

Caltech336

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

The campus community biweekly
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Deconstructing Dabney



Dabney Hall's elegant interior is currently unrecognizable as renovation work continues. The 76-year-old building is expected to regain its original beauty and more by August.

Dollars available for diversity

The Academic Committee on Diversity and Minority Affairs (ACODAMA) is accepting proposals for the President's Diversity Initiative Fund. Created by President David Baltimore in 2001, the fund seeks to foster innovative strategies to actively involve the campus community in diversity efforts related to under-represented minorities and women.

"We're encouraging people to come up with new ideas and to be creative," says Professor Joann Stock, chair of ACODAMA. "Someone might have a suggestion but think, 'Oh, my program is too small (or too large) to get any funding.' But we're open to all kinds of ideas. It doesn't even have to be a new program—you can add a diversity component to an existing program, and we can assist with funding to address that component."

Examples of previously funded programs include the Caltech Postdoctoral Association's Women Mentoring Women program, Semana Latina, GradPreview@Caltech, Martin Luther King Jr. Week, College Goal Sunday, the LINKS/Alumni Mentoring project, the Black Graduate

see Diversity, page 6

Enrollment goes online

Beth Moore

Caltech's Office of the Registrar is preparing to launch web enrollment—the first in a series of Student Affairs web-based initiatives intended to use technology to more effectively serve students, faculty, and staff, and to do so in a paperless or near-paperless environment.

Known as REGIS, and developed in partnership with the Administrative Technology Center (ATC), the new system is scheduled to be available February 26, in time to streamline and automate registration for the spring term.

"This has been an exciting project. The web enrollment project was a dream for us all and now it's matured to fruition," says Associate Registrar Linda King, who worked with former registrar Judith Goodstein, Director of Student Information Systems Debi Tuttle, and an ATC team headed by Student Systems Development Team Lead Peter Lin, who served as project manager.

"The implementation process has been challenging and exciting," Lin agrees. He notes that students, faculty,

see Enrollment, page 6

In DARPA race, no driver, no problem

The countdown clock on Team Caltech's website drives home the fact that precious few days remain to get all of Bob's systems on line and perfectly synchronized before the day of the big race.

Who's Bob, and what race is he entered in? None other than the DARPA Grand Challenge, in which 20 self-driving and self-navigating vehicles will sail for 200 miles across the Mojave desert for a \$1 million purse. Caltech's entrant has been nicknamed Bob.

Conceived by the U.S. government's Defense Advanced Research Projects Agency, the DARPA Grand Challenge pits modified vehicles against each other and the clock. The gist of the contest is that the vehicles are completely autonomous: each vehicle must successfully drive along a predetermined route, navigate itself past obstacles, and reach the goal before all others to win. They have 10 hours to do it.

"It's a great engineering course, very much in the style of engineering that takes place in industry and in research," says Richard Murray, professor of mechanical engineering and the team's sponsor. "It requires not only understanding the big picture but also solving the individual details and problems."

One of the prerequisites to making it into the contest is passing DARPA's Qualification, Inspection, and Demonstration phase, taking place the second week of March at the California Speedway in Fontana. That's where Bob will be put through its paces during its time slots on Monday the 8th and Wednesday the 10th.

"The QID is an obstacle course that contains dirt hills, a tower, and other cars," says David van Gogh, the team's project manager and a Caltech staff

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Revolution in a radar chip

Imagine driving down a twisty mountain road on a foggy night. Visibility is near zero, yet you still can see clearly. Not through your windshield, but via an image on a screen in front of you.

Such a built-in radar system in our cars has long been in the domain of science fiction, as well as wishful thinking on the part of commuters. But such gadgets could become available in the near future, thanks to Caltech's High Speed Integrated Circuits group.

The group is directed by Ali Hajimiri, an associate professor of electrical engineering. Hajimiri and his team have used revolutionary design techniques to build the world's first radar on a chip—specifically, they have implemented a novel antenna array system on a single, silicon chip.

Hajimiri notes, however, that calling it "radar on a chip" is a bit misleading because it's not just radar. Having essentially redesigned a computer chip from the ground up, the technology is revolutionary enough to be used for a wide range of applications.

The chip can, for example, serve as a wireless, high-frequency communications link, providing a low-cost replacement for the optical fibers that are currently used for ultrafast communications. Hajimiri's chip runs at 24 GHz (24 billion cycles in one second), which makes it possible to transfer data wirelessly at speeds available only to the backbone of the Internet (the main network of connections that carry most of the traffic on the Internet).

Other possible uses:

- In cars, an array of these chips could provide a smart cruise control, one that wouldn't just keep the pedal to the metal, but would brake for a slowing vehicle ahead of you and avoid a car that's about to cut you off.

- The chip could serve as the brains inside a robot capable of vacuuming your house. While such appliances now exist, a vacuum using Hajimiri's chip as its brain would clean without bumping into everything, have the sense to stay out of your way, and never suck up the family cat.

see Chip, page 6

Caltech #2 in "race"

Caltech had the second-greatest number of U.S. patents among national universities in 2003, the *Sacramento Business Journal* reported February 12. According to preliminary figures released by the U.S. Patent and Trademark Office, Caltech was awarded 139 patents, second only to the nine combined campuses of the University of California, which received a total of 439 patents. MIT, the University of Texas, and Stanford were third, fourth, and fifth, with 127, 96, and 85 patents, respectively. Rounding out the top 10 were the University of Wisconsin (84 patents); Johns Hopkins (70); the University of Michigan (63); Columbia (61); and Cornell and the University of Florida (59 each).

NewsBriefs



Adrienne Hahn of the Institute of Electrical and Electronics Engineers, manager of the IEEE's University Partnership Program, presents a check to Rumi Chunara, outgoing president of Caltech's IEEE student branch. The program assists top engineering schools (who participate by invitation only) in promoting access to IEEE technical information and encourages student membership through its subscription rebate program. Caltech surpassed its 2003 goal of 65 members by nearly 50, earning a rebate of \$7,600.

Personals

Welcome to Caltech

January

Michelle Estuar, stewardship assistant, Development and Alumni Relations; **Vickie Lindsay**, administrative assistant, chemistry and chemical engineering.

