



After Nine Years, Koonin To Step Down as Provost

By MATTHEW WALKER

President Baltimore announced to the campus in a Friday afternoon e-mail that Professor Steven Koonin would be stepping down as Caltech's seventh Provost after nine years on the job. Dr. Koonin will also be taking a leave of absence from his professorship to pursue a career in industry.

The Brooklyn native first came to Caltech as a member of the class of '72. He successfully completed his degree in physics and moved on to MIT where he received his PhD in physics in 1975. Koonin then returned to Caltech to join the faculty. After only a year on the job, he was awarded the Caltech Associated Students Teaching Award. He also received the Humboldt Senior Scientist Award in 1985 and the E.O. Lawrence Award in Physics in 1999 from the Department of Energy.

In 1981, Koonin became a full professor of physics. He served as the Chairman of the Faculty from 1989 to 1991 before he began his stint as vice president and provost on February 20, 1995. At nearly nine years, Koonin is one of Caltech's longest serving provosts. When Koonin accepted the posi-

tion of provost, he said, "Caltech is about extraordinary people doing extraordinary things. The opportunity to foster that process is one of the main attractions of the job. The biggest challenge facing Caltech is to continue to have exceptional effects on science, technology and education, as we have in the past."

During his nine years as provost, Koonin has had a chance to tackle his challenge and enjoy fostering Caltech's extraordinary work. Once asked about what he hoped his legacy as provost would be, he responded, "I think having helped to hire good faculty and energizing and facilitating life for faculty and others on campus would certainly be one of the prime things." At the same time, the "identification and hiring and nurturing of new faculty" has been one of the joys he's had in the job. Since becoming provost, Koonin has hired 30% of the current faculty, by his own estimate.

Undertaking large projects has been another of his delights. Among his favorites was the Biological Sciences Initiative that he spearheaded, beginning in 1998. This initiative was a three year effort that

Continued on Page 2, Column 1



Professor Steve Koonin, Caltech's seventh Provost, will take a leave of absence starting February 2 to pursue a career in industry.

Liberal Talk Radio Host Carves Niche Despite Heavy Conservative Influence

By KEVIN BARTZ

Detractors call him talk radio's version of affirmative action. Supporters call him a nun in a whorehouse. Local 50,000-watt powerhouse KFI-AM 640 has among its ranks a traitor—a leftist amidst a field that's been chock full of righties ever since the Federal Communications Commission canned the Fairness Doctrine in 1987.

He's Johnny Wendell, television actor, bar bouncer, L.A. Weekly crime-beat writer, rock 'n' roll aficionado. And now, he's KFI's self-proclaimed "master blaster of disaster, the raw power, the full flower"—radio's top-rated talker Sunday evenings from five to seven.

"My goal is to not get complacent, to be as much of a contrarian as possible," said Wendell. "It's funny that it's usually those hosts obeisant to the Republican party that talk about being independent. Don't you understand you can't be a satirist and suck up at the same time?"

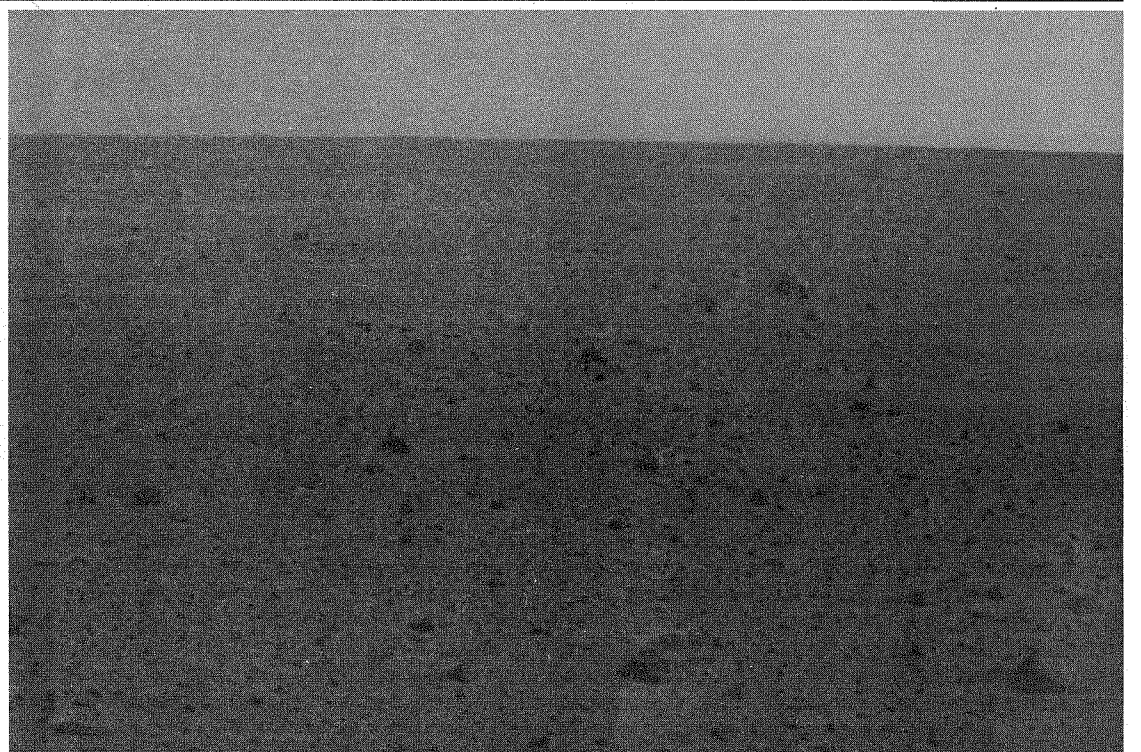
Wendell, for his part, has spent his radio career running against the grain. Modern talk radio, as he puts

it, "is just one GOP butt-kisser after another. It just can't be taken seriously."

Indeed, the obstacles are many for a progressive talker. A recent Pew poll pegged talk's audience at nearly 70% conservative and at Clear Channel-owned KFI, every weekday host is a Republican. Wendell still remembers one of his first callers, an old man dribbling "Commie, commie—you commie!" who said nothing else.

In a lineup dominated by the likes of Limbaugh and Laura, Wendell has his work cut out for him. "It's about security. These people want to be reassured that they're right," explained Wendell. "Their politics are based so much on paranoia and fear that there's no equanimity at all." In part to break such molds, Wendell makes a point of emphasizing his disagreement—even when his is the less popular position.

Take Sultaana Freeman, the Florida Muslim who refused to remove her veil for a driver's license photo. According to a Gallup poll, 90% of Americans sided with the court's decision to force Freeman to bare her face, but Wendell went



This image of the Mars landscape from the lander Spirit is one of the first color images ever transmitted from the surface of the red planet.

JPL, NASA Triumphant After Spirit Successfully Makes Planetfall on Mars

By GUY WEBSTER and FRANKLIN O'DONNELL

January 4

A traveling robotic geologist from NASA has landed on Mars and returned stunning images of the area around its landing site in Gusev Crater.

Mars Exploration Rover Spirit successfully sent a radio signal after the spacecraft had bounced and rolled for several minutes following its initial impact at 11:35 p.m. EST (8:35 p.m. Pacific Standard Time) on January 3.

"This is a big night for NASA," said NASA Administrator Sean O'Keefe. "We're back. I am very, very proud of this team and we're on Mars."

Members of the mission's flight team at NASA's Jet Propulsion Laboratory, Pasadena, Calif., cheered and clapped when they

learned that NASA's Deep Space Network had received a post-landing signal from Spirit. The cheering resumed about three hours later when the rover transmitted its first images to Earth, relaying them through NASA's Mars Odyssey orbiter.

"We've got many steps to go before this mission is over, but we've retired a lot of risk with this landing," said JPL's Pete Theisinger, project manager for the Mars Exploration Rover Project.

Deputy project manager for the rovers, JPL's Richard Cook, said, "We're certainly looking forward to Opportunity landing three weeks from now." Opportunity is Spirit's

twin rover, headed for the opposite side of Mars.

Dr. Charles Elachi, JPL director, said, "To achieve this mission, we have assembled the best team of young women and men this country can put together. Essential work was done by other NASA centers and by our industrial and academic partners."

Spirit stopped rolling with its base petal down, though that favorable position could change as airbags deflate, said JPL's Rob Manning, development manager for the rover's descent through Mars' atmosphere and landing on the surface.

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Audience Enjoys Musica Antiqua Koeln Concert

By LEA HILDEBRANDT

On Sunday, November 23, 2003, Musica Antiqua Koeln initiated this year's Coleman Chamber Music concert series. The concert, starting at 3.30pm was held in Caltech's sold-out Beckman Auditorium.

The program included Antonino Caldara's "Sinfonia Concertata in C Major," one of the first works to be given such a title and a hybrid form that draws from the sinfonia and sonata as well as the concerto.

This piece was followed by Tomaso Albinoni's Sinfonia in C Major and his Sinfonia in G minor, published by his biographer Remo Giazotti and allegedly reconstructed from a fragment of a lost trio sonata by Albinoni found in a Dresden library in the 1940s.

Next was Antonio Vivaldi's "In furore guistissimae irae," which has an operatic style and links two da capo arias of contrasting tempo with a short plaintive recitative.

After the intermission, the orchestra, accompanied Soprano Nancy Argenta and Contralto Nathalie Stutzmann in Giovanni Battista Pergolesi's "Stabat Mater." This piece, composed by Pergolesi in his final days, has been used in many movies including "Amadeus," where it accompanied Salieri's recollections of attending church as a child.

