



## LEADING THE WAY TO TOMORROW'S INTERNET


 
[About CENIC](#)
[Network](#)
[Services](#)
[Projects](#)
[Associates](#)
[Publications](#)
[Events](#)


## PUBLICATIONS

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Welcome to CENIC Today, the monthly newsletter of the Corporation for Education Network Initiatives in California.

### QUICK LINKS

[CENIC Today](#)  
[DCP Today](#)  
[GB Today](#)  
[Brochures](#)  
[Reports](#)  
[Presentations](#)  
[Video Presentations](#)  
[Other Documents](#)  
[CENIC Home](#)

### IN THIS ISSUE:

#### CENIC News

- President's Message
- NOC Report
- New CalREN Hub at UC Riverside
- Campus Access Infrastructure Initiative (CAI) Update
- Arizona CalREN HPR Connection
- UC Merced
- Coachella Valley Project
- CUDI High Speed Network Connection Goes Live
- CineGrid Connecting to Pacific Wave
- Hold the Date for CENIC 2006

#### National Networking News

- Bill Launched to Overhaul Broadband Rules
- Time for a Digital Age Communications Act
- U.S. Broadband Access Nears 40 Million
- Pittsburgh Center Unveils A Bigger, Faster Supercomputer Called 'Big Ben'
- U.S. Risks Losing Nanotechnology Lead
- Recent Honors

#### About CENIC

- About CENIC
- Subscription Information

#### CENIC News

##### President's Message

This month I would like to share with you some exciting information about the establishment of a high speed, fiber based network connection to Mexico and Latin America, made possible by a grant from the National Science Foundation.

In January 2005 CENIC received a sub award of a National Science Foundation grant to Florida International University (FIU). The purpose of the award is to increase the rate of discovery and enhance education across the Americas through the creation of a distributed exchange infrastructure. Subsequent to receipt of the award, CENIC began work with the Project's Principal Investigator, Julio Ibarra, FIU, representatives of CUDI, including Carlos Casasus, Director General, Florencio Utreras, of CLARA, along with representatives from RNP, Michael Stanton and Nelson Simões, to plan for the installation of a fiber link from CENIC's San Diego hub site to Tijuana, at which point CENIC's CalREN network would connect to the CUDI and CLARA networks. CUDI, The Corporación Universitaria para el Desarrollo de Internet is a non-profit corporation with members from the public and private sectors in Mexico. Its purpose is to promote and coordinate the development of high capacity telecommunication and computing networks for the development of scientific and educational activities in Mexico.

CLARA, The Cooperación Latino-Americana de Redes Avanzadas, is a regional network that uses the most advanced technology. It interconnects the Latin-American NREN to one another and to them with its peers in Europe and the rest of the World. RNP, Rede Nacional de Pesquisa, is the Brazilian infrastructure of advanced network for collaboration and communication in the fields of teaching and research. Besides connecting all federal institutions of higher education and research, this Brazilian infrastructure provides a test bed for the experimental development of new applications and network services for the benefit of its users.

Based on the excellent collaboration among the parties mentioned above and others, the link became operational on Friday, July 8. Shortly thereafter, the link was inaugurated in a ceremony that occurred on Thursday, July 14, at the Border Governor's meeting at Torreon in the Mexican State of Coahuila. I participated in this event as did Dr. Eric Frost, San Diego State, who is a participant in the University of

California's CallT2 research institute. Eric and I participated via H.323 IP-based video conferencing, from San Diego State and CENIC's Cypress offices respectively, and using the just installed fiber network connection. Among the participants in Torreon was Governor Arnold Schwarzenegger, who seemed quite pleased with the proceedings.

As I indicated in my presentation to the Governors, this link will allow the U.S., Mexico and Latin American countries to share information and resources and collaborate at levels previously unimaginable. The increased bandwidth will also permit support for new areas of endeavor, such as extending the reach of the "emerging" CineGrid network, allowing professionals involved in the emerging field of digital cinema that may be working/filming south of the border to work to conduct their experiments. An example of the benefit of this network connection for teaching and learning will be realized through the University of California's College Preparation (UCCP) program. UCCP has developed a collection of online high school and advanced placement courses that utilize streaming video and interactive simulations to help students succeed in difficult subjects like Algebra and Calculus. The University of California system has agreed to share the online math courses with Mexico, and Mexican educational institutions will translate the courses into Spanish and will make the translations available to students in California.

I am excited by the opportunities this link provides educators and researchers and am grateful for the support of the National Science Foundation and our colleagues in Florida for helping this wonderful asset become available to CENIC's Associates.