Judith Stanton is Caltech's new administrator for the Division of Engineering and Applied Science. With 20 years of administrative experience, she most recently served at UCLA as executive administrator for the David Geffen School of Medicine's department of pathology and laboratory medicine.

February

Jennifer Anthony, postdoctoral scholar in chemical engineering; **Michele Archambault**, senior development officer, Midwest Regional Office, Principal and Major Gifts; **Nichole Baker**, associate director / manager of trusts and bequests, Gift and Estate Planning; **Martin Basch**, postdoctoral scholar in biology; **Christian Binder**, visitor in chemical engineering; **Guanglu Ge**, postdoctoral scholar in chemistry; **Kenneth Goodrich**, MRI technologist, biology; **Bruce MacKay**, postdoctoral scholar in chemistry; **Michael Mischna**, research assistant, planetary sciences; **Arakel Petrosyan**, visitor in planetary science; **David Relyea**, postdoctoral scholar in physics; **Kartik Sheth**, staff scientist, Owens Valley Radio Observatory; **Gurol Suel**, postdoctoral scholar in biology.

Deaths

Bernard Buss, who had retired in 1996 as Caltech's director of internal audit, died on January 19; he was 69. "Bernie had a close circle of friends who will miss his spaghetti dinners, bad jokes, tall tales, poker parties, and random acts of kindness." Predeceased by his longtime companion Gil Gillespie, he is survived by his five daughters, Beverly, Stack, Jamie, Kathleen, and Donna, and by many grandchildren. Donations may be made to the Greater Pasadena Aid Fund (GPAF), of which he was a founding member. He spent many happy years in Burlington, Wisconsin, and a tree planting will be held there this spring in celebration of his life.

Marjorie Elizabeth Connely, who had retired in 1975 as an administrative assistant in environmental engineering, after 26 years with Caltech, died on January 29; she was 92. As a teenager she worked nights as an usher in a local theater to pay her way through business school. Predeceased by her husband, Dennis, she is survived by two sisters, Barbara Anderson and Mary White; a daughter, Shirley Hamblin; and three grandsons.

Honors and awards

Alexander Kechris, professor of mathematics, has been elected president of the Association for Symbolic Logic, an international organization supporting research and critical studies in logic by providing a forum for the presentation, publication, and critical discussion of scholarly work in this area. He began his term in January and will hold the presidency for three years. Having received his MS from the National Technological University of Athens in 1969 and his PhD from UCLA in 1972, Kechris joined the Caltech faculty in 1974. He served as executive officer for mathematics from 1994 to 1997.

Christof Koch, Troendle Professor of Cognitive and Behavioral Biology and professor of and executive officer for computation and neural systems, and **Melissa Sáenz**, postdoctoral scholar in biology, have been selected by the Mind Science Foundation to receive a 2004 Tom Slick Research Award in Consciousness. Named after the late entrepreneur, explorer, philanthropist, and author Tom Slick (1916–1962), the awards were initiated "to fulfill his vision of studying the mind as a means for improving the condition of humankind." Koch—who collaborates in consciousness research with Sir Francis Crick, the biologist who, with James Watson and Maurice Wilkins, was awarded the Nobel Prize for identifying the double-helix structure of DNA—received his PhD from the University of Tübingen in 1982 and joined Caltech's faculty in 1986. Sáenz received her BS in biology from Caltech in 1998.

Zombie agents within

Christof Koch, Troendle Professor of Cognitive and Behavioral Biology and professor of and executive officer for computation and neural systems, discusses "zombie agents" in his new book *The Quest for Consciousness: A Neurobiological Approach* (Englewood, Colorado: Roberts & Company Publishers, 2004). Because they represent everyday behaviors that we perform without thinking, these "agents" have become a focus of serious attention on the part of scientists investigating the question of how the brain gives rise to consciousness. Zombie agents include routine yet complex behaviors such as keeping the body balanced, estimating the steepness of surfaces to be climbed, driving a car, and riding a bike, among many others. Since they make it clear that much of what goes on inside our heads bypasses our awareness, these behaviors may play a role in helping scientists discover and characterize the brain activity underlying consciousness itself. As Koch's longtime collaborator Francis Crick notes in the book's foreword, consciousness is the major unsolved problem in biology.

Roberts & Company was formed in 2001 to publish books in biology, biochemistry, and neuroscience—its founders include Caltech's Beadle Professor of Biology, Emeritus, **John Abelson**, and Caltech alum (BS 1960 and PhD 1968), former biology professor and chairman, and current visiting associate in biology **Leroy Hood**. Nobel Laureate Sir Francis Crick is currently Kieckhefer Distinguished Research Professor at the Salk Institute for Biological Studies, where he served as president 1994–95.

Truth and fiction in film

Does it devalue history if Hollywood takes artistic liberty in presenting biographies or docudramas? Professor of History Robert Rosenstone will discuss the issue in an upcoming Watson Lecture, "Inventing Historical Truth on the Silver Screen," on Wednesday, March 3, at 8 p.m. in Beckman Auditorium.

When dramatic historical films become controversial—such as the movie *JFK* or the recently canceled television film on Ronald Reagan—they are often charged with being worthless because they fictionalize the past. But after working on films for two of his own books, and researching the topic for 15 years, Rosenstone argues that it is precisely by inventing a past that such films communicate valuable information about our history. His talk will be illustrated with clips from historical films.

No tickets or reservations are required; first-come, first-served seating will be available at 7:30 p.m. For more information, contact Public Events at 1 (888) 2CALTECH, (626) 395-4652, or events@caltech.edu, or visit www.events.caltech.edu. Individuals with a disability can call 395-4688 (voice) or 395-3700 (TDD). All Watson Lectures will be available online at Caltech's Streaming Theater, <http://today.caltech.edu/theater>.

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A real woman speaks

Award-winning playwright and screenwriter Josefina Lopez will discuss the deep divide between women as portrayed in the media and women as they really are, in the next Voices of Vision Series program. "Real Women and Other Unseen Images in Hollywood" will take place Tuesday, March 2, in Beckman Auditorium. Lopez's film, *Real Women Have Curves*, will screen at 6:30 p.m., and her talk will begin at 8 p.m.