The audience, enjoying a great selection of music and exemplary performance, thanked the artists with plentiful applause. One member of the audience remarked after the concert that "this was a memorable afternoon." I am sure that many more members of the audience agreed.

Unfortunately, this concert, especially the pieces by Vivaldi (for Soprano and orchestra) and the piece by Pergolesi (for Soprano, Alto and orchestra) was also a reminder that Beckman Auditorium is a lecture hall—not a concert hall.

The wonderful sounds produced by the artists could not resound before they were absorbed in the walls of the auditorium. While the concert was certainly enjoyable, the skill of the musicians could not be fully appreciated because of the acoustical limitations of Beckman auditorium.

Musica Antiqua Koeln was founded as an ensemble in 1973 by Reinhard Goebel and was expanded ten years later to form a Baroque orchestra. The ensemble's international breakthrough came in 1979 with its debut performances at London's Queen Elizabeth Hall and at the Holland Festival.

Since that time, Musica Antiqua Koeln, with Goebel as concertmas-

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Continued on Page 8, Column 1

Koonin's Goals Included Maintaining Academic Quality, Nurturing Faculty

Continued from Page 1, Column 2

raised \$111 million for the biological sciences. The focus of the project became the construction of the Broad Center, designed by James Freed. The initiative also procured funds for eight new professorships, as well as a variety of

fellowships and research programs. Koonin also enjoyed the roll he played in the capital campaign that kicked off last year to raise \$1.4 billion to upgrade campus facilities. He found a challenge in "bridging the transition between two fine presidents," when President Balti-

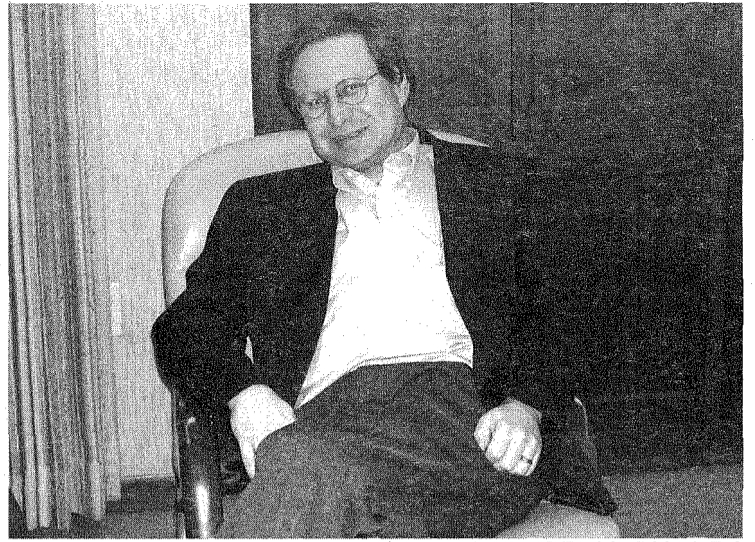
more succeeded Thomas Everhart in 1997. Implementation of the Oracle business systems was another project that the provost enjoyed.

Several of the projects that the provost has worked on are still in progress, but he hopes that they will continue to fruition. One that Koonin helped to get off the ground is the 30 meter telescope. With recently obtained funds, he hopes that construction will be completed in 12 years as planned. He has high hopes for other programs seeded by the Moore foundation, including the brain imaging center and the tectonics observation program.

Having played such a large role in the Institute's academic programs, Koonin has gotten to know "practically all 280 of my faculty colleagues on a very close, first-name basis." One of the things he'll miss is the most is the interaction he has with the faculty. He'll also miss the "overview of science and engineering [being provost] gives you."

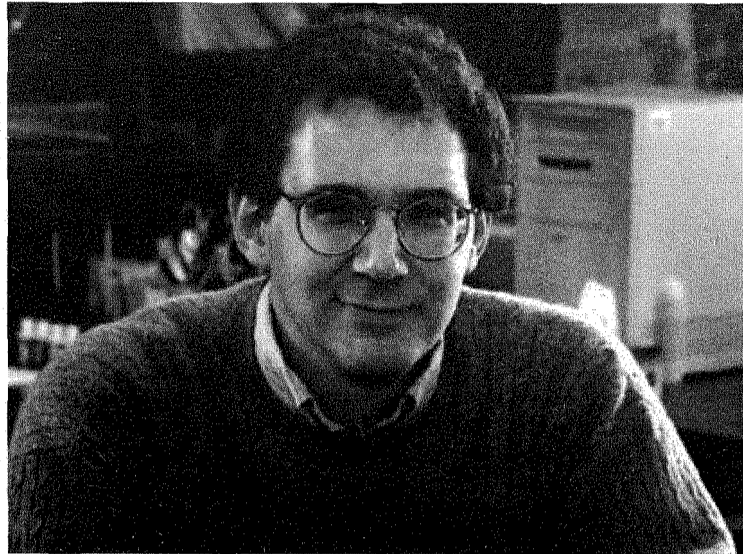
Asked what made him decide to leave the post, Koonin responded, "Nine years is a long time to do these jobs. It's healthy for me and the institution [if I] do something else." With over thirty years at Caltech under his belt, he certainly deserves a break. He took his last major sabbatical 15 years ago; Caltech faculty members traditionally take a break every seven years.

The "provost is central to academic enterprise," according to Koonin. He has worked "hard to maintain the standards of the Institute." The goals of upholding the quality of research and educating the very best students are ones he has reached for and hopes the next provost will sustain.



L. Tran/The California Tech

Provost Koonin will work with Professor Stolper until he steps down February 2 to ensure a smooth transition.



Courtesy of www.gps.caltech.edu

Professor Ed Stolper will serve as Interim Provost while a search committee finds a suitable replacement for Provost Koonin.

A Word From Interim Provost Ed Stolper

Steve Koonin is a close friend; he is an outstanding provost and to have done the job so well for 9 years with such focus and intensity is a remarkable achievement.

Finding a new provost is an important job that will require careful deliberation by the faculty search committee appointed by the president. I see my primary job as acting provost to work to keep the Institute's academic programs — both teaching and research — as strong as they can be while the

search committee does its job.

Over the next few weeks, I will be learning as much as I can from Steve about the job, from the other division chairs about how, even in the short time I will be on the job, I can help them help their divisions achieve their ambitions in teaching and research and to encourage students, staff and faculty with my deeply held conviction that Caltech is and must continue to be a distinctive and special place to learn and work.

Palomar Operator Dies

By ROBERT TINDOL

PALOMAR MOUNTAIN, Calif.-Juan Carrasco, who for years was the night operator of Palomar Observatory's historic 200-inch Hale Telescope, died January 3 after a long illness.

A West Texas native, Carrasco's early history provides little clue to his eventual choice of profession. He dropped out of high school in the ninth grade to get a job working for the Texas Highway Department, ultimately completing his degree by correspondence.

After serving in the U.S. Army during the Korean War, he became a barber for two years and gave up the profession in 1956 after he married and found a more lucrative position as night assistant at the McDonald Observatory near Fort Davis, Texas. There, he operated the 82-inch reflector telescope, and after eight years moved to San Diego with his wife, Lilly, to take a job as a lab technician at UCSD.

Carrasco joined the California Institute of Technology's Palomar

Observatory in 1969, eventually becoming senior night assistant for the 200-inch Hale Telescope, which at the time was the world's largest and foremost telescope.

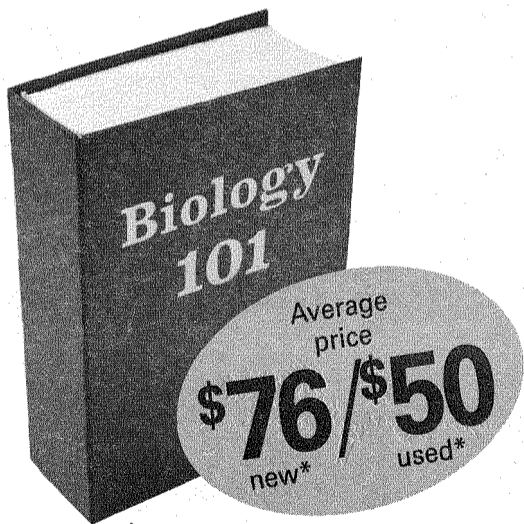
For 27 years, until his retirement in 1996, he nightly guided the giant telescope for some of the most notable astronomers of the time. Together they pushed back the frontiers of the known universe. His care and skill in operating the telescope was featured in the book *First Light* by Richard Preston.

Carrasco was honored by the astronomical community by having an asteroid named for him--4171 Carrasco.

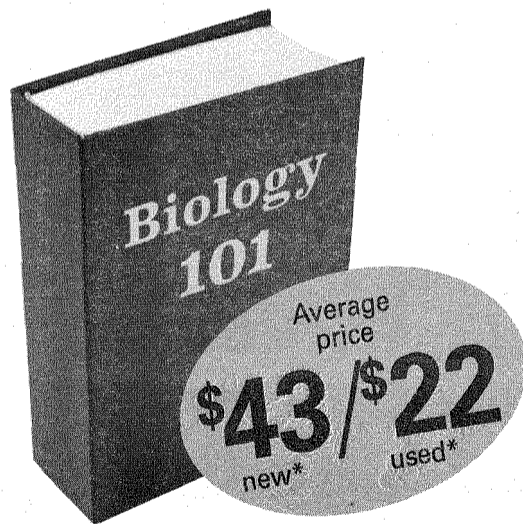
Carrasco is survived by Lilly, his wife of 47 years, two daughters, Vera and Peggy, and two grandchildren, Stephen and Katie.

At his family's request, memorial donations may be made to the UCSD Cancer Center Foundation, 9500 Gilman Drive, #0658, La Jolla, California 92093-0658.