Source: Jim Dolgonas, CENIC

#### **NOC Report**

A CENIC Disaster Recovery Plan update for readers who -- through no fault of their own -- are given to shaking in their shoes: the magnitude of the CENIC NOC disaster recover plan is undergoing significant movement. In order to ensure that CENIC is able to provide ongoing NOC services in case a disaster renders the primary Cypress NOC site unusable, CENIC is further developing Phase I of its Disaster Recover Plan.

Over the next several weeks, NOC staff will participate in exercises aimed at familiarizing them with use of the recovery facility at the UC Irvine campus. Additional testing to improve recovery time will run in parallel with this effort. CENIC is most thankful for the recent support of the UCI Network & Academic Computing Services team in helping to organize and implement site access details, which have been integrated into Phase 1 of the DRP, defining procedures and methods of recovery for critical NOC services.

CENIC continues to survey associates in order to collect data on services provided. The survey is presented to requestors of NOC support upon resolution of tickets. We encourage our network contacts to complete our survey so that we may better assess our performance. Reporting of NOC Survey results is changing to a quarterly interval. Look forward to reviewing the next report in September.

Source: Sherilyn Evans, CENIC

#### **New CalREN Hub at UC Riverside**

Work has begun on reconfiguring the CalREN optical backbone to add a new hub site at UC Riverside. This will result in increased redundancy across the backbone by establishing a second, more diverse fiber path from San Diego to the LA area. This new node also lowers the cost of access to the network for sites in southeastern California. The work is expected to be completed by August 30, 2005.

Source: Brian Court, CENIC

#### **Campus Access Infrastructure Initiative (CAI) Update**

The Campus Access Infrastructure Initiative (CAI) is a collaborative multi-year program between the CSU and CENIC which will provide redundant, diverse network connections to all CSU campuses and the Chancellor Office sites. Each CSU site will end up with two gigabit ethernet (GigE) connections via some combination of either a leased circuit and/or a CENIC-managed fiber connection. This July, CSU Northridge became the first CSU campus to have been provided with dual, diverse connections to the CalREN network. CSU Chico, CSU Fresno and CSU Stanislaus are the next three campuses scheduled to receive a GigE connection during the next sixty days.

"Middle mile" fiber has been purchased for the initial four CAI dark fiber connections, and detailed last mile design work is under way. The CAI project team, consisting of both CSU Chancellor's Office and CENIC staff, has been working with CSU campus staffs and SBC to maximize fiber path diversity, both within the campus and over the wide area.

Source: Ed Smith and Greg Scott, CENIC

#### **Arizona CalREN HPR Connection**

The major activity involved in this project is implementing and lighting a 360 mile fiber path between Phoenix and San Diego. This work, scheduled to complete in September, is on schedule. Metropolitan fiber will interconnect Arizona State to this fiber and to another fiber path from Phoenix to Tucson; this work should also complete in September. The University of Arizona has decided to have CENIC install four GigE net waves between Phoenix and Tucson, rather than the one initially requested. We're expecting to complete this revised scope of work, in October, in parallel with a related project that CENIC is managing to extend diverse fiber paths from the long haul fiber POP to two University of Arizona Sites.

Source: Greg Scott, CENIC

### **UC Merced**

The June issue of CENIC today omitted the news that Gigabit Ethernet connections have been extended from the CalREN backbone service is now available at both the UC Merced Administration Building at Castle Airfield and the new campus' Telecommunications Building. Gigabit Ethernet connections are in place between the two sites and to the backbone from both locations over the 29 mile fiber ring that CENIC built for the University.

Source: Greg Scott, CENIC

### **Coachella Valley Project**

Work has been proceeding on Phase 2 of the project, which will provide a diverse connection from Palm Desert to the CalREN backbone by meeting CalREN's Phoenix to San Diego path in Yuma and continuing to the UCSD hub site.

Source: Greg Scott, CENIC

### **CUDI High Speed Network Connection Goes Live**

A 1-gigabit ethernet connection between CENIC's HPR network and its Mexican counterpart network, CUDI, went into operation this month. This link will allow collaboration between Californian and Mexican researchers on a variety of projects.

Source: Brian Court, CENIC

### **CineGrid Connecting to Pacific Wave**

To facilitate collaboration with researchers in Japan, the CineGrid project is installing a connection between the motion picture industry in Burbank and the Pacific Wave node in downtown Los Angeles. Part of the CallT2 project, CineGrid is a digital cinema research and education testbed implemented using the OptiPuter distributed supercomputing architecture.

