platforms,” Christine Thomas, graduate student in chemistry, Caltech.

Kellogg Seminar

Lauritsen Library, 4 p.m.—“The KATRIN Experiment,” Professor Hamish Robertson, department of physics, University of Washington.

Von Karman Lecture Series

Pasadena City College, 1570 E. Colorado, the Vosloh Forum (south of Colorado on Bonnie), 7 p.m.—“The Galaxy Evolution Explorer (GALEX): A New Window on the Evolving Universe,” Dr. Christopher Martin, GALEX principal investigator, JPL.

CampusEvents

Monday, April 11

Standard First-Aid/CPR/AED

Brown Gym classroom, 7:30 a.m. to 5 p.m.—Offered by Caltech’s Safety Office in conjunction with the American Red Cross. Fee: \$25 for materials. Registration: 395-6727 or safety.training@caltech.edu.

Bolero Dance Class

Winnett lounge, 7:30 p.m.—No partner or previous dance experience is required. Cost for Caltech students: \$40 for the series, \$6 per class; others, \$56 for the series, \$8 per class. Classes started March 28.

Tuesday, April 12

Adult, Child, and Infant First-Aid and CPR Training

Brown Gym classroom, 7:30 a.m. to noon—Offered by Caltech’s Safety Office in conjunction with the American Red Cross. Fee: \$30 for materials. This is a two-day class; to receive certification, you must attend today and on Thursday, April 14. Registration: 395-6727 or safety.training@caltech.edu.

Men’s Golf

vs. Pomona-Pitzer, at Los Serranos Golf Course, 12:30 p.m.

Baseball

at University of La Verne, 3 p.m.

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.

Wednesday, April 13

CPR/AED Recertification

Brown Gym classroom, 7:30 a.m. to noon—CPR recertification training, offered by Caltech’s Safety Office in conjunction with the American Red Cross. There is a small fee for materials. Information and registration: 395-6727 or safety.training@caltech.edu.

Electric Cart Safety Training

118 Keith Spalding Building, noon—This course teaches participants about safely driving electric carts on campus. Registration: 395-6727 or safety.training@caltech.edu.

Caltech/JPL Toastmasters Club Meeting

Building 167 Conference room, JPL, 5 p.m.—Enhance your speaking skills without stage fright. Information: Dirk Runge, (818) 393-0465 or www.jplcaltechtostmasters.com.

Women’s Water Polo

at Pomona-Pitzer, 5 p.m.

Consuming Kids

Ramo Auditorium, 7 p.m.—The Caltech/JPL Child Educational Center presents Dr. Susan Linn, cofounder of the Campaign for a Commercial-Free Childhood and author of *Consuming Kids: The Hostile Takeover of Childhood*, in a lecture in honor of the National Association for the Education of Young Children’s Week of the Young Child. Admission is free.

Thursday, April 14

Excel 2003 Level 1

120 ATC Building, 263 S. Chester, 8 a.m. to noon—Learn to create and use spreadsheets. This course will continue from 8 a.m. to noon on April 15. Registration: www.its.caltech.edu/edu/enroll.html.

Reel Women Film Series: *Women and War*

Caltech Women’s Center, noon—Interwoven with gripping footage from recent conflicts in the Middle East, Bosnia, northern Uganda, and South Africa, this film captures women’s personal experiences of military violence, explains how they survived, and reflects on their growing resistance to war.

San Gabriel Valley Linux Users Group

Downs 107, 7 p.m.—“Novell Linux Roadmap,” Adam Loughran, Linux corporate strategist for Novell in Southern California.

Ethnic Visions Film Series: *Zoot Suit*

Baxter Lecture Hall, 7:30 p.m.—*Zoot Suit* (1981, 103 min.) is the film version of director Luis Valdez’s critically acclaimed play, based on the Sleepy Lagoon murder case and the zoot suit riots of Los Angeles in the 1940s.