Lopez's experiences growing up in East Los Angeles and as a sewing-factory worker inspired her play *Real Women Have Curves*. It premiered in San Francisco in 1990 and was performed numerous times across the country before she and producer George LaVoo converted it into a film script. In 2002 the screenplay received the Humanitas Award, and the film received the Dramatic Audience Award and a Special Acting Award at the Sundance Film Festival.

Lopez, who credits her creative inspiration to the vibrant and diverse culture in which she grew up, wrote her first play at age 17, the Emmy Award-winning *Simply Maria, or the American Dream*. After graduating from Columbia College in 1993, she earned an MFA in screenwriting at UCLA's Film and Television School. She teaches writing and digital filmmaking to Latino youth at CASA 0101, an art space she founded in Boyle Heights.

For more information, contact Public Events at 1 (888) 2CALTECH, (626) 395-4652, or events@caltech.edu, or visit www.events.caltech.edu. Individuals with a disability can call 395-4688 (voice) or 395-3700 (TDD). The series is cosponsored by the Caltech Employees Federal Credit Union and the San Gabriel Valley Newsgroup.

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member. "It has to go down a hill, across a sand trap, a ditch, a cow guard, a straight-away, over a washboard stretch of road, go around boulders, and dodge a moving car."

Van Gogh, who began working on this project in February of last year, says that teams of students, as well as many volunteers from Caltech, JPL, and the Northrop Grumman Corporation, do all the work themselves.

"The students are learning how to integrate a really complex system—not just work on one part of it—and getting it to all work together," van Gogh says. They balance their time in the garage with related electrical and mechanical engineering courses and computer science classes.

Several hundred thousands of dollars have already gone into Bob. This doesn't take into account the brainpower, provided courtesy of Caltech professors and staffers, JPL scientists, and other interested researchers, or the innumerable hours of labor, provided mainly by some 80 Caltech undergrads.

The automobile appraisers at Kelley Blue Book would probably be flummoxed by Bob, which was lifted some three inches for greater clearance and sports Kevlar-belted tires. The interior of the white '96 Chevrolet Tahoe SUV has been ripped out—who needs a driver's seat if there's no driver? The extra space made way for a computer brain, eight IBM computers, a tangle of wires, a generator, and various motors to control the gas, brakes, and steering.

The SUV's exterior is clad in a roll-cage structure that supports an array of sensors that allow Bob to "see." Two emit laser beams up to 40 meters in front of the SUV, creating terrain maps that detect obstacles. The images that two pairs of digital cameras capture are output to software that tells the computer brain the proximity of objects around the vehicle. Bob will also use satellite maps of the desert that reveal the relative position of hills, streams, and other geographic features.

"The ability to interpret what's in the environment: that's a very humanlike quality," Murray says. "The DARPA Grand Challenge is pushing us to get machines to do things that humans can do."

Bob is also equipped with an inertial measurement unit, three accelerometers, three gyroscopes, a magnetometer, and a Global Positioning System antenna. The factory 30-gallon fuel tank will be augmented by a 15-gallon reservoir, which will give Bob a 450-mile range, van Gogh says.

The sensors act like advisors, making suggestions and constantly feeding threads of information to the decision-making software, called the arbiter. The arbiter, in turn, uses the information from each of these threads and "decides" on the best course of action.

To win, or come close to victory, Bob must haul its three-ton body an average of 21 miles per hour across difficult terrain. In the world of autonomous vehicles, this velocity is lightning fast.

An advantage that Team Caltech has over the other teams is its proximity to the desolate desert region where the contest will be held. Scanning a map on his computer, van Gogh traces lines that represent dusty, one-lane roads. A volunteer surveyed some of these trails, he says, to get a feel for what challenges Bob may face, but more work is needed.

"We're looking for volunteers from the Caltech community to drive a truck outfitted with GPS along these roads. This information will be fed to Bob," van Gogh says.

If Team Caltech wins, the prize money will be deposited in a Caltech undergraduate student fund. If no team wins, Murray predicts that the team will enter a future grand challenge with a superior vehicle. More details about this venture are available on Team Caltech's website, located at <http://team.caltech.edu/>.

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February 23–29, 2004

M T W T F S S

Monday, February 23

Geological and Planetary Sciences Seminar

155 Arms, Robert Sharp Lecture Hall, 2 p.m.—“Io: A New View of Its Interior, Redox Evolution and Tectonics, Plus Speculations on the Hadean Earth,” William McKinnon, professor of earth and planetary sciences, Washington University in St. Louis.

Inorganic-Electrochemistry Seminar

153 Noyes, Sturdivant Lecture Hall, 2 p.m.—Topic to be announced. Dr. Brian L. Goodall, Rohm and Haas Company.

Bioengineering Seminar

142 Keck, 4 p.m.—“In Vivo Dynamics of Muscle Function: Modulation in Relation to Functional Requirements,” Professor Andrew Biewener, Lyman Professor of Biology, Harvard.

High Energy Physics Seminar

469 Lauritsen, 4 p.m.—Topic to be announced. Sean Fleming, department of physics, Carnegie Mellon. Information: www.theory.caltech.edu/people/helen/seminar1.html.

Tuesday, February 24

Beckman Institute Seminar Series

Beckman Institute auditorium, 10:30 a.m.—“First Principles Structure and Function Prediction for G-Protein Coupled Receptors,” Nagarajan Vaidehi, director of biomolecular simulations, Materials and Process Simulation Center, Beckman Institute. Refreshments, 10 a.m. Information: 395-2791 or www.its.caltech.edu/~bi/seminars.html.

Institute for Quantum Information Seminar

74 Jorgensen, 3 p.m.—“Quantum Information Processing with Trapped Ca+ Ions,” Professor Rainer Blatt, University of Innsbruck. Information: www.iqi.caltech.edu/seminar_abstracts.html#blatt04.

Mechanical Engineering Seminar

206 Thomas, 3 p.m.—“On Finitely Strained Magnetorheological Elastomers,” Professor Nicolas Triantafyllidis, aerospace engineering, University of Michigan. 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.—Topic to be announced. Professor Chris Churchill, department of astronomy, New Mexico State University. Refreshments, 3:30 p.m.

Chemical Physics Seminar

147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Molecular Pattern Formation in Cell Membranes: Watching Molecules Come to Life,” Professor Jay Groves, department of chemistry, UC Berkeley.