Source: Brian Court, CENIC

### **Hold the Date for CENIC 2006**

CENIC 2006, CENIC's annual conference, will be held on March 13-14-15, 2006 at the Oakland Marriott City Center. This is always a great event to learn about new technologies, new networking applications, and meet with your colleagues in a relaxed environment. Be sure to reserve the dates now.

### **[National Networking News](#)**

#### **Bill Launched to Overhaul Broadband Rules**

A debate over upgrading U.S. telecommunications laws for the digital era began in earnest Wednesday with a proposal aimed at substantially deregulating broadband, satellite and cell phone services.

Sen. John Ensign, a Nevada Republican, introduced a bill that reopens a national dispute that has been simmering, but not fully engaged, since the 1996 Telecommunications Act was enacted. The drafters of the law did not envision the explosive growth of the Internet, wireless and broadband technologies over the last decade.

Ensign's 72-page measure takes a broadly pro-business approach. It says, for instance, that local governments wishing to provide broadband service to residents must allow an "open bidding process" in which private companies may participate. Also, companies such as Verizon Communications that would like to provide video, but have been stymied by the need to obtain permission from local governments, would receive a regulatory reprieve.

"We must not allow government regulations to be an anchor on the advance of technology if we want America to lead the world in the information age," Ensign said when introducing the bill. It "will create jobs, stimulate the economy and increase consumer choice," he added.

Underlying Congress' revamping of the 1996 law, which could take a year to complete, are competing philosophies of how the government should treat telecommunications providers. Are consumers better served through price-setting by regulators--or by letting competition flourish? Is it wiser to mandate that companies permit rivals to use their networks, or will that discourage investment in fiber links?

Ensign's bill says that neither state regulators nor the Federal Communications Commission may set rates and prices for communications service. It also says they may not require fiber owners to provide their rivals with access to facilities. Direct-to-home satellite service would also be immune from price regulation.

While his proposal, called the Broadband Investment and Consumer Choice Act, is likely to meet opposition from liberal groups, it won applause from Verizon.

"We applaud Sen. Ensign for introducing legislation to bring our communications laws into the 21st century...This bill recognizes that the world has changed and consumer-driven markets work better than those managed by the government," Verizon said in a statement.

But the bill is not entirely laissez-faire. It says that telephone companies must continue to provide access to their copper wires "on commercially reasonable" terms, and broadband providers "shall not willfully" block Web sites unless the restrictions are in place because of bandwidth limits. Voice over Internet Protocol, or VoIP, service also can't be blocked--a problem that's already arisen a few times.

Source: CNet-News.com, [http://news.com.com/Bill+launched+to+overhaul+broadband+rules/2100-1036\\_3-5807278.html](http://news.com.com/Bill+launched+to+overhaul+broadband+rules/2100-1036_3-5807278.html)

### Time for a Digital Age Communications Act

When then-President Bill Clinton signed the Telecommunications Act in February 1996, he expressed hope that this "truly revolutionary" legislation would foster a marketplace "where competition and innovation can move as quick as light."

Ten years later, it's clear things didn't turn out that way.

In fact, the statute entrenched too much of the legacy regulation put in place when communications markets were characterized by monopolistic power. Even though the 1996 Act acknowledged the Internet's existence for purposes of attempting to legislate control of offensive content, when it came to foreseeing the Net's marketplace impact, and that of other new technologies, Congress didn't look far enough ahead.

Thanks to the technological advances spurred by the digital revolution, no sooner was the ink dry on the 1996 Act than the long-predicted convergence of communications services and emergence of new market entrants began gathering steam.

So today we live in a world in which businesses we still call cable television companies provide voice services. Those we call telephone companies are racing to provide video services in competition with cable and satellite providers. Upstarts like Vonage, which utilize super-efficient Internet connections to carry voice traffic, call themselves a broadband telephone company. Wireless companies integrate voice, video and data for delivery anytime, anywhere, to a screen you carry in your pocket. And popular Web sites and blogs compete with traditional broadcasters and cablecasters for viewers' eyeballs.

Convergence and competition, indeed.

Here's the problem: Even while technology forces changes in the marketplace, the 1996 Act's regulatory regime continues to act as a drag on investment in new networks and on innovation in new services. Services are classified based on technofunctional constructs that no longer make sense in a digital world in which a bit is a bit is a bit.