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Wilmot to Speak on Evolution of Diversity, Genomic Science, Africa

By ROBERT TINDOL

Wilmot James, executive director of the Human Sciences Research Council in Cape Town, South Africa and cofounder of the Africa Human Genome Initiative, will speak at the California Institute of Technology on Thursday, January 15, at 4 p.m. The event will be held in Ramo Auditorium in the center of campus and is free and open to the public.

The title of James's lecture is "Africa, Genomic Science and

Some Notes on the Evolution of Human Diversity." He will talk about the implications of the human genome sequencing effort for research and development in Africa, the need for partnerships with global science institutions and fresh approaches to diversity.

James is currently the Moore Visiting Professor of History and Sociology at Caltech and is conducting research at Caltech on the human genome sequencing effort.

James is the author, coauthor, or editor of 14 books, including *What Holds Us Together: Social Cohesion in South Africa*; *Nelson Mandela: From Freedom to the Future*; and *Spirit of the Nation: Reflections on South Africa's Educational Ethos*. He is a former dean of humanities at the University of Cape Town and is currently a trustee and committee chairman of the education, media, arts and culture global portfolio of the Ford Foundation of New York. He is also chairman of the South African government's Immigration Advisory Board.

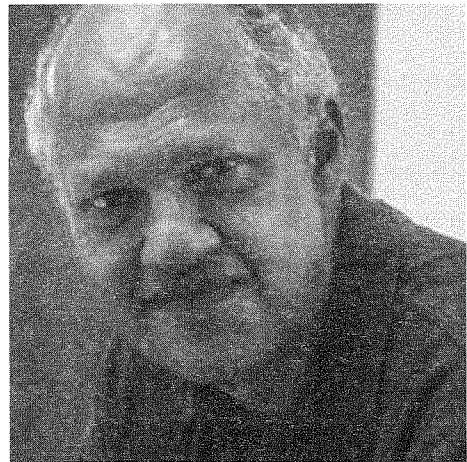
He was head of electoral information for the

Western Cape during South Africa's first democratic elections in 1994 and was chairman of the Green Paper Task Team on International Migration. James was also a member of the White Paper Task Team on Immigration and project leader of the Values in Education Initiative in the Ministry of Education.

James holds a doctorate in sociology from the University of Wisconsin at Madison. He has also held visiting positions at Yale University, Indiana University, the American Bar Foundation and served as an associate editor of the *Cape Argus*.

The lecture is part of the President's Lecture Series on Achieving Diversity in Science, Math and Engineering. The series was established to bring to campus speakers who have had highly successful experiences in promoting women and underrepresented minorities in science and technology. The event is sponsored by the Office of the President, the Office of Minority Student Education, Officers of the Faculty and the Division of the Humanities and Social Sciences.

No tickets or reservations are required. Free parking will be available in the parking structure at 370 South Holliston Avenue, where directions to the auditorium will be provided.



The California Tech archives

Dr. Wilmot is currently a visiting professor at Caltech. His lecture on human diversity and genomics takes place this Thursday.

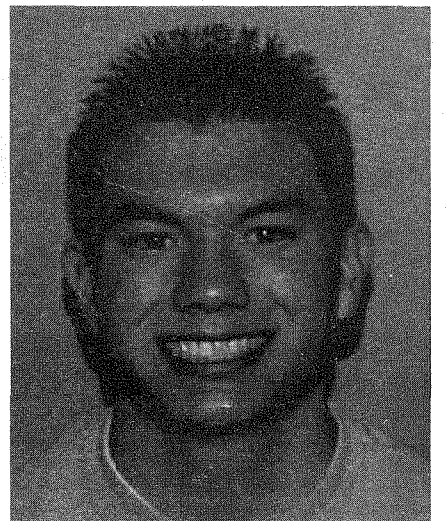
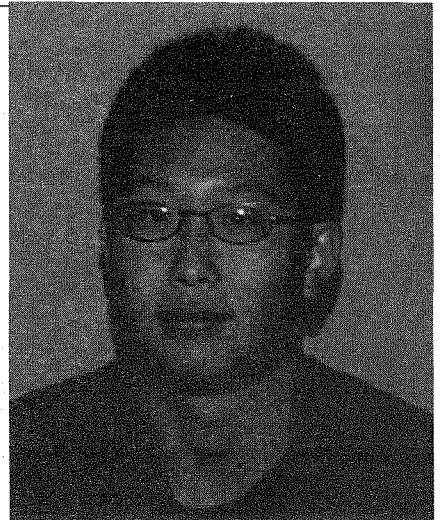
Swimming Showing Strong Basketball Teams Improving

By MIKE RUPP

Athlete of the Week

Athlete of the Week for the Week of December 8th was Jason Lee of Men's Swimming. The junior from Gardena, CA had one of the best performances for the Caltech Swim Program at the 2003 Claremont-Mudd-Scripps Swim Invitational. Lee swam the 100 Fly in an impressive :57.49, and then followed up with an equally impressive time in the 100 Backstroke, coming in at 1:01.19. Further demonstrating his versatility, Lee added a 2:14.84 time in the 200 IM. "Jason usually doesn't get this fast until late in the season," stated Head Coach Clint Dodd.

For the week of January 5th, Scott Davies of Men's Basketball is the Athlete of the Week. The sophomore guard from San Diego, CA had the best overall performance during Caltech's back-to-back home tournaments this past week. Davies lead the team in scoring over that four game stretch (34 points/8.5 ppg), and lead the rebounding (2.3 rpg) and steals (4), and had 1 of 2 blocks for Caltech over the four game span. For the season, Davies leads the team in scoring, assists, free-throw percentage and blocks. He and the rest of the Men's Basketball team will open their conference schedule Wednesday, January 14th at Occidental College.



The California Tech archives

Jason Lee '05 (top) and Scott Davies '06 are the Athletes of the Week for the past two academic weeks for their great athletic performances.

NANOSYSTEMS BIOLOGY: THE REVOLUTION

WATSON LECTURE BY DR. HEATH

By ROBERT TINDOL

Perhaps the earliest introduction of "nanotechnology" to the general public was the 1966 movie *Fantastic Voyage*, in which an entire submarine and crew were reduced to microscopic size and injected into a man's bloodstream in order to destroy a life-threatening blood clot.

While the idea of shrinking a submarine remains firmly grounded in science fiction, nanotechnology—manipulating single atoms to someday create useful molecular devices—is a science whose time is about to come.

For example, in the area of diagnosing disease, a new wave of nanotechnologies is being developed that will revolutionize virtually every aspect of medicine. On Wednesday, January 14, at 8:00 p.m., James Heath, the Elizabeth W. Gilloon professor and professor of chemistry at Caltech and a leading nanosystems researcher, will present the background, the early successes and some of the challenges that will be undertaken over the next couple of years. His talk, "Nanosystems Biology," is part of the 2003-2004 Earnest C. Watson Lecture Series at Caltech.

Imagine that a complete molecular-based diagnosis of, say, cancer, could be accomplished using just a few cells, at low cost, within seconds. With a drop of blood or with a low-risk outpatient biopsy procedure, a cancer patient could be correctly diagnosed, even in the very early stages of the disease, within minutes. This could literally revolutionize drug discovery and clinical treatment.

Such a breakthrough will come only when scientists coordinate the fields of nanotechnology with microfluidics and systems biology in which a biological system is studied as a single unit. By merging re-

ASCIT Minutes Dec. 9, Jan. 7: Elections, DVDs

December 9th, 2003, 12:01 PM, Olive Walk

Present: Joanna Cohen, Will Coulter, Abe Fetterman, Tom Fletcher, Kathryn Hsu, Galen Loram, Jeremy Pitts, Anna Sczaniecka, & Corinna Zygourakis. Guests: Joe Johnson, Candace Seu, Vi Tran, Parth Venkat, & Matt Walker.

Agenda

1. Call to Order
2. There will be Midnight Donuts Wednesday night.
3. Interviews for Election Chair will take place Sunday night at 9 pm.
4. Hawaiian Club requested \$200 for Hula Lessons, which will be open to the entire Caltech community. Vote: 5-0-0, approved.
5. Anita Choi and Jason Quimby want to take Professor Camerer out to lunch. Vote: 5-0-0, approved.
6. Broomball with Ruddock and Ricketts went well. Over 40 people showed up from both houses.
7. Joe Johnson came to talk to the BoD on behalf of the Computer Advisory Committee. ITS will be

cent advances in nanoscience and technology, it may be possible to carry out a systems biology analysis at the level of a single cell and in real time. However, the experimental challenges are daunting. In response, says Heath, several groups from Caltech, UCLA and the Institute for Systems Biology in Seattle, have come together to form the NanoSystems Biology Alliance to work on such problems.

Heath's lecture will take place in Beckman Auditorium, near Michigan Avenue south of Del Mar Boulevard, on Caltech's campus in Pasadena. Seating is available on a free, no-ticket-required, first-come, first-served basis. Caltech has offered the Watson Lecture Series since 1922, when it was conceived by the late Caltech physicist Earnest Watson as a way to explain science to the local community.

moved out of Steele within the next six months to a year. The committee needs more information about which computer resources students currently use in order to determine a new location (or locations) for the lab. A poll will go up on <http://donut.caltech.edu> shortly.

8. Parth Venkat came and spoke on the behalf of the Athletics Department. He presented the BoD with the exact cost of jackets, blankets, and letters. The current budget deficit prevents the BoD from allotting any more money to letterman jackets at this time.

9. The BoD will have lunch with Margo Marshak on Thursday, December 11th.

10. The BoC and BoD have both expressed concern over the GSC survey, in particular the results in regards to cheating among graduate students. The BoC will put together a survey about the Honor Code and cheating for undergraduate students shortly.