General Biology Seminar

119 Kerckhoff, 4 p.m.—“Sync: The Emerging Science of Spontaneous Order,” Professor Steven Strogatz, department of theoretical and applied mechanics, Cornell University.

Wednesday, February 25

Mathematical Physics Seminar

351 Sloan, noon—“Linear Response Theory for Random Systems: The Kubo Formula for the Conductivity Tensor,” Professor Abel Klein, department of mathematics, UC Irvine. Information: www.math.caltech.edu/events/mathphys.html.

Bristol Myers Squibb Lecture in Organic Chemistry

153 Noyes, Sturdivant Lecture Hall, 3 p.m.—“The Process Development of a Crystallization Driven Dynamic Resolution: Application to the Development of BMS-275291,” Dr. Robert Discordia, Bristol Myers Squibb. Refreshments.

Applied Physics Special Seminar

125 Steele, 4 p.m.—“Creating Plasma Waves with a Rapidly Expanding, Laser-Produced Plasma,” Stephen Vincena, department of physics and astronomy, UCLA.

Astronomy Colloquium

155 Arms, Robert Sharp Lecture Hall, 4 p.m.—Topic to be announced. Professor Matias Zaldarriaga, department of physics, Harvard. Information: [www.astro.caltech.edu/~gma/colloquia.html](http://astro.caltech.edu/~gma/colloquia.html).

Bristol Myers Squibb Lecture in Organic Chemistry

153 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Making Natural Products by Fluorous Mixture Synthesis,” Professor Dennis Curran, department of chemistry, University of Pittsburgh. Refreshments.

Materials Research Lecture

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Directed Colloidal Assembly of 3-D Periodic Structures,” Jennifer Lewis, University of Illinois. Refreshments, 113 Spalding Lab, 3:45 p.m. Information: www.matsci.caltech.edu/seminars.html.

Leakey Speaker Series on Human Origins

Beckman Auditorium, 8 p.m.—“The Adaptable Hand-Axe and Human Origins,” Richard Potts, director of the Smithsonian’s Human Origins Program at the National Museum of Natural History in Washington, D.C. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Thursday, February 26

Empirics Seminar Series

25 Baxter, noon—Topic to be announced. Tasos Kalandrakis, associate professor of political science, Yale University and University of Rochester. Refreshments.

Quick Review of HUMSS Resources

Sherman Fairchild Library, multimedia conference room, 2 to 3:30 p.m.—Review the content and use of the library’s subscription databases most useful for the humanities and social sciences. The main emphasis will be on Web of Science, MLA, and FirstSearch for locating and verifying books and journal-article citations. We will talk about how to identify and access full-text e-journals, including JSTOR. Information: <http://library.caltech.edu/learning/default.htm>.

Chemical Engineering Series

106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Membrane-Based Gas Separations: Opportunities and Challenges,” Professor William J. Koros, Goizueta Chair, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology. Refreshments, 113 Spalding Lab, 3:30 p.m.

Physics Research Colloquium

201 East Bridge, 4 p.m.—“Out of Gas: The End of the Age of Oil,” David Goodstein, vice provost, professor of physics and applied physics, and Gilloon Distinguished Teaching and Service Professor, Caltech. Refreshments, 114 East Bridge, 3:45 p.m.

Social Cognition/Neuroscience Series

25 Baxter, 4 p.m.—Topic to be announced. Paul Glimcher, associate professor of neural science and psychology, New York University. Refreshments.

Friday, February 27

High Energy Theory Seminar

469 Lauritsen, 11 a.m.—Topic to be announced. Mohammed Sheikh-Jabbari, department of physics, Stanford. Information: www.theory.caltech.edu/people/seminar/schedule.html.

Institute for Quantum Information Seminar

74 Jorgensen, 1 p.m.—“Quantum and Classical Query Complexities of Local Search are Polynomially Related,” Miklos Santha, University of Paris. Information: www.iqi.caltech.edu/seminar_abstracts.html#santha04.

Organic Chemistry Seminar

Beckman Institute auditorium, 2 p.m.—“New Methodology in Organic Synthesis Using Vicinal Tricarbonyls and Cyano Analogs,” Professor Harry Wasserman, department of chemistry, Yale University.

Fluid Mechanics Seminar

101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—Topic to be announced. Eric Cummings, Microfluidics and Microsystems Engineering, Sandia National Laboratories. www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html.

Inorganic-Organometallics Seminar

151 Crellin, 4 p.m.—Topic to be announced. David Michalak, graduate student in chemistry, Caltech.

Kellogg Seminar

Lauritsen Library, 4 p.m.—Topic to be announced. Aneesh Manohar, professor of physics, UC San Diego.

William Bennett Munro Memorial Seminar

25 Baxter, 4 p.m.—“The Morphogenetic Field and the Epigenetic Landscape,” Sabine Brauckmann, graduate student, Konrad Lorenz Institute, Altenberg, Austria. Refreshments.

Saturday, February 28

Caltech/MIT Enterprise Forum

Baxter Lecture Hall, 8 to 11 a.m.—“Opportunities in Homeland Security,” featuring Congresswoman Jane Harman, representative from the 36th Congressional District. Registration: 395-3916 or entfor@caltech.edu. Information: www.entforum.caltech.edu.

March 1–7, 2004

M T W T F S S

Monday, March 1

General Biology Seminar
119 Kerckhoff, 4 p.m.—“Gene Expression Profiling in the Brain: Exploring the Relationship between Genes, Environment, and Behavior Using the Honey-bee,” Charles Whitfield, department of entomology, University of Illinois.

Geological and Planetary Sciences Seminar
155 Arms, Robert Sharp Lecture Hall, 4 p.m.—“Geostrophic Turbulence and the Poleward Heat Flux in the Atmosphere,” Isaac Held, senior research scientist, Geophysical Fluid Dynamics Laboratory, Princeton University.

High Energy Physics Seminar
469 Lauritsen, 4 p.m.—“Constraining the Unitarity Triangle with Radiative B Decays,” Stefan Bosch, laboratory for elementary-particle physics, Cornell. Information: www.theory.caltech.edu/people/helen/seminar1.html.

Inorganic-Electrochemistry Seminar
147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Nanomagnetic Molecular Materials Based on a Building Block Approach: Synthesis and Characterization of High Spin Clusters, Chains, and Chains of Clusters,” Professor Kim Dunbar, department of chemistry, Texas A&M University.