For example, the Federal Communications Commission classifies broadband service offered by cable companies as an unregulated information service, while the telephone companies' competing DSL service remains classified as a regulated telecommunications service. Obviously, when a consumer decides which broadband service to order, he or she couldn't care less about the service's regulatory label.

But the classification has important consequences. Among other things, the rates of telecommunications services are regulated and information services are not. Telecommunications services are subject to universal service fees that information services escape. So voice services offered over legacy wireline facilities are subject to regulation and universal service taxes. New Internet telephony services against which they compete are not.

In addition to the regulatory gaming, which is encouraged by separate regulatory silos based on distinctions that are downright metaphysical, the 1996 Act further discourages investment and innovation because Congress left in place too many different, vague, regulatory directives. Not surprisingly, this has created marketplace uncertainty in light of the difficulty of predicting when and what the agency will regulate and whether the courts will sustain its actions.

A way out?

What should be done? A group of academic and think tank scholars brought together under the auspices of The Progress and Freedom Foundation recently proposed that Congress adopt a radically different framework as part of a new communications law--call it a new Digital Age Communications Act.

Under the new paradigm, the FCC's actions, like the Federal Trade Commission's, would be governed by an unfair competition standard. The FCC's decisions would be tied to jurisprudential principles grounded in market-oriented competition analysis. There would be a presumption that economic regulation of communications markets is unnecessary, absent circumstances that demonstrate the existence of a threat of market power that poses a substantial and nontransitory threat to consumer welfare.

The new framework would also change the rulemaking authority that the FCC enjoys today. Before prescribing regulations, the agency would be required to show by clear and convincing evidence that marketplace competition is not adequate to protect consumer welfare and that the benefits to consumers and to competition of a new regulation outweigh the costs. Rules would sunset five years from the date they become effective, unless the agency demonstrates they continue to be necessary.

Under the new competition-based standard, the FCC's focus would shift to protecting consumers, rather than competitors, which too often in the past has been its preoccupation. The reasoning offered in support of regulatory mandates would have to be more rigorous than that customarily employed by the agency.

If it followed the new law's dictates, the FCC would find itself meeting more success in court. If it ignored the new market-oriented standard, it would be easier for courts more quickly to bring the agency into compliance with the statutory mandate.

Moreover, by changing the FCC's rulemaking authority, the agency, like the FTC, can be expected to act through individual adjudications rather than generic rulemakings more than it has in the past. Whereas adjudicatory actions centered on particular claimed abuses of market power encourage narrowly targeted remedial action, the FCC's traditional overly broad and open-ended rulemaking proceedings tend to invite log-rolling and crazy-quilt compromises that have the effect of ratcheting up regulation.

We are fortunate to live in an age in which technological advances have rendered obsolete the legacy model of communications regulation based on outdated regulatory classifications and a presumption that monopoly power exists. In this era of convergence and competition, a replacement model is needed that represents a meaningful deregulatory shift.

That's why Congress should enact a Digital Age Communications Act that requires the FCC to operate under a market-oriented, competition-based standard firmly grounded in economic analysis.

Source: CNet-News.com, [http://news.com.com/Time+for+a+Digital+Age+Communications+Act/2010-1071\\_3-5785159.html](http://news.com.com/Time+for+a+Digital+Age+Communications+Act/2010-1071_3-5785159.html)

### **U.S. Broadband Access Nears 40 Million**

The figure, toted up by the FCC, measured the number of business and residential users at of the end of 2004.

Some 37.9 million Internet users in the United States now have broadband access, according to a report released by the Federal Communications Commission. The figure toted up by the FCC, which measured the number of users as of the end of 2004; was up 34 percent from the prior year.

The FCC's total encompassed all residential and business users. (In the report, released Friday, high speed was defined as anything over 200 kilobits per second.) Shaving large businesses out of the category left a total of 35.3 million residential and small-business high-speed lines at the end of 2004, up 36 percent from 2003.

On the cable-modem front, the FCC found that high-speed coaxial cable connections rose 30 percent year-over-year to 21.4 million.

DSL didn't fare quite as well as its broadband cousin. During 2004, asymmetric digital subscriber line (ADSL) high-speed lines increased by 45 percent, to 13.8 million lines, the FCC said.

Taking up the rear of the high-speed revolution were satellite and terrestrial wireless connections, which were lumped together in a single category showing a 2004 total of 500,000 connections -- small, but double the number counted in the previous year. Finally, fiber and powerline connections increased by 16 percent to 0.7 million.

The FCC report didn't offer any comparisons of high-speed access with dial up. However, a recent SG Cowen survey cited by The New York Times indicated that some 36 million homes in the United States used dial up. The Cowen report said those dial-up customers comprised about half of all domestic Internet users, which would roughly jibe with the broadband numbers reported by the FCC.