Intermediate-Level Standard and Latin Dance

Winnett lounge, 8 to 10 p.m.—This is a competition-style dance series. The first hour focuses on standard dances such as the waltz, quickstep, Viennese waltz, tango, and foxtrot. Instruction in cha-cha, rumba, samba, and jive Latin-style dances begins at 9. Fee: \$25 for Caltech students; \$40 and permission of the instructors for others. The eight-week series started on March 31.

Friday, April 15

Men’s Tennis

SCIAC Championships, at Whittier College, 8 a.m.

Women’s Tennis

SCIAC Championships, at Claremont-Mudd-Scripps, 8 a.m.

A Dragon’s Tale

Beckman Auditorium, 10 a.m.—In this special school-day performance, the Nai-Ni Chen Dance Company presents dances from a diversity of races living in China today. Suitable for children of all grades. Information: (626) 395-6059 or http://events.caltech.edu/events/event-1904.html.

Baseball

at Pomona-Pitzer College, 3 p.m.

Nai-Ni Chen Dance Company

Beckman Auditorium, 8 p.m.—Each of choreographer/dancer Nai-Ni Chen’s dances projects her personal vision as an Asian artist living in America. (See Public Events contact information on this page.)

Saturday, April 16

Men’s Tennis

SCIAC Championships, at Whittier College, 8 a.m.

Women’s Tennis

SCIAC Championships, at Claremont-Mudd-Scripps, 8 a.m.

Women’s Water Polo

at University of Redlands, 11 a.m.

Track and Field

SCIAC Pre-Lims, at Pomona-Pitzer, 2:30 p.m.

Caltech Ice Skating Night

Pasadena Ice Skating Center, 6:30 to 7:45 p.m.—Join the Caltech Ice Skating Club for an evening of ice skating and hot chocolate. Visit the club’s website at www.its.caltech.edu/~skating.

Ballroom Semiformal Dance Party

Dabney Lounge, 9 p.m.—Join us for a classy evening of dancing, featuring ballroom, Latin, and swing, in the newly renovated Dabney Lounge. Admission is free, and refreshments will be provided. Dress to impress.

Sunday, April 17

Beginning-Level Standard and Latin Dance

Winnett lounge, 2 p.m.—This is a competition-style dance series. The first hour focuses on standard dances such as the waltz, quickstep, and Viennese waltz. Instruction in cha-cha, rumba, samba, and jive Latin-style dances begins at 3 p.m. Fee: \$25 for Caltech students; \$40 for others. The eight-week series began on April 3.

Caltech Democratic Club: Meet Your Elected Officials

YWCA Pasadena-Foothill Valley, 1200 N. Fair Oaks Ave, Pasadena, 2:30 p.m.—Come and meet your local elected officials, and hear what they have to say about themselves and their jobs. Guests include Congressman Adam Schiff.

Coleman Chamber Concert

Beckman Auditorium, 3:30 p.m.—Imani Winds will perform works by De Falla, Coleman, Schifrin, Piazzolla, and Hindemith. (See Public Events contact information on this page.)

Amnesty International Book Discussion

Vroman’s Bookstore, 695 E. Colorado Boulevard, second floor, 6:30 p.m.—This month’s book is *A Breath of Fresh Air*, by Amulya Malladi, a novel based on the 1984 Bhopal disaster. All are welcome. Sponsored by Caltech/Pasadena AI Group 22. Visit Group 22 at www.its.caltech.edu/~aigp22.

Monday, April 18

PowerPoint 2003 Level 1

120 ATC Building, 263 S. Chester, 8 a.m. to noon—Learn to create presentations. This course will continue from 8 a.m. to noon on April 19. Registration: www.its.caltech.edu/edu/enroll.html.

Track and Field

SCIAC Championships, at Pomona-Pitzer, 2:30 p.m.

Bolero Dance Class

See Monday, April 11, for details.

Tuesday, April 19

First Responders’ Course

Brown Gym classroom, 1:30 to 4:30 p.m.—This 10-week class meets twice a week and covers the full range of first-aid and CPR skills. Students who successfully complete the class will receive American Red Cross First Responder Certificates and patches. Registration: diane.williams@caltech.edu, 395-8055, or http://hr.caltech.edu/Education/super&non_super/first_responder.htm.