Applied and Computational Mathematics Colloquium
101 Guggenheim Lab, Lees-Kubota Lecture Hall, 4:15 p.m.—“The von Kármán Plate Equations: A Good Model or a Bad Model for Thin Elastic Bodies,” Professor Stefan Müller, Max Planck Institute for Mathematics in the Sciences, Germany. Refreshments, 3:45 p.m. Information: www.acm.caltech.edu/colloq.shtml.

Tuesday, March 2

Institute for Quantum Information Seminar
74 Jorgensen, 3 p.m.—“Quantum Correlations for Communication Tasks,” Norbert Lütkenhaus, University of Erlangen-Nuremberg. Information: www.iqi.caltech.edu/seminar_abstracts.html#luetkenhaus04.

Mechanical Engineering Seminar
206 Thomas, 3 p.m.—“Application of Hierarchical Methods to Micromechanical Modeling of Heterogeneous Fluids and Solids,” Gregory Rodin, professor of aerospace engineering and engineering mechanics, University of Texas at Austin. Refreshments, 210 Thomas, 2:45 p.m.

Carnegie Observatories Colloquium Series
William T. Golden Auditorium, 813 Santa Barbara Street, 3:30 p.m.—Topic to be announced. Rachel Somerville, Space Telescope Science Institute. Refreshments.

Ulric B. and Evelyn L. Bray Seminar
25 Baxter, 4 p.m.—Topic to be announced. Professor Xiaohong Chen, department of economics, New York University. Refreshments.

Chemical Physics Seminar
147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Laser Spectroscopic Studies of Free Radical Interactions,” Professor Paul Dagdigian, Chambers Professor of Chemistry, and chair, department of chemistry, Johns Hopkins University.

General Biology Seminar
119 Kerckhoff, 4 p.m.—Topic to be announced. Professor Karla Kirkegaard, department of microbiology and immunology, Stanford University School of Medicine.

Wednesday, March 3

Mathematical Physics Seminar
351 Sloan, noon—“Heat Kernel Estimates for Second-Order Elliptic Operators with Lower-Order Terms,” Vitali Liskevich, professor of mathematics, University of Bristol. Information: www.math.caltech.edu/events/mathphys.html.

Applied Physics Special Seminar
125 Steele, 4 p.m.— “Current-Driven Instabilities of Poynting Flux-Dominated Jets,” Masanori Nakamura, JPL.

Astronomy Colloquium
155 Arms, Robert Sharp Lecture Hall, 4 p.m.—Topic to be announced. Yuri Levin, Canadian Institute for Theoretical Astrophysics. Information: www.astro.caltech.edu/~gma/colloquia.html.

Empirics Seminar Series
25 Baxter, 4 p.m.—“Share Price Changes and the Arrival of Limited Liability in California,” Mark Weinstein, associate professor of business economics and finance, Marshall School, USC; and associate professor of business and law, USC Law School. Refreshments.

Environmental Science and Engineering Seminar
142 Keck, 4 p.m.—“Arsenic and Olde Lakes: Coupling of Fe, S and As Cycles in a Mining-Impacted Freshwater System,” Frank Rosenzweig, associate professor of biological sciences, University of Montana. Refreshments, Keck Labs lobby, 3:40 p.m.

Organic Chemistry Seminar
147 Noyes, Sturdivant Lecture Hall, 4 p.m.—“Nucleophilic Addition to Imines and Pyridinium Salts: Efficient Synthesis of Chiral Amines,” Professor Andre Charette, department of chemistry, University of Montreal.

Earnest C. Watson Lecture Series
Beckman Auditorium, 8 p.m.—“Inventing Historical Truth on the Silver Screen,” Robert Rosenstone, professor of history, Caltech. Admission is free. Information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Thursday, March 4

Social Cognition/Neuroscience Series
25 Baxter, noon—“Neurophysiology of Reward, Predictions, and Uncertainty: A Common Basis for Animal Conditioning, Game Theory, and Microeconomics?,” Wolfram Schultz, MD, Wellcome Principal Research Fellow and professor of neuroscience, department of anatomy, University of Cambridge. Refreshments.

Business Research Using Lexis/Nexis Academic Universe
Sherman Fairchild Library, multimedia conference room, 2 p.m.—This class will focus on using Lexis/Nexis Academic Universe to find information on companies and industries. Other databases and Web resources that can enhance searches for business information will also be demonstrated. Inquiries: <http://library.caltech.edu/learning/default.htm>.

Physics Research Colloquium
201 East Bridge, 4 p.m.—Topic to be announced. Professor Catherine Kallin, department of physics and astronomy, McMaster University, Hamilton, Ontario. Refreshments, 114 East Bridge, 3:45 p.m.

Robert W. Vaughan Lectureship in Chemical Engineering
106 Spalding Lab, Hartley Memorial Seminar Room, 4 p.m.—“Nanoparticles in the Atmosphere: Formation, Properties, and Control Strategies,” Professor Spyros Pandis, Elias Professor of Chemical Engineering and Engineering and Public Policy, chemical engineering department, envirochemical engineering, Carnegie Mellon University. Refreshments, 113 Spalding Lab, 3:30 p.m.

Friday, March 5

High Energy Theory Seminar
469 Lauritsen, 11 a.m.—“A World Without Entropy Bounds?,” Professor Donald Marolf, department of physics, UC Santa Barbara. Information: www.theory.caltech.edu/people/seminar/schedule.html.

Condensed Matter Physics Seminar
107 Downs Lab, noon—Topic to be announced. Professor Humphrey Maris, department of physics, Brown University.

Fluid Mechanics Seminar
101 Guggenheim Lab, Lees-Kubota Lecture Hall, 3 p.m.—“Climate and Dynamics in the Southern Ocean: A Lagrangian Perspective,” Sarah Gille, assistant professor, Scripps Institution of Oceanography, UC San Diego. Information: www.galcit.caltech.edu/Seminars/Fluids/CurrentFluids/index.html.

History and Philosophy of Science Seminar
25 Baxter, 4 p.m.—“From Pappus and dal Monte to Galileo and Newton,” Nico Bertoloni Meli, professor of history and philosophy of science, Indiana University, Bloomington. Refreshments.