Source: Information Week, <http://informationweek.com/story/showArticle.jhtml;jsessionid=JGTXSZ54FU1PUQSNDBGCKH0CJUMKJVN?articleID=165701492>

### **Pittsburgh Center Unveils A Bigger, Faster Supercomputer Called 'Big Ben'**

PITTSBURGH, July 20, 2005 -- The Pittsburgh Supercomputing Center (PSC) has switched sports, but its newest and most powerful system, the Cray XT3, is another black-and-gold superstar, say officials. With a nod to the Pittsburgh Steelers quarterback, Big Ben is Cray XT3 serial #1 -- the newest stage in the evolution of high-performance computing technology and a major boost for computational science in the United States.

Acquired via a \$9.7 million grant from the National Science Foundation (NSF) in September 2004, Big Ben -- the first XT3 system to ship from Cray -- comprises 2,090 processors with an overall peak performance of 10 teraflops: 10 trillion calculations per second. If every person on Earth, about 6.5 billion people, held a calculator and did one calculation per second, they would altogether still be 1,500 times slower than Big Ben.

Big Ben, whose name also refers to Ben Franklin, will serve as a leading-edge computing resource on the TeraGrid. Built by NSF over the past four years, the TeraGrid is the world's largest, most comprehensive cyberinfrastructure for open scientific research. The current lead system at PSC, LeMieux (evoking the Pittsburgh Penguins' owner and star player), has been one of the most productive TeraGrid systems, and although LeMieux remains lively and available for the foreseeable future, Big Ben is expected to take over LeMieux's role as the TeraGrid resource best suited for very large-scale, demanding projects.

On a per processor basis, Big Ben is 2.4 times faster than LeMieux, which has 3,000 processors and provides six teraflops of peak performance. More than sheer processor speed, however, the most significant technological advance that Big Ben brings as a boost to U.S. research is "inter-processor bandwidth" -- the speed at which processors share information with each other.

Because of exceptional inter-processor bandwidth, Big Ben has already demonstrated nearly 13 times better performance than LeMieux on key applications when 1,000 or more processors are used. Many areas of research will benefit from this superior ability to communicate among processors, including nanotechnology, design of new materials, protein dynamics studies that lead to new therapeutic drugs, modeling of earthquake soil-vibration, and severe storm forecasting.

"With this system," said Arden Bement, director of the National Science Foundation, "we are fulfilling an important national goal -- providing one of the fastest computing capabilities to the U.S. research community. We celebrate a significant leap in science and engineering research and education capacity. Richness of data, combined with powerful computing facilities and innovative people, promises a multitude of scientific breakthroughs. The Pittsburgh Supercomputing Center has all of these."

"PSC is a world-class computational center with proven success at putting high-performance computing systems to work running advanced applications to solve the toughest scientific problems. Cray is proud of its long and productive partnership with PSC," said Jim Rottsolek, Cray Chairman and CEO. "We are dedicated to working with PSC to ensure the unqualified success of this machine and are looking forward to demonstrating the capabilities of the Cray XT3 that make it the ideal leadership-class computational system to serve scientists and engineers worldwide."

Established in 1986, PSC is a joint effort of Carnegie Mellon University and the University of Pittsburgh together with the Westinghouse Electric Company.

"Computational science is a key to U.S. economic strength, and PSC's leadership in this field for nearly 20 years is a national resource," said Jared L. Cohon, president of Carnegie Mellon University. "Big Ben is the newest in a long line of innovative, high-performance systems PSC has brought into being. Each of these systems pushed the technological envelope, and each time PSC has made them into productive research tools for the national scientific community."

"It is widely recognized that university research is at the heart of most commercial innovation, and is a key driver of economic prosperity," said Mark A. Nordenberg, chancellor of the University of Pittsburgh. "The fact that Western Pennsylvania is home to this extraordinary national resource is a reflection of the scientific strengths that exist in this region. When major research universities such as the University of Pittsburgh and Carnegie Mellon University join forces with industry -- in this case, Westinghouse and Cray Inc. -- and with the National Science Foundation, other federal agencies, and the Commonwealth, the result is a powerful partnership. We are deeply grateful for the NSF grant that made it possible to acquire 'Big Ben' and believe that the Pittsburgh Supercomputing Center is poised to build further on its strong history as one of the world's leading centers for supercomputing."