Social Activism Speakers Series

Beckman Institute auditorium, 8 p.m.—Kurt Gottfried, cofounder and chair of the Union of Concerned Scientists (UCS), and emeritus professor of physics at Cornell University, will give a talk entitled “Science Meets Politics: Thomas Jefferson to George W. Bush.” Admission is free.

Wednesday, April 20

Electric Cart Safety Training

118 Keith Spalding Building, 3 p.m.—This course teaches participants about safely driving electric carts on campus. Registration: 395-6727 or safety.training@caltech.edu.

Women’s Water Polo

at Occidental College, 5 p.m.

Thursday, April 21

Access 2003 Level 1

120 ATC Building, 263 S. Chester, 8 a.m. to noon—Learn to build and use a relational database. This course will continue from 8 a.m. to noon on April 22. Registration: www.its.caltech.edu/edu/enroll.html.

Women’s Wellness: Gynecology 101

Caltech Women’s Center, noon—Pamela Paine, registered nurse from the Alessandro Clinic, will discuss the basics and the advancements in the field of gynecology. Informative for women of all ages. Reservations: wcenter@studaff.caltech.edu.

Ethnic Visions Film Series: *Green Dragon*

Baxter Lecture Hall, 7:30 p.m.—*Green Dragon* (2001, 115 min.) is the tale of Vietnamese refugees sent to an orientation camp on the Camp Pendleton Marine Base in California.

Intermediate-Level Standard and Latin Dance

(See Thursday, April 14, for details.)

Friday, April 22

Men’s Tennis

The Ojai DIII Regional Invitational, at Moranda Park, Oxnard, 8 a.m.

Women’s Tennis

The Ojai Tournament, at Ventura, 8 a.m.

Women’s Club Welcoming Coffee

100 Broad Center, 9 to 10:30 a.m.—An opportunity to meet new friends, welcome newcomers, and learn more about the Caltech Women’s Club.

Retirement Workshop

Winnett clubroom #1, 10:30 a.m.—This workshop explains how a Supplemental Retirement Tax Deferred Annuity (TDA) offers employees an affordable, tax-deferred way to build the additional assets they may need to support a longer life span. Intended for employees eligible to participate in a 403(b) TDA plan.

Earth Day Fair

Avery Courtyard, 11:30 a.m. to 1:30 p.m.—This year’s fair will feature exhibits by environmentally aware groups and businesses, music, and free Earth Day cake. Information: cetf@caltech.edu. Sponsored by the Environmental Task Force and the Caltech Y.

Saturday, April 23

Caltech/MIT Enterprise Forum

Baxter Lecture Hall, 8 a.m.—“Space Venturing.” At this meeting, meet space venturers who represent the vanguard of the emerging businesses of space transport, research, and commercialization. Information and registration: www.entforum.caltech.edu.

Track and Field

Cal/NV State Meet, at Fresno State, 9 a.m.

Women’s Water Polo

vs. University of La Verne, 11 a.m.

Sunday, April 24

Beginning-Level Standard and Latin Dance

(See Sunday, April 17, for details.)

Skeptics Society Lecture

Beckman Auditorium, 2 p.m.—“Tiny Germs (and Other Cool Science Stuff),” Bill Nye, the Science Guy. Fee: \$12 for nonmembers, \$8 for Skeptics members; \$5 for the Caltech/JPL community. Kids are welcome. Tickets and information: 794-3119 or skepticismag@aol.com. A book signing will follow the lecture.

Caltech-MIT Chess Match

ITS Lab, 214 Steel, 4 p.m.—The Caltech Chess Team will face MIT in an 8-board chess match to be played on the Internet Chess Club site (www.chessclub.com). Spectators are welcome.

Mondays

Lunchtime Pickup Ultimate Frisbee

Fox Stanton Track and Field, 12:15 p.m.—The Caltech Penultimate Frisbee players make up an informal recreational group that plays pickup games of Ultimate Frisbee at lunchtime on Mondays, Wednesdays, and Fridays. No experience is needed, and complete novices are welcome. Information: http://mailman.its.caltech.edu/penultimate.