11. A lot of clubs have posted their events on the calendar on <http://donut.caltech.edu>. Good work guys!

12. The *little t* has yet to publish its corrections sheet.

Meeting adjourned at 12:38 PM.

January 7th, 2004, 12:04 PM, Olive Walk

Present: Joanna Cohen, Abe Fetterman, Tom Fletcher, Kathryn Hsu, Galen Loram, Jeremy Pitts, Anna Sczaniecka, Andrea Vasconcellos, & Corinna Zygourakis.

Guests: Rumi Chunara, Will Coulter, & Matt Walker

Agenda

1. Call to Order
2. Andrea Vasconcellos is back and will take over as UDAL.
3. Signups for BoC Chair and ASCIT president will go up on Wednesday, January 14th.
4. The current members of the BoD are working on their Continu-

Month in Review

Women's Basketball (0-9)

The Women's Basketball team continued to improve with its performances against Whitworth and Bethany Colleges. Against Div. III powerhouse Whitworth College, the team scored a then-season high 25 points, lead by freshman Forward Kristen Ward's 14 point, 6 rebound, 2 steal effort. Coming back from injury, sophomore Shelby Montague added 6 points and 5 rebounds. The team would top that output the next day against Bethany college with a team total of 37 points, again lead by Ward with 13 points and 12 rebounds. Junior Andrea Kung would add a season high 12 points. Montague continued to contribute inside with 10 points, 7 rebounds and 1 block.

Men's Basketball (0-10)

The Men's Basketball Team hosted back-to-back home tournaments last week, with teams from Babson, Benedictine, Manchester, Cabrini, UC Santa Cruz and Whitworth all participating. The Braun Center saw some great basketball during both tournaments, which resulted in Manchester and Cabrini winning tournament championships. In addition to Scott Davies' performance, a number of other Caltech players distinguished

Women's Basketball

Caltech	25
WHITWORTH	101
Caltech	37
BETHANY	101

themselves. Sophomore Guard Day Ivy has lead the team in rebounding 7 times in the last 9 games, and have 5 steals for the week. Senior Guard Kenny Ly came back after missing 7 games to score a team-high 13 points against Cabrini College. Junior Guard Christian Gutierrez had team and season high 11 points against Manchester. Junior Forward Jeffery Lamb came back from an injury two games before to score 11 points with 5 rebounds against Cabrini. The team opens its conference schedule Wednesday January 14th at Occidental College.

Swimming/Diving

The Swimming and Diving program had a strong performance at the 2003 Claremont-Mudd-Scripps Invitational. In addition to Jason Lee's AOW performance, sophomore Ashley Grant were among Caltech's best, wowing the coaching staff with 118.98 in the 100 Breaststroke. Preetha Seena had a 2:10.28 in the 200 Free, and Jacki Wilbur had a 1:05.98 in the Backstroke and a :25.90 in the 50 Free.

ity Statements, so that the transition with the new BoD will go smoothly.

5. The BoC is putting together an Honor Code survey for undergraduates. 6. The Bookmark is back up at <http://donut.caltech.edu> and the new DVD scanner is up and running. \$1000 worth of new DVD's for the Coffeehouse will be purchased shortly.

7. Senior class co-president Rumi Chunara requested \$100. The money will go towards a prize that will be given to the house that has the largest percentage of people contribute to the senior gift.

8. The first draft on Housing Renovations will be completed by Thursday, January 15th.

9. Joe Jewell is the new Election Chair.

10. Jason Schadewald has stepped down as Ruddock president and Barrett Heyneman has taken his place.

Meeting adjourned at 12:48 PM.

Respectfully Submitted,

Anna Sczaniecka
ASCIT Secretary

Taking Full Advantage of the College Experience: Exchange Programs and What They Offer

Copenhagen Exchange: An Opportunity for an Adventure

By JULIAN GREENE, '05

Let's face it: Caltech is definitely not the typical American college experience. There are no football rivalry games, no frat parties, classes are hard, there is almost always work to do, and many people can count the times they get further off campus than Old Town in a month on one hand. Then again, the American college experience is not the only kind in the world, nor the best as some would argue. In many places, there is no such thing as a board plan, on-campus dorms, or maid service for students. Some universities don't rely on drudging through weekly problem sets and four hour exams to impart knowledge. There are even institutions where just going to class every day students are exposed to culture, architecture, and artwork that has existed for the better part of a millennium. Copenhagen University (KU) is one of these.

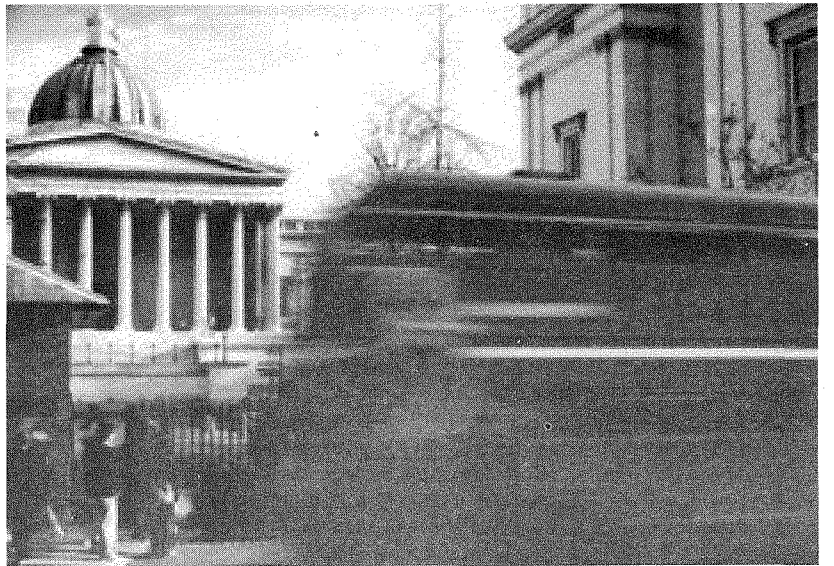
They say variety is the spice of life, and I've always agreed with that sentiment. My college years were supposed to be some of the most exciting and tumultuous years of my life. While arguably one of the best research institutions in the world, Caltech does not offer much excitement aside from academics. The infamous workload often conflicts with the ability to go out to such an extent that proximity to the LA metropolis may seem taunting rather than alluring. These considerations and more weighed heavily on my mind freshman and sophomore year, and contributed greatly to my decision to pursue a term of studying abroad.

A change of setting seemed the natural way to experience something completely new. I decided to apply for Copenhagen rather than the various programs in England because it was the furthest I could get away from Caltech and American lifestyle while still being able to navigate in society and progress in my physics option. I did not speak a word of Danish, but was assured (correctly) that nearly everyone in Denmark speaks English. Also, since KU

gets over one thousand international students every year, many courses in science as well as humanities are taught in English. Copenhagen seemed different enough to be the new experience I was looking for, but similar enough to still be comfortable and sensible academically.

The exchange has lived up to its promise. During the first few weeks of the optional summer language course I met a wild a crazy group of international students from Australia, Germany, Poland, France, and Holland. The warm summer days were spent at waterside bars (the drinking age is 16), swimming, and exploring Copenhagen. The nights were much of the same: bars, dance clubs, or just sitting and talking in the town squares. The Danish students in the private dorm I moved into were immediately welcoming and friendly. In the first week I was already being invited to garden grill fests and a variety of interesting parties. Once the academic year began, things quieted down a bit. While the predominantly law and political science major friends I had made seemed to never have work to do and started their weekend on Wednesdays, I was only able to join them once or twice a week. The cultural experiences continued though, with weekly lectures on Danish history and culture offered exclusively to international students and field trips to attractions such as museums, castles, and film festivals.

Coming to Copenhagen for a term turned out to be a great decision. I've met lots of new people, seen many interesting sights, experienced a different culture, and had opportunities to get out and have fun that I would not have had at Caltech. If you too have been thinking that your college experience has not been all you hoped it would be thus far, maybe a term in Copenhagen will be the adventure you seek, as it was for me.



Courtesy of www.casa.ucl.ac.uk

Andrea found the busy environment of London a stimulating experience and used her free time to travel around the country.

UCL: Learning to Adapt to the Unexpected

By ANDREA VASCONCELLOS '05

When I got the opportunity to study abroad, it was a dream come true. I love to travel and meet new people, and I wanted to experience something different from Caltech. In the months preceding my flight to London, I tried to imagine what it would be like, what activities to do, what places to visit. I resolved to get involved in a variety of new activities, clubs, societies, and sports. At Caltech, I participated in the Caltech Christian Fellowship, ASCIT, and cross-country. My plans for London were to join a Christian club, try a new sport, audition for a part in the school theater production, play in the orchestra, go clubbing, attend parties, see many musicals and concerts, and/or anything else that would grab my attention while I was there.

But the need to be open to the unexpected was a significant lesson learned. It started by experiencing slight culture shock. The lack of a language barrier was deceiving--so much was different. The beginning weeks were much tougher than I thought they would be. I missed everyone and everything at Caltech. Although I had traveled before, there was never this feeling of homesickness and I started to more fully appreciate life in California. Being in England was outside my comfort zone, from the cold weather to the food to the manner of living. This was not necessarily a bad thing; in fact, it turned out to be a blessing.

I was still interested in doing a lot of activities, and so had great fun at the "Fresher's Fayre," the British equivalent of a club fair. I picked up a million pamphlets, decided that the "new sport" would be Lacrosse, signed up for drama club auditions, got a schedule of all the upcoming con-

certs, added my name to student discount mailing lists, and bought tickets for the fresher week night parties, including the semi-formal Fresher's Ball. And, of course, I signed up for the Christian Union. This was going to be lot of fun. I was set.