Inorganic-Organometallics Seminar
151 Crellin, 4 p.m.—“Ruthenium: Out of Africa . . . Into Grubbs and Parasites,” Professor John Moss, visiting associate in chemistry, Caltech.

Kellogg Seminar
Lauritsen Library, 4 p.m.—Topic to be announced. John Arrington, Argonne National Laboratory.

CampusEvents

Monday, February 23

Baby Furniture and Household Equipment
Available today by appointment only; call 395-6174. See Wednesday, February 25, for details.

Men’s Basketball
at University of Redlands, 7:30 p.m.

Viennese Waltz Lesson
Winnett lounge, 7:30 p.m.—Learn Viennese waltz with the Caltech Ballroom Dance Club. This is the third of a continuing series of Viennese waltz classes taught by a professional instructor. Fee for students: \$6 per class; others: \$8 per class. No partner is necessary. Refreshments.

Women’s Basketball
vs. University of Redlands, 7:30 p.m.

Tuesday, February 24

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.

Public Art Discussion: Lita Albuquerque and Michael McMillen
Beckman Institute auditorium, 4 to 6 p.m.—Two Southland-based artists will discuss the ephemeral works they will create on campus as part of Caltech’s contribution to a citywide festival. The artists view their projects as collaborations with Caltech students, faculty, and staff, and look forward to feedback in developing art for and about the Institute. This event is open to the campus community only.

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

Jazz Night
Center for Student Services, 7 p.m.—Join us for cobbler and the sweet sounds of jazz in celebration of Black History month. Reservations: cmesa@studaff.caltech.edu.

Wednesday, February 25

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.

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.

Salsa Dance Class
Winnett lounge, 7 p.m.—Learn the fundamentals of Cuban-style salsa and rueda from a professional instructor. The beginners’ session begins at 7 p.m. The intermediate/advanced lesson starts at 8:30. The first class took place January 28. Fee: \$28 for 5 classes; \$7 per class.

Women’s Basketball
at University of La Verne, 7:30 p.m.

Thursday, February 26

Techniques for Identifying and Correcting Mistakes in Written Communication
Brown Gym classroom, 8:30 a.m. to 4 p.m.—This one-day program is designed for those whose job requires them to identify and correct errors in their writing or the writing of others. Registration: 395-8055 or diane.williams@caltech.edu. Information: http://cit.hr.caltech.edu/Education/super&non_super/correcting_mistakes.htm.

TheatreworksUSA: The Mystery of King Tut
Beckman Auditorium, 10 a.m. and noon—Theatreworks’ musical tells the stories of Tutankhamen, the “boy king” who ruled Egypt in the 14th century B.C., and Howard Carter, the archaeologist who discovered his tomb in 1922. Tickets: TheatreworksUSA, (800) 497-5007.

Caltech Architectural Tours
Athenaeum, 11 a.m. to 12:30 p.m.—Meet in the entry hall of the Athenaeum. Led by members of the Caltech Architectural Tour Service. Reservations: Susan Lee, 395-6327 or suze@caltech.edu.

Caltech Postdoc Association Brown Bag Lunch Series
Brennan Conference Room, third floor, Center for Student Services, noon—“Working at Liberal Arts Colleges,” Drs. Richard Haskell, department of physics, Harvey Mudd College, and Anita Gould, Occidental College. Bring your lunch. Cookies and drinks will be provided.

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

Mambo Lessons
Winnett lounge, 7:30 to 9 p.m.—Join the Caltech Ballroom Dance Club and learn the mambo, a dance with a spicy Caribbean mix of African rhythm and European moves. Cost: \$1 per class. No experience or partner is necessary. Refreshments.

Men’s Basketball
vs. Pomona-Pitzer, 7:30 p.m.

Friday, February 27

Baseball
at Occidental College, 2:30 p.m.

Caltech Tai Chi Club
See Tuesday, February 24, for details.

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.

David Crosby
Beckman Auditorium, 8 p.m.—Two-time Rock and Roll Hall of Famer David Crosby will perform. Tickets with the original date of February 28 will be honored. Contact Caltech Public Events if you are holding tickets for the 28th and cannot attend on the 27th. Public Events Ticket Office: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD).

Macbeth
Ramo Auditorium, 8 p.m.—Theater Arts at Caltech presents Shakespeare’s tragedy, through March 6. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Caltech Chinese Chess Club
Page House dining room, 9 p.m.—The Chinese Chess Club meets on Friday nights for casual play in the Page House Dining Hall. Information: www.its.caltech.edu/~xiangqi.

Saturday, February 28

Men’s Tennis
at Occidental College, 9:30 a.m.

Women’s Tennis
vs. Occidental College, 9:30 a.m.

Track and Field
Whittier Invitational, at Whittier College, noon.

Beginning Belly-Dancing
Braun Gym, multipurpose room, 12:45 p.m.—Learn basic belly-dance technique with Leela, a popular performer and instructor. No special clothing or shoes are required. Open to all with valid gym membership. Reservations: 395-6763 or Kathy.Kelly@caltech.edu.

Hawaiian Club Hula Lessons
Winnett lounge, 1 p.m.—Learn hula dancing from the Hawaiian Club. The 10 weekly lessons began January 10. Fee: \$5 per class; graduate students and ASCIT members, \$3 per class. Pareos are the recommended attire; purchase one at the class for \$5. Registration: maruchan@its.caltech.edu. Information: www.ugcs.caltech.edu/~lilinoe/hula.html.

Introduction to Self-Defense for Women
Caltech Women’s Center, 1 to 5 p.m.—This workshop provides an introduction to the physical techniques involved in self-defense. Participants learn a variety of hands-on techniques and will have the opportunity to rehearse verbal role-play scenarios. Reservations: 395-3221 or wcenter@studaff.caltech.edu.

Macbeth
Ramo Auditorium, 8 p.m.—See Friday, February 27, for details.

Sunday, February 29

Macbeth
Ramo Auditorium, 2 p.m.— See Friday, February 27, for details.

Coleman Chamber Concert
Beckman Auditorium, 3:30 p.m.—The Cassatt String Quartet, with guest oboist Humbert Lucarelli, will perform works by Mozart, Mendelssohn, Finzi, and Brahms. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Cha-Cha Dance Class
Winnett lounge, 4:30 p.m.—Learn competitive-style cha-cha from one of the top amateur dance couples in the country. Sponsored by the Ballroom Dance Club, this series of classes will be held on Sunday evenings through March 7. All experience levels are welcome. No partner is necessary. Refreshments.

