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URA Forum: Tighter Budgets Necessitate More Dialogue About Science

At URA's annual meeting, university representatives heard about the future of research from members of both political parties and elected six new universities to URA

By Donald Sena, Office of Public Affairs

WASHINGTON, D.C. — In a town usually associated with partisan rhetoric and differing ideologies, Democratic and Republican lawmakers and policy shapers, speaking about science at a recent forum, expressed a common, albeit cautionary theme: the drive for increased fiscal responsibility in the nation's capital will likely limit funding resources for scientific research.

Moreover, most speakers said members of the scientific community must do a better job of educating the public and government representatives about the benefits of their endeavors, in order to garner support for science and research.

These views emerged as GOP congressmen, members of the Clinton Administration and other speakers addressed the Universities Research Association's annual Council of Presidents meeting and policy forum on January 25. The Council comprises 80 university presidents from member institutions located around the world.

Along with heeding the influential speakers' words, the Council of Presidents elected six new universities to the Association—the first additions since 1993. During the day-long event, the Council also listened to



Photo by KELLY CHENOWETH for Fermilab

University presidents, or their senior representatives, vote to elect six new universities to URA at the annual Council of Presidents meeting and policy forum held in Washington.

reports from URA and Fermi National Accelerator Laboratory officials, elected a new Council chair and vice-chair and heard about progress on the termination of the Superconducting Super Collider.

Outgoing Council of Presidents chair Judith Rodin, President of the University of Pennsylvania, welcomed the participants, who included 63 of the 80 presidents or their senior representatives, as well as invited guests. URA President Fred Bernthal gave a brief presentation, noting major accomplishments and science education initiatives at Fermilab.

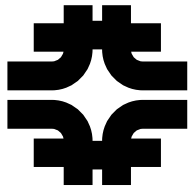
THE FUTURE OF FUNDING

Rep. John T. Myers (R-Ind.), the first of many speakers, discussed what would be a major topic of the forum: belt-tightening. He presented an overview of Washington's recent bud-

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FERMILAB AND THE TWO UNIVERSITIES

The University of New Mexico has a key role in science at Fermilab

By Donald Sena, Office of Public Affairs

In a laboratory at the University of New Mexico, physicists and students work to design and build advanced components for an off-site, three-story collider detector—an upgrade for the sophisticated physics device that will enhance its detection capabilities.

1,100 miles away on the Fermi National Accelerator Laboratory campus, home to the collider detector, another member of the UNM team investigates how he will integrate those components with the actual detector, keeping in regular contact with his Albuquerque colleagues.

Despite the miles of separation, Fermilab and the University of New Mexico remain close partners, as this example illustrates,

through research and experiments designed to unravel the mysteries of the physical world and advance the tools required to stretch the frontiers of physics knowledge.

This relationship exemplifies the partnership between Fermilab and universities, with nearly 150 academic institutions participating in research at the Laboratory.

John Matthews, professor of experimental high-energy physics at the University of New Mexico, says collaborations with the Department of Energy's national laboratories give academic institutions access to resources—such as Fermilab's Tevatron—that they could not support on their campuses.

"The labs are like bright stars that focus people's attention," said Matthews. "They are clear places that you go for the physics and technology."

The experimental high-energy physics group, within the University of New Mexico's Department of Physics and Astronomy, comprises three faculty members, three research associates and one electrical engineer. One of the research associates, Mark Bailey, works full time at Fermilab. The department includes 53 undergraduates majoring in physics and 121 graduate students in physics, astrophysics or optics, of whom eight are specializing in particle physics.

On January 25, Universities Research Association elected UNM to its prestigious membership; URA comprises universities with established high-energy physics programs, which help manage Fermilab.

UNM: AN ESTABLISHED PRESENCE AT FERMILAB

After the university established its high-energy program in 1991, Matthews and his team wanted to collaborate with an active experiment. He and Michael Gold, another UNM faculty member, had previous experience in the CDF (Collider Detector at Fermilab) project, an experiment that

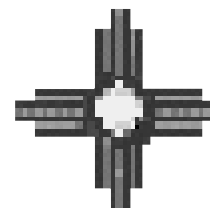
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Photo by REIDAR HAHN

Tim Thomas (left), Michael Gold and Mark Bailey (seated), physicists from the University of New Mexico, work in the CDF main control room at Fermilab.