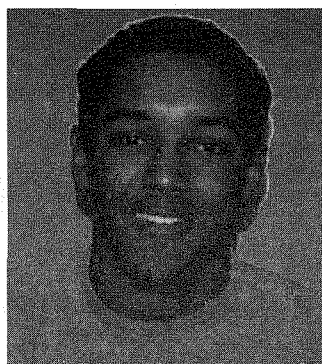
But circumstances began to remove one by one those things I had considered pursuing. I did not make it into the drama club, could not attend the concerts and shows, could not participate in Lacrosse, and had a conflict with the Fresher's ball. This was disappointing at first but soon new avenues opened up. I joined cross-country. There, I met fun people, and the team organized weekly socials, where I could develop new friendships. I also got more involved in the Christian Union, and discovered a variety of different London-wide events and trips. In addition, there were opportunities to travel on the weekends. So far, I have been able to visit the towns of Bath, Cambridge, Oxford, and Battle, spend some time in English countryside, and make a trip to the near-by cities of Paris and Brussels. I've also seen all the tourist attractions in London. UCL is situated in the heart of the big city, close to everything, including museums, parks, and shops.

So although this has not been the exact exchange adventure that I expected or planned, it has been a worthwhile experience. I have really enjoyed my classes. I have met a lot of fun British and international students. I have used the additional free time to travel. I will leave London more adaptable and thankful for what it has to offer. And I will return to Caltech with a greater appreciation for all that is there.

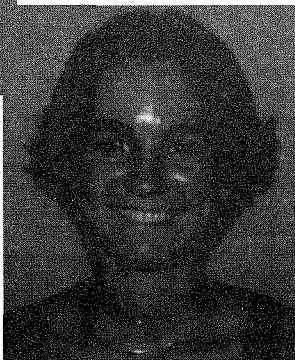


Courtesy of www.ku.dk

Copenhagen University offered Julian a variety of interesting classes, all within its historic buildings.



The California Tech archives Julian Greene '05 (above) and Andrea Vasconcellos '05 both cited their exchange experiences as exciting and worthwhile.





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Ironing Out the Honor Code, Elections Approach

By TOM FLETCHER

Honor Code Survey

http://www.its.caltech.edu/~survey/docs/Honor_Code.pdf

The graduate students have done a wide-ranging survey on quality of life. They presented the results at the faculty board meeting in December, with the most interesting, and frightening results relating to the honor code. The survey showed that around one quarter of graduate students had violated the honor code at some point in their time at Tech, and that the graduate students believed that honor code violations were more prevalent among the undergraduates.

In an attempt to examine the situation and defend the honor of the undergraduate student body, we will be hosting a parallel survey. Participation is important, and I ask that you all do so to ensure good coverage.

Upcoming Elections!

On Wednesday, at 8 AM, sign-ups for BOC Chair and ASCIT President will be posted. I encourage many of you to run to ensure a large field with a lot of competition. Posted along with sign-ups will be descriptions of the offices and the responsibilities they entail so you can know what you will be getting into. If you are interested in either position and have any questions, talk to Galen or me. If you sign up for president, I ask that you contact me so that I can start "taking you on my rounds" and introduce you to all the administrators and faculty you will need to work with next year.

If you are thinking about it, but not sure, let me assure you that it was worth it. While there will be long hours of driving to Glendora, and an occasional infuriating meeting, there is a lot for the next ASCIT President to do and how well they do it will greatly impact student quality of life. Some of the issues

the next President will have to handle include: relocating both the UGCS and ITS labs to new locations while not decreasing the level of service Caltech students receive, keeping the fundraising process for new student houses alive, laying the groundwork the next Student-Faculty Conference, dealing with the results of the honor code survey we will conduct, be they good or bad, supporting the CUE and the continual improvement of Caltech education, and doing all the regular business as well. If any of these particularly interest you, I encourage you to run, as you will be instrumental in solving them. The next president will also most likely be responsible for helping to find a new provost, as well as a few student affairs positions.

Fireside Chat

Whom I Met With This Week

This past week was rather slow as everyone got their schedules set up. This past weekend, Galen attended an Alumni Association meeting in my place due to prior commitments. This coming week will see me meeting with the BoD, Margo Marshak, and a working group of the career center developing a leadership program.

The news of the provost's resignation arrived during the writing of this column has caught a lot of us off guard. I am personally not sure of the ramifications yet at present, though I am concerned that this could slow getting funding for the new student houses. I do wish Provost Koonin the best of luck in the new opportunity, and welcome Professor Stolper to the position.

And that's all for this week folks. Good luck this term, and I will have a lot more information to share next week.

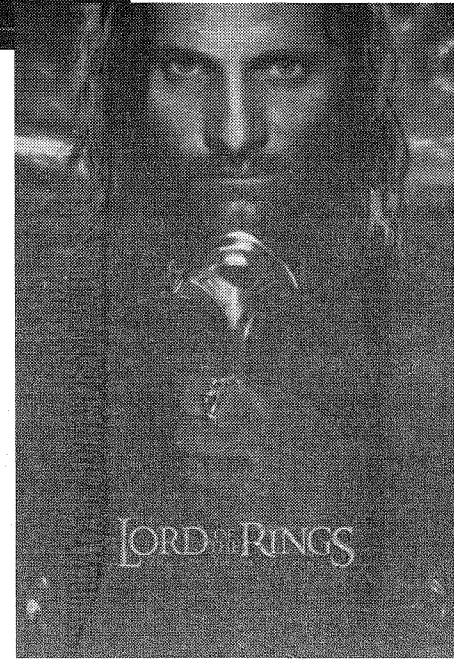
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Tom Fletcher

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Images courtesy of www.filmfix.com



The Lord of the Rings Trilogy Secures Spot in Film Lore With Fan Appeal

By HARRISON STEIN

Millions of fans rejoiced as the triumphant *Return of the King* concluded the most commercially successful trilogy in movie history. But even after the thrilling finale, there are questions about *The Lord of the Rings'* place in history. Sure, if you ask the fans that vote on the Internet Movie Database, *LOTR* is the greatest thing since Al Gore invented the Internet (users have voted the three films as the 4th, 5th, and 8th best ever, ahead of such classics as *Star Wars*, *Citizen Kane* and *Dr. Strangelove*), but is it even the best trilogy of our time?

In my humble opinion, the answer is a resounding "No." At the same time, it is impossible to ignore the gravity of director Peter Jackson's accomplishments. He has done the unthinkable by converting one of the best loved book series into a daring, captivating epic film series. The action scenes are among the best ever filmed and the plot often glides through its nine+ hour runtime. In addition, Jackson somehow manages to create an interesting world that maintains the integrity and spirit of J.R.R. Tolkien's fantastic novels.

Unfortunately, *LOTR* also has its warts, mostly in its forgettable second leg, *The Two Towers*. All three films are made in precisely the same

manner, but *The Two Towers* has some incredibly awkward moments, including a horribly misplaced dream sequence involving the superfluous romance between Arwen and Aragorn. In addition, Peter Jackson alters some of the most important characters, notably Faramir, thereby misinterpreting major themes of the books. The Hobbits are never more detestable than during the scenes in the forest with the preposterous looking Ents, and Gimli the amiable dwarf is made into painfully unfunny comic relief. *The Two Towers* is overly long but there is very little substance, as the entire film could have lasted two hours. Because Jackson fills the film with so much fluff, he ends the film without a cliffhanger and has to save scenes for *The Return of the King*, which in its own turn, is 201 minutes long.

Nonetheless, *LOTR* still stands out as one of the finest pieces of motion picture art ever created. Andy Serkis's unforgettable portrayal of the tortured Gollum is the picture's finest development and is the greatest computer-enhanced role ever. Sean Astin and Ian McKellan, as Sam and Gandalf respectively, give tremendous performances throughout and thrust us into their world. The other characters are more than adequate, and while Elijah Wood is less than stel-

lar, his character's gradual transformation is startling. It is often hard to digest the great battles when the action moves so swiftly, but the brawls at Helm's Deep and the Pelennor Fields are simply mind-boggling.

Although trilogies have a history of ending miserably (*The Matrix Revolutions*, for example, is one of the worst films I've ever seen), *LOTR* magically bucks this trend. *The Return of the King* is far and away the best entry in the Middle-Earth adventures and the cast and crew should be very proud of their efforts. Still, I would have to rate *The Lord of the Rings* as the second best trilogy ever, comparable to the original *Star Wars* triplet, but inferior to the fantastic *Godfather* Saga. While the *Godfather: Part III* is a weak, distracting conclusion to a stupendous series, *The Two Towers* is just as disappointing. Besides, the first two parts of the *Godfather* trilogy are the finest examples of modern American cinema, and far outweigh the good *Fellowship of the Ring* and great *Return of the King*. Regardless, *The Lord of the Rings*, impact is indisputable. Much like *Star Wars* and *The Godfather*, *LOTR* must be included in any discussion of the premier movie series. And fifty years from now, it will be the most talked about picture from this decade.