Competitive-Style Waltz Class
Winnett lounge, 5:30 p.m.—Learn international waltz with one of the top amateur dance couples in the country. Sponsored by the Ballroom Dance Club, this series of classes began January 11. All experience levels are welcome. No partner is necessary.

Monday, March 1

Baby Furniture and Household Equipment
Available today by appointment only; call 395-6174. See Wednesday, February 25, for details.

Viennese Waltz Lesson
This is the fourth of a continuing series of Viennese waltz classes. See Monday, February 23, for details.

Tuesday, March 2

Preschool Playgroup
See Tuesday, February 24, for details.

Voices of Vision Series
Beckman Auditorium, 6:30 p.m.—“Real Women and Other Unseen Images in Hollywood,” Josefina Lopez, author of *Real Women Have Curves*. A screening of the film will begin at 6:30 p.m. The talk will begin at 8. Admission is free.

Caltech Tai Chi Club
See Tuesday, February 24, for details.

Wednesday, March 3

Baby Furniture and Household Equipment
See Wednesday, February 25, for details.

Wednesdays in the Park
See Wednesday, February 25, for details.

Shop Safety Training
118 Keith Spalding Building, 3 p.m.—This course is designed for anyone working in shops on campus, including student shops. Training includes the safe handling of tools and equipment, as well as safe working habits. Registration: 395-6727 or safety.training@caltech.edu.

Thursday, March 4

Mambo Lessons
See Thursday, February 26, for details.

Friday, March 5

Track and Field
SCIAC Multi-Dual Meet (Men), at Claremont-Mudd-Scripps, 10 a.m.

Baseball
at Whittier College, 2:30 p.m.

Caltech Tai Chi Club
See Tuesday, February 24, for details.

Caltech Chess Club
See Friday, February 27, for details.

Caltech Glee Clubs Winter Concert: “The Art of Song”
Oneonta Congregational Church, 1515 Garfield Avenue, South Pasadena, 8 p.m.—The program features folk songs and art songs by Vaughan Williams, Mendelssohn, Brahms, Lauridsen, Diemer, Schickele, Conte, and others. Admission is free. Information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Macbeth
Ramo Auditorium, 8 p.m.—See Friday, February 27, for details.

Ballroom Dance Party
Avery dining hall, 9 p.m.—Join the Caltech Ballroom Dance Club for a dance party. The ballroom dance team will perform special ceroc and mambo formations. At 8:30, a brief lesson in ceroc will be taught. No partner or experience is necessary. Refreshments.

Caltech Chinese Chess Club
See Friday, February 27, for details.

Saturday, March 6

Women’s Tennis
vs. Claremont-Mudd-Scripps, 9:30 a.m.

Track and Field
SCIAC Multi-Dual Meet (Women), at Whittier College, 10 a.m.

Baseball
vs. Whittier College, at Pasadena High School, doubleheader, 11 a.m.

Beginning Belly-Dancing
See Saturday, February 28, for details.

Hawaiian Club Hula Lessons
See Saturday, February 28, for details.

Macbeth
Ramo Auditorium, 2 p.m.—See Friday, February 27, for details.

San Jose Taiko
Beckman Auditorium, 8 p.m.—In this performance, the propulsive sounds of Japanese taiko drums are fused with Latin, Brazilian, and African rhythms. Tickets and information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Sunday, March 7

Cha-Cha Dance Class
See Sunday, February 29, for details.

Competitive-Style Waltz Class
See Sunday, February 29, for details.

Caltech-Occidental Symphony Orchestra
Ramo Auditorium, 7:30 p.m.—Tony Lee, a Caltech pianist who is one of this year’s Concerto Competition winners, will play Rachmaninoff’s Third Piano Concerto with the orchestra, which performs under the direction of Allen Robert Gross. Also on the program are Berlioz’s Overture to *Benvenuto Cellini* and Bartók’s *Dance Suite*. Information: 395-4652, 1 (888) 2CALTECH, or events@caltech.edu. Individuals with a disability: 395-4688 (voice) or 395-3700 (TDD). Visit Public Events at www.events.caltech.edu.

Enrollment, from page 1

and administrative staff were also part of the design phase, with their inputs considered and incorporated when possible. "Hopefully this system will make the registration process easier for everyone," he says.

"This has definitely been a team effort," Goodstein says, adding with a laugh, "We've spent hours and hours in meetings—I hope there's a payoff for students." Noting that students often just slide registration packets under advisors' doors at odd hours, she also hopes the new system "fosters more one-on-one dialogue," with advisors receiving electronic notices and contacting their advisees for face time.

According to King, having students enter their own schedule information will save processing time and increase accuracy, as her staff currently inputs approximately 4,000 lines of data for undergraduates and 3,200 lines for graduate students, working from paper forms. She forecasts that the usual handful of students who report data-entry errors each term will no longer need to.

REGIS will allow online course browsing and selection and will include enrollment verification checks, with appropriate alerts on student status, schedule conflicts, course underloading and overloading, duplicate enrollment, and space restrictions. Faculty advisors will receive an e-mail alert when a student's schedule is ready for approval, and can then review and approve the schedule online.

The web enrollment period will replace the existing two-week mail registration period, beginning at 8 a.m. Thursday, February 26 (the day after Drop Day), and continuing until 5 p.m. Wednesday, March 10. During enrollment, students may add and drop courses freely, and advisors will review and approve schedules to complete the student's enrollment. By the end of enrollment, all students must have an approved schedule in the system.

"I thought it was easy to use," says undergraduate Alex Sheive '05, who helped test the application, "and will greatly improve the entire enrollment procedure by doing away with the tedious and archaic act of requiring advisors to sign a piece of paper."

A Caltech e-mail account is needed to utilize REGIS. More details, including login information and FAQs, are available at www.registrar.caltech.edu. The Registrar's Office can be reached at ext. 8866 or regis@caltech.edu.

With enrollment's move into cyberspace, the next step is to begin transferring other manual functions onto the web, such as transcripts and entering of grades. King says she has gained a lot

from working with the REGIS implementation team, and is eagerly awaiting the next project.