"The Pittsburgh Supercomputing Center should be proud of its continued leadership in providing high-performance computational resources," said Steve Tritch, president and CEO of Westinghouse Electric Company. "Westinghouse is proud of its long-term relationship with the PSC and the collaborative effort in providing innovative solutions to matters in science and engineering."

"We're extremely gratified to be able to introduce the Cray XT3 system for the NSF," said PSC scientific directors Michael Levine and Ralph Roskies in a joint statement. "and to make it available as a lead resource on the TeraGrid. As with previous new systems, going back to the CRAY X-MP in 1986, we expect Big Ben to follow in the footsteps of LeMieux and the CRAY T3E before that as a major contributor to U.S. science."

The Cray XT3 architecture of Big Ben is related to but differs from the "Red Storm" system, built by Cray for classified research at Sandia National Laboratory. Big Ben houses its 2,090 processors (AMD Opteron, 2.4 GHz) in 22 cabinets or nodes, each containing up to 96 processors. The Cray SeaStar interconnect, configured as a 3-D torus, sustains 6.5 gigabytes per second bidirectional communication between processors. Each processor has one gigabyte of memory, for more than two terabytes of aggregate memory.

Big Ben uses a parallel file system -- the Lustre File System from ClusterFileSystems (created from a Carnegie Mellon University collaboration) -- which on key applications has demonstrated very efficient performance. Big Ben is served by 245 terabytes of local disk storage and an additional 200 terabytes of global disk.

The Pittsburgh Supercomputing Center is supported by several federal agencies, the Commonwealth of Pennsylvania and private industry.

Source: Science Daily, <http://www.sciencedaily.com/releases/2005/07/050727061053.htm>

### **U.S. Risks Losing Nanotechnology Lead**

The United States leads the world in nanotechnology, but its position can easily be lost if the nation fails to address emerging problems, a research firm says.

By Antone Gonsalves, June 29, 2005

The United States leads the world in spending, research and patents in nanotechnology, but its position can easily be lost if the nation fails to address emerging problems, a research firm said Friday.

To maintain global leadership, the United States need to increase federal funding for research, eliminate regulatory uncertainty surrounding environmental, health and safety issues; and do a better job at retaining foreign doctoral students, Lux Research Inc. said in a report that was the basis of testimony given to a House subcommittee Wednesday by Matthew M. Nordan, vice president of research for the firm.

Nanotechnology is the science of developing materials at the atomic and molecular level. The materials are often used in the fields of computer storage, semiconductors, biotechnology, manufacturing and energy.

The United States last year outspent all other governments on nanotechnology research and development, accounting for \$1.6 billion of the \$4.6 billion spent worldwide, according to Lux, a New York-based research and advisory firm focused on nanotechnology. On the corporate level, U.S. companies accounted for almost half of the \$3.8 billion spent by corporations globally.

The U.S. Patent and Trademark Office has assigned U.S. entities 56 percent of the total number of patents issued for nanotechnology, and U.S.-based scientists authored 24 percent of articles published in nano-science and nanotechnology journals through June 2005, Lux said.

Despite this leadership, there are a number of factors that places the United States at risk of losing its position, the research firm said.

When spending levels are corrected for actual purchasing power, U.S. government spending last year was exceeded by Japan, South Korea and Taiwan.

In promising areas for applying nanotechnology, other countries outpaced the United States in developing intellectual property. An example would be carbon nano-tubes proposed for a new type of large, flat-panel monitor that could outperform today's LCD and plasma displays at lower cost and energy consumption, Lux said.

In addition, patents issued to U.S. companies are being violated in countries where there is lax enforcement of intellectual property. Lux cited China as an example.

To maintain the nation's leadership, the U.S. government must fund its National Nanotechnology Initiative at or beyond current budget request levels, Lux said. The government spent about \$1.15 billion last year, but most of the money went to initial purchases of equipment and construction of facilities, not to funding research.

"No. 1 is sustained funding," Nordan said in an interview.

Regulatory agencies responsible for environmental, health and safety issues, particularly the Environmental Protection Agency and the Occupational Safety and Health Administration, need to quickly establish firm guidelines for how nano-particles will be treated under existing, or potentially new, regulations.

"What companies need is a roadmap of how EPA and OSHA will arrive at their regulatory schemes over time," Nordan said.

In the area of education, the United States needs to "inspire students with wonder" for the physical sciences starting at the grammar school level to get more young people into the field, Lux said.

In the meantime, however, the nation has to provide economic incentives to keep foreign students in the country after they complete their education.