Floorball Club

Brown Gymnasium, 9 p.m.—Caltech Floorball Club holds pickup floorball games on Mondays from 9 to 11 p.m. For more information, see our website at http://floorball.caltech.edu.

Tuesdays

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). Sponsored by the Caltech Women’s Club. Information: 584-0970 or kimdeman@yahoo.com.

CIT Knitters Group Meeting

256 Mudd Laboratory, South, noon—All level of knitters and related handcrafters are welcome. We make items for others and ourselves. Information: 395-6905.

Caltech Tai Chi Club

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

Wednesdays

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. Stop by and make new friends from around the world. Sponsored by the Caltech Women’s Club. Information: 793-2535 or nancyhewett@earthlink.net.

Lunchtime Pickup Ultimate Frisbee

Fox Stanton Track and Field, 12:15 p.m.—The Caltech Penultimate Frisbee players make up an informal recreational group that plays pickup games of Ultimate Frisbee at lunchtime on Mondays, Wednesdays, and Fridays. No experience is needed, and complete novices are welcome. Information: http://mailman.its.caltech.edu/penultimate.

Thursdays

Baby Furniture and Household Equipment

234 S. Catalina, 10 a.m. to 1 p.m.—Loans of kitchen and household necessities and baby furniture are made to members of the Caltech and JPL communities. Open on Thursdays only. No appointment is necessary. Information: 584-9773 or furnpool@caltech.edu.

Fridays

Lunchtime Pickup Ultimate Frisbee

Fox Stanton Track and Field, 12:15 p.m.—The Caltech Penultimate Frisbee players make up an informal recreational group that plays pickup games of Ultimate Frisbee at lunchtime on Mondays, Wednesdays, and Fridays. No experience is needed, and complete novices are welcome. Information: http://mailman.its.caltech.edu/penultimate.

Caltech Tai Chi Club

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

Caltech Chess Club

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

Public Events information and tickets

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.



Clashing swords: Sophomore and NCAA contender Katherine Harvard duels with practice partner in Brown gym.

Fencing, from page 1

UCLA and USC are in Division I, midsize schools are Division II, and small schools like Caltech are Division III. That way, schools of like size compete against each other. Otherwise, it would be a little unfair for the likes of, say, the UCLA football team, which recruits athletes and has a student body of 25,000, to play Division III Cal Lutheran, which is not allowed to recruit and has a student body of 2,000.

But not in fencing. In this sport, the three divisions are lumped together to compete. During the regular season, Caltech competes against two groups of schools. During the regular season, as a member of the Intercollegiate Fencing Conference of Southern California, men's and women's teams compete against both NCAA and club teams. They are UC San Diego (NCAA), Cal State Fullerton (NCAA), UCLA (club), UC Irvine (club), UC Santa Barbara (club), and USC (club).

Caltech is also a member of the NCAA Western Region, so its year-end championship is fought against UC San Diego, Cal State Fullerton (NCAA), Stanford (NCAA), and the Air Force Academy (NCAA).

Modern fencing consists of three different swords, the foil, the épée, and the saber. Harvard competes with the épée, which, says Caltech fencing coach Randy Paffenroth, requires the most strategy. "You have to observe your opponent carefully and wait until they make a mistake," he says, "all the while not making mistakes yourself that your opponent can take advantage of."

It was the right event for Harvard, who only began playing the sport as a freshman at Great Neck South High School in Long Island. "I started late. A lot of fencers start really young," she says, "so it made me a defensive player." Eventu-

ally, though, "I got to the point where my defense became solid enough so I could start looking for the offensive moves.

"But even now in tournaments I'll go back into defensive mode, stay back and react, keep my distance, and try to catch their mistakes."

The strategy has paid off. A fencing team consists of 18 people (3 men and 3 women for each of the weapons). During the regular season the women's épée team was 11-1 and took first place, led by Harvard, who finished the regular season with 35 wins and just one loss.