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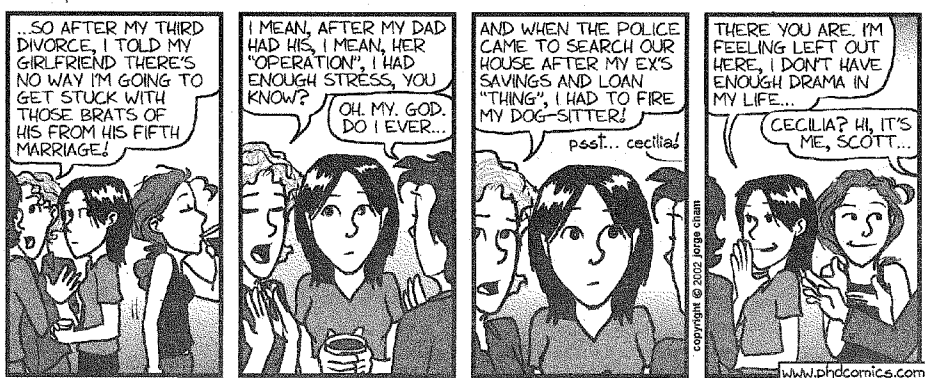
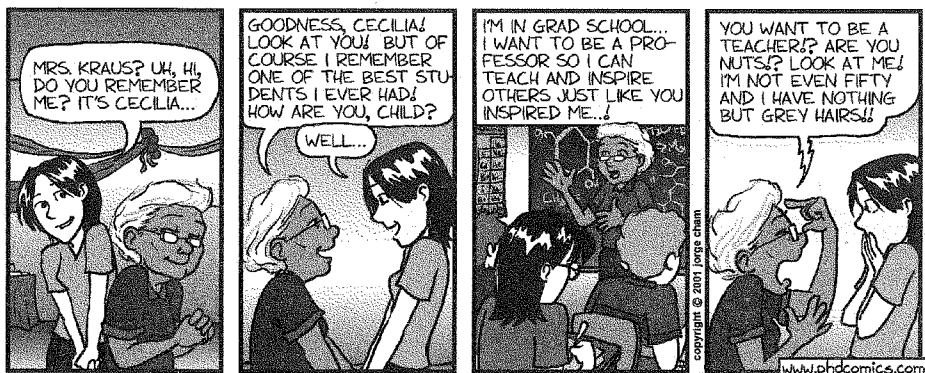
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The Monticello Foundation and Robert and Delpha Noland Summer Internships 2004. The Deans' Office is accepting proposals for the Monticello Foundation and the Robert and Delpha Noland Summer Internships. Three to five Caltech undergraduate women (current freshmen, sophomores and juniors) will be given an opportunity to participate in research projects outside the Caltech-JPL community for ten weeks during the summer. Each student will receive a \$5,000 stipend. Applicants are required to identify the projects in which they wish to participate. All arrangements with the principal researcher will be the responsibility of the student. Interested? Identify a sponsor for your experience at a research facility for a ten-week period. In a short essay, describe your project, and submit it to the Deans' Office, 210 Center for Student Services, along with two faculty recommendations. **PROPOSALS ARE DUE MONDAY, MARCH 1, 2004.**

Congressional Research Awards. DEADLINE: Proposals must be postmarked no later than February 1, 2004. The Dirksen Congressional Center invites applications for grants totaling \$35,000 in 2004 to fund research on congressional leadership and the U.S. Congress. The competition is open to individuals with a serious interest in studying Congress. Political scientists, historians, biographers, scholars of public administration or American studies, and journalists are among those eligible. The Center encourages graduate students to apply and awards a significant portion of the funds for dissertation research. Undergraduate or pre-Ph.D. study, research teams of two or more individuals, and organizations are not eligible. There is no standard application form. Applicants are responsible for showing the relationship between their work and the awards program guidelines. Applications are accepted at any time. All application materials must be postmarked on or before February 1, 2004. Awards will be announced in March 2004. Complete information about eligibility and application procedures may be found at The Center's Web site: <http://www.dirksencenter.org/grantcongresresearchaward.htm> Frank Mackaman is the program officer mailto: fmackaman@dirksencenter.org. The Center, named for the late Senate Minority Leader Everett M. Dirksen, is a private, nonpartisan, nonprofit research and educational organization devoted to the study of Congress and its leaders. Since 1978, the Congressional Research Awards (formerly the Congressional Research Grants) program has paid out \$585,500 to support 315 projects.

One Act Theater (OAT) has received funding from MHF to produce evenings of one act plays this term. We need directors, actors, technical staff, and anyone who is interested in helping. If you are interested, particularly in directing (the play of your choosing), please email oat@its.caltech.edu and check the website <http://www.its.caltech.edu/~oat/>.

Dance Classes
Learn the sexy Latin Samba with CDBC members Marcel Gavriuiu and Sharon Liu. The class is in Braun Gym from 9 to 10 pm for five Tuesday nights starting Jan 6. Cost: Free! (However, there is a \$5 Braun gym entrance fee without a Caltech ID.) Both beginners and more advanced dancers welcome. This class will be more routine based; i.e they'll teach a routine probably covering a range of beginning to advanced moves. They also focus on technique. No experience is expected, but since some of the moves are higher level than more experienced dancers can also benefit. As always, no partner necessary!

Try competitive style Cha-cha and Waltz classes taught by Michael and Alice Cho, one of the top amateur 10-dance couples in the country! If you came to the CBDC Intro Night last fall, they danced for our showcase. Nine Sunday evenings, Jan 11 - March 7 held in Winnett lounge. Intl Cha-cha is from 4:30-5:30 pm, and Intl Waltz is from 5:30-6:30 pm. Cost is \$25 for one 9-week series (i.e. chacha or waltz). Both beginners and more advanced dancers welcome. Refreshments will be served!

Join Caltech Ballroom Dance Club to master West Coast Swing! West Coast Swing is a hip fun dance that is ever-popular at clubs and parties. This class is taught by professional instructor Michael Eads for five weeks, starting Jan 5 (7:30 - 9:00 pm in Winnett Lounge). Though the class is open to everyone, dancers should have some previous west coast swing experience. Cost for students is \$6/class or \$25 for the 5 week series. For everyone else, the cost is \$8/class or \$35 for series. Refreshments will be served. No partner necessary!

Learn the basics of the quintessential ballroom dance with CBDC. Beginning waltz will be taught by CBDC members Kiri Wagstaff and Eric Peterson. The class will be held on 4 Thursdays, starting Jan 15. (7:30 - 9:00 pm in Winnett Lounge) Cost for everyone is just \$1/class. Refreshments will be served. No experience or partner necessary!

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On March 12 and 13, the Dance Troupe will present the first ever **Caltech Dance Show** presenting the dance talents of the Caltech community. We are eager for a wide variety of dance styles; so, auditions will be open to all members of the community.

The first part of the process will consist of a written proposal. Choreographers will submit information describing their intended piece's music, theme, style (country of origin if applicable), and staging (likely number of dancers, lighting concepts, etc). The point of the proposals is to get people to start working on their dance pieces. Proposals will be due on November 17 and are available at <http://troupe.caltech.edu>. There will be an audition in early Winter quarter where the dancers for each piece will perform; costumes will not be required at this stage. For more information, contact Robin Deis (deis@its.caltech.edu). More details will be provided as the year progresses. We look forward to giving Caltech a chance to showcase its dancing talent.

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Jubilant JPL Staff Prepares Spirit To Exit Lander, Explore Surroundings

Continued from Page 1, Column 5

NASA chose Spirit's landing site, within Gusev Crater, based on evidence from Mars orbiters that this crater may have held a lake long ago. A long, deep valley, apparently carved by ancient flows of water, leads into Gusev. The crater itself is basin the size of Connecticut created by an asteroid or comet impact early in Mars' history. Spirit's task is to spend the next three months exploring for clues in rocks and soil about whether the past environment at this part of Mars was ever watery and suitable to sustain life.

The flight team expects to spend more than a week directing Spirit through a series of steps in unfolding, standing up and other preparations necessary before the rover rolls off of its lander platform to get its wheels onto the ground. Meanwhile, Spirit's cameras and a mineral-identifying infrared instrument will begin examining the surrounding terrain. That information will help engineers and scientists decide which direction to send the rover first.

January 9

NASA's Spirit, the first of two Mars Exploration Rovers on the martian surface, has stood up and extended its front wheels while continuing to delight its human partners with new information about its neighborhood within Mars' Gusev Crater.

Traces of carbonate minerals showed up in the rover's first survey of the site with its infrared sensing instrument, called the miniature thermal emission spectrometer or Mini-TES. Carbonates form in the

presence of water, but it's too early to tell whether the amounts detected come from interaction with water vapor in Mars' atmosphere or are evidence of a watery local environment in the past, scientists emphasized.

"We came looking for carbonates. We have them. We're going to chase them," said Dr. Phil Christensen of Arizona State University, Tempe, leader of the Mini-TES team. Previous infrared readings from Mars orbit have revealed a low concentration of carbonates distributed globally. Christensen has interpreted that as the result of dust interaction with atmospheric water. First indications are that the carbonate concentration near Spirit may be higher than the Mars global average.

After the rover drives off its lander platform, infrared measurements it takes as it explores the area may allow scientists to judge whether the water indicated by the nearby carbonates was in the air or in a suspected ancient lake.

"The beauty is we know how to find out," said Dr. Steve Squyres of Cornell University, Ithaca, N.Y., principal investigator for the mission. "Is the carbonate concentrated in fluffy dust? That might favor the atmospheric hypothesis. Is it concentrated in coarser material? That might favor the water hypothesis."

Spirit accomplished a key step late Thursday in preparing for rolling off the lander. In anticipation, the flight team at NASA Jet Propulsion Laboratory in Pasadena, Calif., played Bob Marley's "Get Up, Stand Up" as wake-up music for the sixth morning on Mars, said JPL's Matt Wallace, mission man-

ager. In the following hours, the rover was raised by a lift mechanism under its belly and its front wheels were fully extended. Then the rover was set back down, raised again and set down again to check whether suspension mechanisms had latched properly.