"(If not), we risk being a drive-thru education vehicle for other countries," Nordan said.

Finally, the government should get as specific as possible on nanotechnology applications banned for export for military reasons, so not to "choke" nanotech commercialization, Lux said.

Source: Information Week, <http://www.informationweek.com/story/showArticle.jhtml?articleID=164904098>

### Recent Honors

Three UC Davis scholars are among 24 affiliated with UC who were recently elected to the American Academy of Arts and Sciences. Election acknowledges individuals whose contributions are influential to their field and to society. The three UC Davis faculty chosen are: Alan Hastings of environmental science and policy; Stephen Kowalczykowski, in the Section of Microbiology and director of the Center for Genetics and Development in the Division of Biological Sciences; and Michael Turelli, in the Section of Evolution and Ecology.

-- Hastings is an expert at using mathematical models to predict changes in populations of plants and animals over time and space, and in using ideas from complex dynamics to study problems in ecology.

-- Kowalczykowski studies the molecular "machines" that copy and repair DNA, using unique equipment to film individual molecules at work on DNA in real time.

-- Turelli studies genetics and evolution using the fruit fly, *Drosophila*, as a model system. He is especially interested in how new species form from existing populations.

Provost and Executive Vice Chancellor of UC Davis Virginia Hinshaw has been awarded an Excellence in Education Award by the California National Organization for Women Foundation. She was selected for the annual award for her commitment to education as a tool for empowerment, for being a role model to women and for working to ensure equal access for women and minorities to education. She will be honored Oct. 12 in downtown Sacramento.

Deb Niemeier, a professor of civil and environmental engineering at UC Davis, has been named a 2005 Leopold Leadership Fellow. Based at the Stanford Institute for the Environment, the Aldo Leopold Leadership Program provides 20 scientists annually with intensive communications and leadership training to enhance their ability to communicate complex scientific information to non-scientific audiences, especially policy makers, the media, business leaders and the public. Niemeier's research focuses on quantifying the effects of transportation on air quality. She is active in developing leadership activities for women in engineering.

Christine Bruhn, a Cooperative Extension consumer food marketing specialist for UC Davis, has been selected to receive the Educator Award from the International Association for Food Protection. The award, which will be presented in August, recognizes her many years of educational achievements, nationally and internationally, in the area of food safety.

Linda Harris, a Cooperative Extension food safety specialist in the Department of Food Science and Technology at UC Davis, has been named to the U.S. Department of Agriculture's National Advisory Committee on Microbial Criteria for Foods. The advisory committee, established in 1988, provides scientific advice on public health issues related to the safety and wholesomeness of the U. S. food supply. It also helps develop microbiological standards for processed and non-processed foods that will allow these foods to be sold to the public with a high confidence of their microbiological safety.

The UC Davis School of Veterinary Medicine's new Instructional Facility recently won a best practices award for overall sustainability from the Higher Education Efficiency Partnership. The building is designed to perform 34 percent better than Title 24 requirements, provide exemplary indoor air quality and is expected to use 30 percent less water than a conventional building. The Instructional Facility is a two-story, 57,000 square foot building consisting of multi-use classrooms, auditoriums, teaching labs and student rooms.

UC Davis' Wastewater Treatment Facility recently received an honorable mention from the Higher Education Energy Efficiency Partnership for developing an innovative new system to automatically control an energy-intensive wastewater treatment process. Electrical consumption at the wastewater treatment plant has been reduced by 23 percent, or nearly 600,000 kWh/year. The system also has provided improved biological process control and effluent water quality.

Doug Hartline, director of Technology Planning and Development for the department of Information and Educational Technology at UC Davis, has been selected to chair the Business Advisory Council of the Corporation for Educational Network Initiatives in California. Begun in the late 1990s as an effort to install a high-speed network for higher education institutions, CENIC provides Internet access to 148 colleges and universities, covers all California public elementary and secondary schools and is branching into other states. During this one-year appointment, Hartline will advise on issues including network policies and evolution, security and fees. His goals include gaining long-term funding stability.

Vijaya Kumari, professor of cell biology and human anatomy, received the C. John Tupper Prize on June 11 during the School of Medicine's commencement ceremony. The prize, named after the school's founding dean, is determined by a vote of seniors and is intended to recognize the school's outstanding teacher. Kumari also is assistant dean for medical education. She is an expert in the area of injury responses of the brain and the body's neuroregenerative processes.

Patricia Gándara, Randi Hagerman, Jeff Mount and John Whitaker were recently named as this year's recipients the UC Davis Academic Senate's Distinguished Public Service Award. The annual awards recognize significant contributions to the world, nation, state and community.