Not a bad season considering that Harvard only practices twice a week during the season while her competitors probably practice every day. That's all she has time for; the rest of her days are filled with classes and completing the daily sets (homework to the rest of us), which can take as long as five hours a night.

The uniform is heavy and hot, but "you get used to it and don't notice it once you start fencing," she says. There's a protective body suit, along with an underarm protector, a breastplate, and a mesh mask. Still, even all that doesn't always provide complete protection. The swords are spring-loaded and electronic. Points are scored by striking your opponent anywhere on the body. "You get bruised," she says. "You can definitely feel it." She recalls one time this season, competing against a woman from UC San Diego, when the tip of her opponent's sword "got caught in my glove and went up my sleeve, leaving a long red line on my arm all the way to my shoulder."

Besides her strong work ethic, says Randy Paffenroth, "which you have to have to be a Caltech athlete," Harvard's strengths are "her combination of great footwork and maintaining distance from her opponent, along with her intelligence and observational acumen."

It certainly isn't to relax. "My strategy, if I've never seen them before, is to feel them out, then try something new. But it's mentally stressful. If you're tense, or afraid to try something, it can be nerve racking."

In this year's NAAs, Harvard finished 22nd out of 24. No doubt she would have liked to do better, but for a Caltech athlete, it's all about perspective, and reflects the attitude a true student athlete should have.

"It's something fun, a sport I enjoy, and one that I can do my whole life. Just to be a casual fencer is enough for me."

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Galetzka, from page 1

helicopter, horseback, and foot, scouting out new locations to place the stations, then introducing himself to the local populace in order to negotiate permission to use a piece of their land.

"It's a crazy job," laughs Galetzka, who is 37 and, as you might have guessed, single. "But I love it. Lot's of travel and a lot of physical challenges."

Galetzka also serves as a science ambassador, educating local people to the inherent dangers of living on top of tectonically active terrain. Both he and Sieh believe that educating the public in Sumatra about earthquake and tsunami dangers is an important part of their work. "The educational component is really Kerry's idea," Galetzka says. "He believes that the science should serve mankind."

Sieh studies the Sumatran plate boundary, where the 9.0 magnitude earthquake struck Indonesia on December 26 (and was followed by an 8.7 aftershock on March 28). When the first quake struck, Galetzka was away, visiting a friend who runs a clandestine humanitarian group in a nearby country ruled by a military dictatorship. It took Galetzka four days on foot, dodging roving military bands and avoiding land mines, before he made it back across the border to meet up with Sieh.

With their colleagues, the pair spent the next six weeks getting a firsthand look at the geologic effects of the earthquake, distributing relief supplies, and checking on friends. They downloaded data, made repairs, and continued educating locals about future earthquakes and tsunamis. Just last summer, the group had spent time educating villagers about earthquakes and tsunamis; now, to

the locals, their warnings seemed prophetic.

"One of the things we told them to do was to run to the GPS station," says Galetzka. "We try to place our stations on high ground to get good satellite reception, so it was a simple way to get across an important message in case of a tsunami."

Galetzka says some villagers believe it was the GPS stations that saved them. "We tried to tell them no, but on one island they had begun to relocate their village around the station. People were settling in, building shelters."

He was gratified that no one he knew was killed, most likely because the area that he and Sieh are studying is 200 to 500 miles from the epicenter. Later, though, traveling by boat upriver toward downtown Banda Aceh, Galetzka saw the massive destruction. "Everything was completely flattened except for a few very strong structures," he says. "You could see dump trucks and bulldozers clearing rubble. Fires were smoking. People were salvaging metal. There were others in hazmat suits. It was a surreal scene."

Galetzka had received permission to install a GPS station in another town south of the city (by this time, Sieh had returned to Caltech). While they were installing it, a teenage boy came by to watch them work. "He was off at school in Banda Aceh at the time of the tsunami," Galetzka says. "He had returned and found that his home, family, and village were gone. I was amazed at the boy's steady demeanor. He had probably cried so much that he couldn't grieve anymore."

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John Galetzka (left) with buddies after installing a new GPS station.