Pictures returned from the rover's navigation camera and front hazard-identification camera, plus other data, confirmed success.

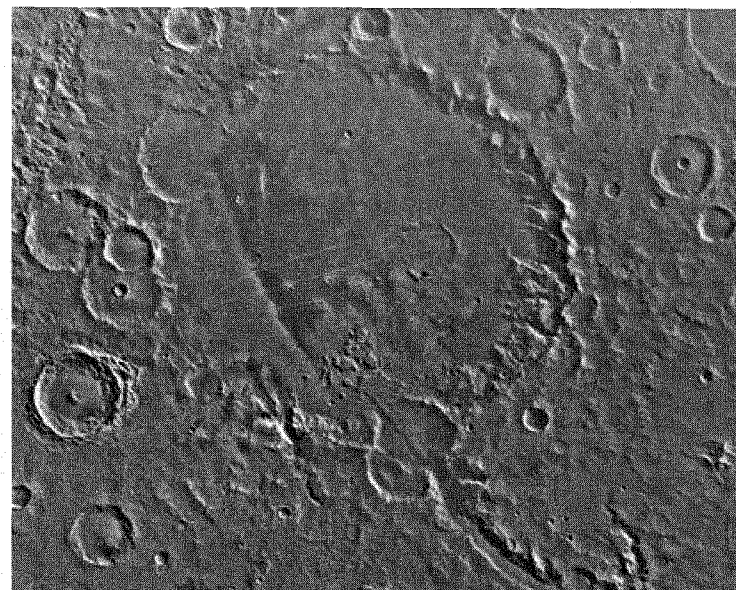
"We are very, very, very pleased to see the rover complete the most critical part of the stand-up process," Wallace said. Next steps include retracting the lift mechanism and extending the rear wheels.

A tug on airbag tendons by the airbag retraction motor Thursday evening did not lower puffed up portions of airbag material that are a potential obstacle to driving the rover straight forward to exit the lander. The most likely path for driving off will be to turn 120 degrees to the right before rolling off. "This is something we have practiced many times. We are very comfortable doing it," Wallace said.

The earliest scenario for getting the rover off the lander, if all goes smoothly, is Spirit's 13th or 14th day on Mars, Jan. 16 or 17.

"We're proceeding in a measured, temperate way," said JPL's Peter Theisinger, project manager for the Mars Exploration Rover project. "This is a priceless asset. It is fully functioning. It is sitting in a beautiful scientific target. We're not going to take any inappropriate risks."

While preparing to learn more about what Mars rocks are made of, Christensen announced an educational project to involve school children and other people in getting



Courtesy of marsrovers.jpl.nasa.gov

Spirit landed in this area to search for evidence that there was once surface water on Mars by analyzing carbonate levels.

rocks from all over Earth for comparison. "Send me your rocks and we'll see if there are rocks in your back yard that are similar to what we're seeing on Mars," he said.

January 11

NASA's Spirit rover now has its arm and all six of its wheels free and only a single cable must be cut before it can turn and roll off its lander onto the soil of Mars. As that milestone is completed, scientists are taking opportunities to take extra pictures and other data.

During the past 24 hours — the rover's 8th martian day on the planet, or "sol 8" — pyro devices were fired slicing cables to free the rover's middle wheels and releasing pins that held in place its instrumented arm. The arm was then locked onto a hook where it will be stowed when the rover is driving.

Because one airbag remains adjacent to the lander's forward ramp, the rover will turn about 120 degrees to its right and exit the lander

from the side facing west-northwest on the planet — also the direction of an intriguing depression that scientists have dubbed Sleepy Hollow.

Current plans call for the rover to complete that turn in three steps, said Arthur Amador, one of the mission managers at NASA's Jet Propulsion Laboratory, Pasadena, Calif. As currently envisioned, during the coming martian day engineers will complete ground tests and execute dress rehearsals of the drive-off, or "egress."

On sol 10 — the night of Monday-Tuesday, Jan. 12-13, California time — engineers expect to sever the umbilical cord that connects the rover to its lander by firing a pyro device, the last of 126 pyro firings since Spirit separated from its cruise stage shortly before landing on Jan. 4 (Jan. 3 in U. S. time zones). Also on that day, the rover will execute the first of three parts of its turn when it moves clockwise (as viewed from above) about 45 de-

Continued Below

Continued from Above

grees.

After taking and analyzing pictures to verify the first part of the turn, engineers anticipate completing it on sol 11 (night of Tuesday-Wednesday, Jan. 13-14). First, the rover will turn an additional 50 degrees and stop to take pictures. Then, if all is well, it will turn a final 20 to 25 degrees to position it precisely in front of one of its three exit ramps.

If no issues crop up as those steps are completed, the rover could drive off onto the martian soil no earlier than sol 12 (night of Wednesday-Thursday, Jan. 14-15). "But we adjust our schedule every day, based on flight events, so this remains an estimate," said Amador.

The rover's status overall is "pretty darn perfect," said Amador. He described the communication link from Mars to Earth as excellent, allowing the team to receive 170 megabits of data during the past day. All science data stored on the rover has been sent to Earth. The rover is generating 900 watt-hours of power per day and using 750 watt-hours and its thermal condition is good, he added.

While engineers are completing and testing commands to execute the rover's turn and egress, the science team is enjoying an "unexpected dividend" of time to collect data, said Dr. John Callas, Mars Exploration Rover science manager at JPL.

Until now, all science observations have been planned far in advance, but the unfolding schedule of rover activities gave the team the opportunity to do their first on-the-fly planning for observations driven by previous results, Callas explained. In doing so they segued to a working style that they will practice on a day to day basis as the rover rolls across the surface of its landing site in Gusev Crater, named the Columbia Memorial Station.

In the next 24 hours, the team will collect 270 megabits of science data, considerably more than on any previous martian day. This will include a high-quality, 14-color mosaic taken by the panoramic camera of a third of the horizon toward Sleepy Hollow, the direction in which the rover will leave its lander.

In addition, they plan to complete two remaining "octants" (each a pie slice showing an eighth of the horizon) with the rover's miniature thermal emission spectrometer. These areas will also be rephotographed with the rover's panoramic camera in order to allow the camera and spectrometer data to be co-registered. Plans also call for the spectrometer to "stare" at three selected sites to collect very low-noise data, as well as calibration of another science instrument, the alpha particle X-ray spectrometer.

Spirit traveled 487 million kilometers (302.6 million) miles to reach Mars after its launch from Cape Canaveral Air Force Station, Fla., on June 10, 2003. Its twin, Mars Exploration Rover Opportunity, was launched July 7, 2003 and is on course for a landing on the opposite side of Mars on Jan. 25 (Universal Time and EST; 9:05 p.m. on Jan. 24, PST).

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VOLUME CIV, NUMBER 16

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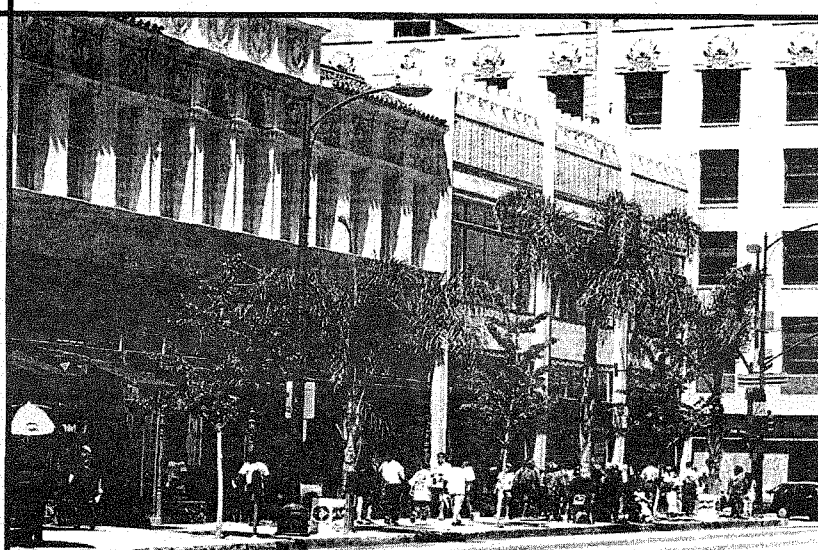
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Libbrecht and Photographer Team Up To Unveil The Secrets of Snowflakes

By ROBERT TINDOL

PASADENA, Calif. - If you're still shopping for a Christmas present to give to that flaky uncle, how about giving him the flakiest book in science?

The Snowflake: Winter's Secret Beauty, by California Institute of Technology professor of physics Ken Libbrecht and Wisconsin photographer Patricia Rasmussen, takes an elegant look at the humble flake of snow, from the viewpoint of the scientist as well as the artist.

Containing numerous full-color photographs, the book provides an in-depth look at a frozen phenomenon of nature that is still, perhaps surprisingly, not completely understood.

Libbrecht believes the photographs in the book are the best that have ever been taken of snowflakes. He began his collaboration with Rasmussen by building her a special camera and hauling it halfway across the country to her studio. She was already an avid snowflake photographer before contacting Libbrecht—perhaps the world's leading authority on snowflake formation—but was relying on conventional photography equipment, which Libbrecht says just isn't quite good enough.

"Patty had the snow and the photographic know-how and I had the optical knowledge," said Libbrecht in a recent interview in his office on the Caltech campus. "It was a very successful collaboration." "The proof is in the pudding," he

added. "The pictures are substantially better than any snowflake images that have ever been captured before."