-- Gándara, a member of the education faculty since 1990, provides leadership in research centers focusing on promoting equitable distribution of educational resources and opportunities in public schools including Policy Analysis for California Education (PACE), the research working group of UC ACCORD, and the UC Linguistic Minority Research Institute. She has gained attention for the crisis of access to higher education that has brought elected officials, other policymakers and academics together.

-- Hagerman is a developmental and behavioral pediatrician and director of the M.I.N.D. Institute. Her area of expertise is fragile X syndrome, which is the most common inherited cause of mental impairment. Hagerman was part of a select team invited in March to the first international conference in Dubai, United Arab Emirates, on autism and fragile X syndrome, where she spoke on the commonalities of fragile X syndrome and autism.

-- Mount, a geology professor, is founding director of the UC Davis Watershed Sciences Center. Among his advisory work, he was a member of a National Research Council committee to evaluate endangered species issues in the politically explosive Klamath River Basin. He is a member of the first Independent Science Board for the California Bay-Delta Authority, which helps the authority spend billions of public dollars in accordance with scientific knowledge, and of the National Environmental Advisory Board, which advises and oversees the U.S. Army Corps of Engineers. He is the only scientist on the State Reclamation Board.

-- Whitaker, a professor emeritus of Food Science and Technology, has for decades taken teaching and research training programs to international scholars in their own countries. A member of the UC Davis faculty since 1956, he wrote the first official agreement of cooperation between UC Davis and foreign universities. He has served as the faculty advisor for the UC Davis Mexican Student Association since 1989 and for the Thai Student Association since 2002.

UC Davis researchers Paul Gumerlock and Lesley Butler have been selected as the 2005 winners of the Christine Landgraf Memorial Research Award. Gumerlock is an associate chief of laboratory and translational research for the Department of Hematology/Oncology at the medical center. Butler is an assistant adjunct professor in the Department of Public Health Sciences. The research award was founded in 1973 and is named after a woman who died in 1971 of Hodgkin's disease. In her memory, her parents, John and Helen Landgraf of Fair Oaks, donated \$5,000 to help support cancer research at the UC Davis School of Medicine. Subsequent contributions from individuals and businesses have increased the fund to more than \$150,000 and support the work of more than 30 UC Davis researchers.

John Stenzel and Ellen Lange have been named the 2005 winners of the UC Davis Academic Federation awards for Excellence in Teaching, and Mari Golub is the recipient of the 2005 Academic Federation Award for Excellence in Research. Teaching awards honor demonstrated classroom excellence by lecturers, including use of innovative teaching techniques and ability to stimulate learning in students. The research prize honors work that plays an important role in enhancing the campus's research reputation.

-- Stenzel has been teaching as an English lecturer since 1990. He has led courses including legal writing, Shakespeare for non-majors, history of the English language, technical writing, and the masterpieces of British Literature.

-- Lange, a lecturer in linguistics, has taught in the English as a Second Language Program and led efforts to develop computer-assisted grammar modules tailored for linguistics classes. She was among the first instructors to use PowerPoint for grammar courses, and was the first "Web master" in the ESL program.

-- Golub, an adjunct professor of internal medicine, has produced an extensive list of published research papers and spoken at various conferences in the issue of environmental toxins and brain development. Since the mid-1990s, Golub's research has focused on the effects of trace elements on brain development in adolescents, and has studied how the potential estrogenic effects of pesticides may affect puberty. She also serves as a staff toxicologist for the state Department of Health Services and Cal EPA.

Source: UC Davis News and Information, [http://www.news.ucdavis.edu/search/news\\_detail.lasso?id=7411](http://www.news.ucdavis.edu/search/news_detail.lasso?id=7411)

#### **ISPs Attempt to Stop Public Broadband**

When tiny north Kansas City, Missouri, announced that it planned to offer affordable high-speed Internet access much the way it does other public services, local attorney Brian Hall was ecstatic. Though Hall could get DSL service from SBC Communications, he says that he found the service unreliable, supplying lower speeds than he expected. But then goliath Time Warner Cable asked a Missouri federal court to block the city's efforts.

If a municipality can offer Net access at lower prices than most telephone and cable TV companies, why shouldn't it, municipal-broadband advocates argue. The opponents counter that cities would have an unfair competitive advantage and that service and support might not be as good as that from private companies.

Source: PC World, <http://www.pcworld.com/news/article/0,aid,121416,00.asp>

#### **About CENIC**

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