"What I've learned will help me to better serve the Caltech community," she says. "Now, we are all looking forward to the next phase with the same excitement and anticipation. The difference is we are far more experienced, and it will only get better."

Beth Moore is associate director of the ATC's CARE (Caltech Administrative Resources and Education) office, which provides comprehensive administrative systems support to the campus community.

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Diversity, from page 1

Student Association, WEST (Women in Science, Engineering, and Technology), and a student SURF project.

Faculty, students, postdocs, and staff can submit two- to five-page proposals for a variety of diversity initiatives, which may be campuswide or group-specific, large or small, long-term or a single event. Proposals should include two letters of support by Caltech administrators or faculty, and should

- Clearly address how the new initiative relates to increasing the presence, visibility, or support of underrepresented minority or female students, staff, or faculty on campus.

- Include a method for evaluating the extent to which the initiative achieved its goals (reports will be required from groups or individuals who receive funds).

- Indicate the total cost of the initiative and any expected funding from other sources.

Supported by the James Irvine Foundation and internal Institute resources, the fund will distribute up to \$25,000 in awards each year. Projects are funded for a maximum of one year at a time, but multiyear projects that successfully meet their diversity goals can request renewals.

ACODAMA considers applications on an ongoing quarterly basis during the academic year. For more information on the proposal process, visit <http://diversity.caltech.edu/president.html>. Proposals should be submitted to Miriam Feldblum, special assistant to the president, at mail code 08-31. She can also be reached at feldblum@caltech.edu or ext. 3617.

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Chip, from page 1

- A collection of these chips could form a network of sensors that would allow the military to monitor a sensitive area, eliminating the need for constant human patrolling and monitoring.

In short, says Hajimiri, the technology would be useful for numerous applications, limited only by an entrepreneur's imagination.

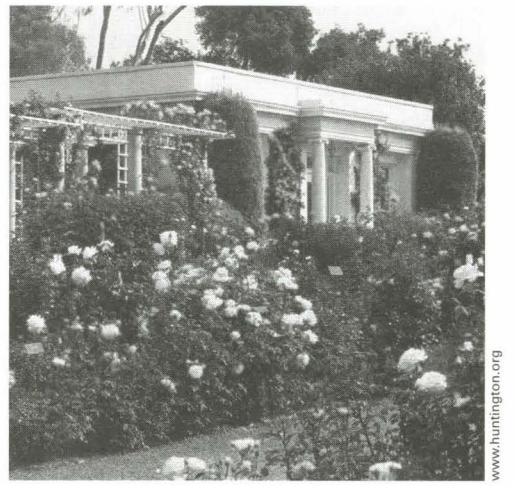
Perhaps the best thing of all is that these chips are cheap to manufacture, thanks to the use of silicon as the base material. "Traditional radar costs a couple of million dollars," says Hajimiri. "It's big and bulky, and has thousands of components. This integration in silicon allows us to make it smaller, cheaper, and much more widespread."

"The key is that we can integrate the whole system into one chip that can contain the entire high-frequency analog and high-speed signal processing at a low cost," says Hajimiri. "It's less powerful than the conventional radar used for aviation, but, since we've put it on a single, inexpensive chip, we can have a large number of them, so they can be ubiquitous."

Hajimiri's radar chip, with both a transmitter and receiver (more accurately, a phased-array transceiver) works much like a conventional array of antennas. But unlike conventional radar, which involves the mechanical movement of hardware, this chip uses an electrical beam that can steer the signal in a given direction in space without any mechanical movement.

For communications systems, this ability to steer a beam will provide a clear signal and will clear up the airwaves. Wireless phones, for example, radiate their signal omnidirectionally, which contributes to interference and clutter in the airwaves.

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www.huntington.org

Enjoy art at a discount

Caltech and JPL personnel can receive a special discount at the Huntington Library, Art Collections, and Botanical Gardens on Saturday and Sunday, February 28 and 29. Employees with photo ID and up to three guests will receive half-price adult admission and a 10 percent discount on all bookstore purchases.

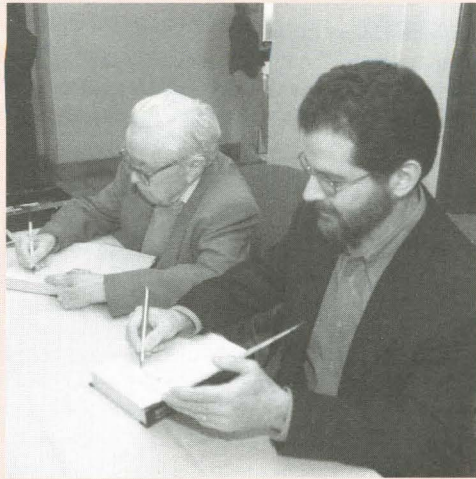
Current exhibitions at the Huntington include "The Beauty of Life: William Morris and the Art of Design," through April 4, and "The Noblest Conquest: The Sport of the Horse in Europe and America from the Edward Lasker Collection," continuing until May 16.

"The Beauty of Life" showcases more than 200 works related to British artisan, writer, and socialist William Morris and his firm, Morris & Company, and is highlighted by a 15-foot, 10-panel stained-glass window from the demolished Unitarian Church in Lancashire, England, designed by Morris's associate Edward Burne-Jones. The show celebrates Morris's mastery and his vast influence on 19th-century design, and also pays tribute to his writings and political activities.

An exhibition of rare books, prints, periodicals, and artifacts traces the history of European and American horse racing and breeding in "The Noblest Conquest." The show is drawn primarily from the Huntington's Edward Lasker Collection, an outstanding library of equestrian material given to the institution by Lasker's wife in 1999.

Weekend hours at the Huntington are 10:30 a.m. to 4:30 p.m.; regular admission is \$12.50 for adults, \$10 for seniors, \$8.50 for students ages 12 to 18, \$5 for youth ages 5 to 11, and free for members and for children under 5. For more information, call (626) 405-2100 or visit www.huntington.org.

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Lewis honored

Morgan Professor of Biology, Emeritus, and Nobel Laureate Ed Lewis, left, and former Caltech professor Howard Lipshitz, editor of Lewis's biography, sign copies of the book at the recent Edward B. Lewis Symposium.

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