In addition to the many stunning plates of snowflakes in dazzling colors, the book also contains a nontechnical discussion of crystal formation in general, snow-crystal symmetry, a "field guide to falling snow," and, of course, a detailed answer to the perennial question of whether any two snowflakes are exactly alike.

"The short answer is yes and no," says Libbrecht. "If you look closely enough, there will always be differences, but sometimes you have to look pretty closely." In many cases, there are very clear differences between snow crystals and what's more, there are several very distinct forms the crystals can take.

In fact, this is one of the issues that Libbrecht addresses when using the experimental "cold chambers" in his Caltech physics lab to create "designer" snowflakes. Depending primarily on very subtle changes in temperature and humidity, snow crystals falling from the sky grow into different shapes—small plates just below freezing, pencil-like columns of ice a few degrees colder and large, ornate plates at about -15 C (5 F).

The ones most favored by photographers have names like "stellar dendrites" and "sectored plates," some possessing a near-perfect symmetry that can put the best human-made glass chandelier to shame.

Libbrecht can grow these different snowflake forms at will in his lab, but says there are still subtle issues that are of interest to physi-

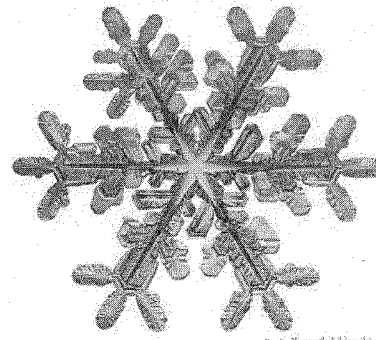
cists who make it their business to control the formation of crystals of various materials.

A real-world application of research on crystals is the growth of semiconductors for our electronic gadgets, which are made possible in part by painstakingly controlling how certain substances condense into solid structures.

"In the case of snowflakes, there are pieces to the puzzle that are not understood yet," Libbrecht says.

The SNOWFLAKE

Winter's Secret Beauty



The Ken Libbrecht
Photography by Patricia Rasmussen

"But when you're a researcher, you're happy to see this. You don't want to work on a problem that's already solved."

As for the reason anyone would spend enough time on snowflakes for an entire book, Rasmussen's afterword perhaps gives a clue: "For me, snow-crystal photography is an escape from the stress of modern life into a sanctuary of beauty and wonder and solitude. It's a treasure hunt. It's a photographic harvest from nature's bounty."

The Snowflake: Winter's Secret Beauty, is now available in bookstores and on the Web. The book is published by Voyageur Press.



Courtesy of www.ankl.gov

Musica Antiqua Koeln presented a well received concert in Beckman Auditorium before winter break.

Beckman Limits Evident

Continued from Page 1, Column 5

ter, has been a regular guest at European musical centers and has also undertaken numerous concert tours to the USA, Australia, South America and the People's Republic of China.

Their exciting, milestone interpretations of both unknown works and familiar repertoire have brought them wide recognition, as is documented by many prizes including the "Artist of the Year" award by the Deutsche Phonoakademie in 1981.

The next concert in this series, scheduled for January 25, 2004, will feature the Tokyo String Quartet with Joan Panetti. The remaining concerts will feature the Cassatt String Quartet with Humber Lucarelli (February 29), the Julliard Quartet (March 14), the Eroica Pi-

ano Trio (April 4) and Edgar Meyer (April 18).

The Coleman Chamber Music Association was founded in 1904 by Alice Coleman (later Alice Coleman Batchelder). In addition to this annual series of six chamber music concerts in Caltech's Beckman Auditorium, the association's activities also include a nationally recognized annual competition for young chamber music performers. The winners of the 58th annual Competition will perform in Caltech's Ramo Auditorium on April 25, 2004 at 3.30pm. In addition, each year the association also conducts sixty demonstration performances for children grades K through 6 in San Gabriel Valley public schools.

Wendell Quick Study in Broadcasting; Supporters Hype Show on Web Sites

Continued from Page 1, Column 3

Koreatown headquarters for a test run, where mainstay host Wayne Resnick first assessed the newcomer's prospects. Prospects looked bleak: Wendell had zero broadcasting experience and staring at him ominously from behind the studio was a laundry basket of other hopefuls' tapes, submitted and rejected.

"When Jeff called, I said 'What're you calling for?'," recalled

Wendell. "Talk radio? I'd never listened to it, I can't understand it, I don't know why people listened to it." But with a regular paycheck—a rarity for Weekly writers, laughs Wendell—dangled before him, he took the chance.

And before the first commercial, the verdict was in: "pure gold," in Resnick's words. "Once you figure out how it's done, you either can do it or you can't," recalled Wendell. "I saw I could do it and I

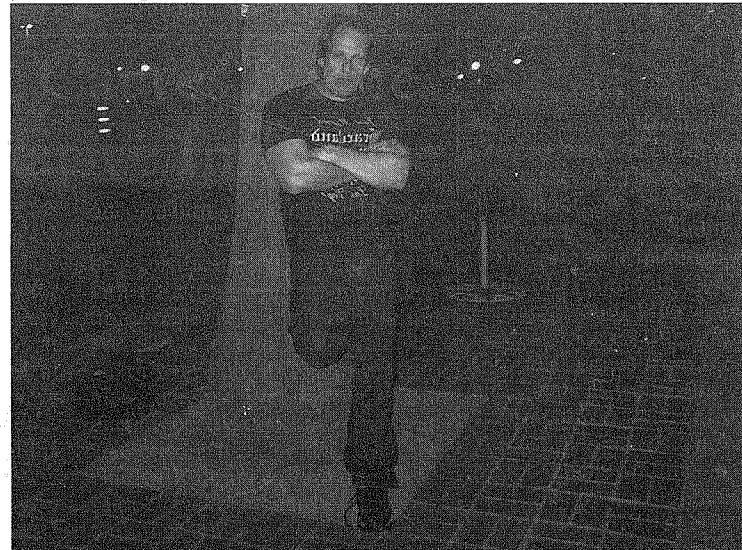
did it."

Part of Wendell's appeal lies in his uniqueness. "Talk radio already has the angry white male!" he exclaimed. The market saturated, he's confident he'll carve out his niche in L.A., where, he's quick to point out, 71% voted for Al Gore or Ralph Nader in 2000.

Web sites have sprung up encouraging the sympathetic to support Wendell's show and even KFI management acknowledged a groundswell of e-mail support when it expanded Wendell's air time last summer.

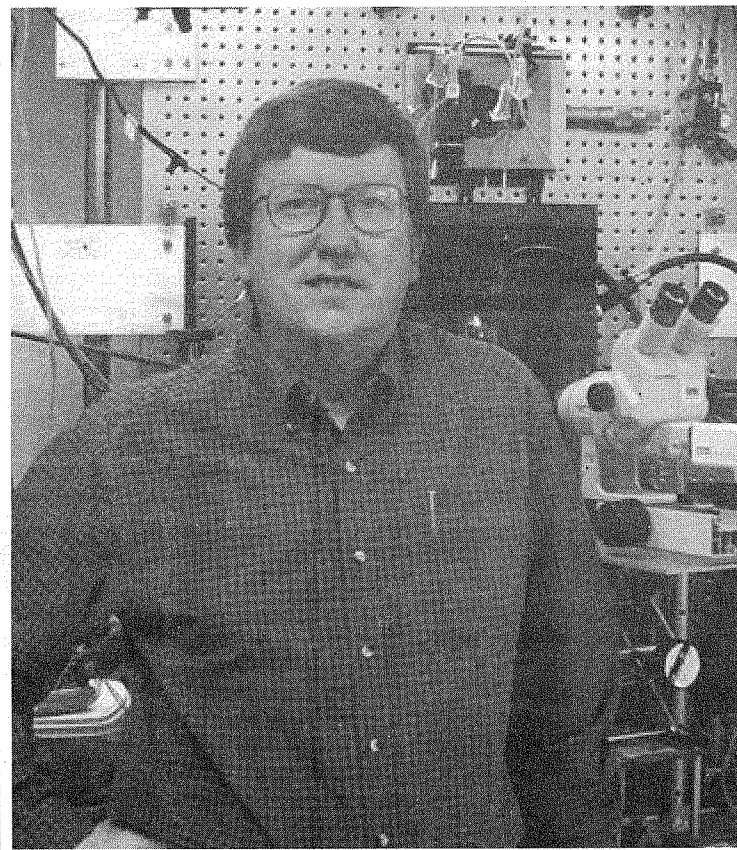
"You have to have something to say," he explained. "The irony is that you'd never talk this way to someone if you were sitting in front of them. It's like playing punk-rock guitar: anyone can play Johnny Ramone, but you didn't invent it. He did."

But could this radio Ramone be the long-awaited Limbaugh of the left? "If there is a liberal Limbaugh," he said, "it won't be someone like Michael Moore or Al Franken. It'll be someone with knowledge of common people, someone who doesn't condescend and someone who's much brighter than the dittoheads." Someone like Wendell?



K. Bartz/The California Tech

Talk radio personality Johnny Wendell has quickly become one of LAs most popular hosts and has received lots of listener support.



Courtesy of ligo.caltech.edu

Professor Ken Libbrecht creates designer snowflakes in his lab and uses them to study crystal formation.

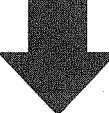
CALTECH CONVENTIONAL WISDOM WATCH



Mars Lander Success: Though NASA promises to 'leave no trace' after jubilant Spirit landing, the Red Planet is already soiled by the Beagle.



State of the State: The Governor presents his budget, starting by implementing a total recall of campaign promises. Kindergarten robber steals from education budget.



Provost Leaves: Steve Koonin announces resignation, takes leave of absence for unnamed industry jobs. Baltimore promises updates. Toon in next week.

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