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From the supergalactic to the subatomic — New Mexico State University at Fermilab

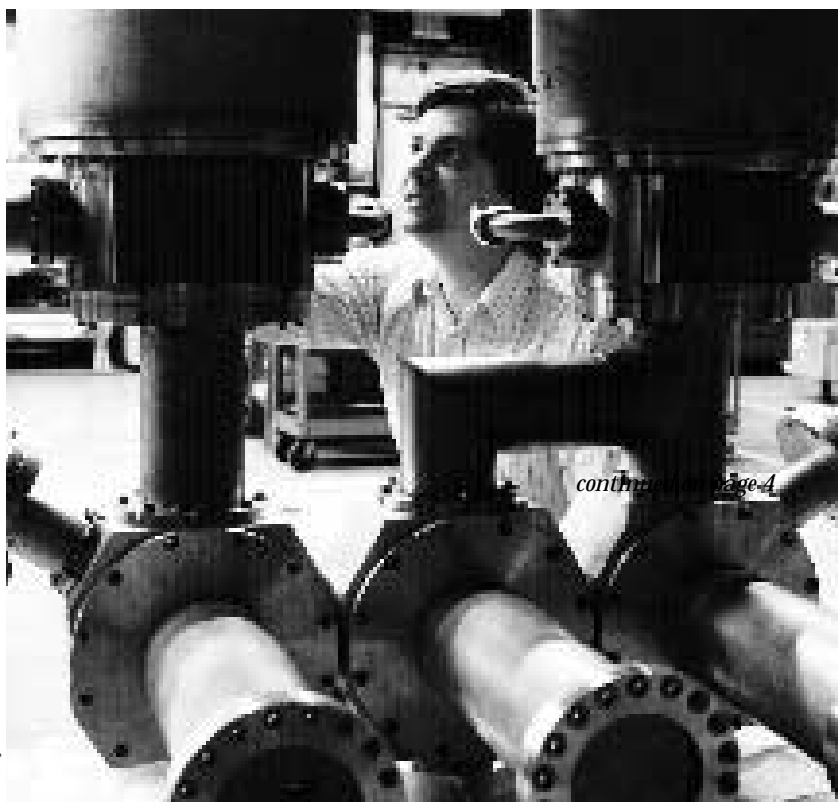
By Leila Belkora and Judy Jackson,
Office of Public Affairs

“**N**ew Mexico State University was established while we were still a territory, back in 1888,” says NMSU President J. Michael Orenduff. “This area is more peaceful now than it was in the days of Billy the Kid and Pancho Villa, but just as dynamic.”

Much of the area’s dynamism comes from the 15,000-student New Mexico State University in Las Cruces, not far from New Mexico’s borders with Texas and Mexico. NMSU, a minority university with a large Hispanic enrollment, is well known for its thriving engineering program. The university recently ranked fifth in the nation in funding for university-based engineering research, including a program in particle astrophysics within the Electrical Engineering Department.

Orenduff might well have had the Physics and Astronomy Departments at NMSU in mind when he invoked the energy and change in the former Territory. In 1995, the Physics Department added three new faculty members to its original high-energy physics research group of four, in a 16-member department. The Astronomy Department has grown as well, as a partner and managing institution of Apache Point Observatory on nearby Sacramento Peak.

Both NMSU departments have recently forged connections with Fermilab. The high-energy physics group has joined a fixed-target experiment collaboration. Members of the Astronomy Department are collaborating closely with Fermilab astrophysicists on the Sloan Digital Sky Survey, a project established in part by Fermilab, to gain insight into the large-scale composition and evolution of the universe by mapping a quadrant of the sky.



New Mexico State University physicist Vasilios Papavassiliou explores the detector his experiment will use to study the strong force within the atomic nucleus.

THE SLOAN DIGITAL SKY SURVEY

Jonathan Brinkmann, NMSU faculty member and instrument scientist at Apache Point, has been perched on the mountaintop at Apache Point Observatory for about four months now, working to “get the bugs out” of a telescope camera system. He’s one of a half dozen NMSU employees who work on the Sloan Digital Sky Survey and are supported by Fermilab through a grant managed by NMSU. Like many of the scientists on the site, Brinkman’s daily activities draw on his skills in physics, astrophysics, computer programming and instrumentation; a quotation posted on his home page warns, “Beware of programmers who carry screwdrivers.”

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PHOTO BY REIDAR HAHN

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New Mexico State University...

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One of the instruments in Brinkmann's care is a prototype of the Drift Scan Camera that the collaboration will install on the Sloan Digital Sky Survey telescope later this year. The telescope currently has a steel base, but as yet no optics or control systems. The Drift Scan Camera will point in the direction of the northern cap of our galaxy, avoiding the relatively dense population of nearby stars in the plane of the Milky Way. As part of its mission the camera will record the ultraviolet- and infrared-wavelength emission as well as the positions of hundreds of millions of stars and galaxies and about 100,000 quasars.

Brinkmann brought the Drift Scan Camera to Fermilab for an "overhaul" in November of 1995, and says there is "almost daily" contact between astronomers at Apache Point and members of Fermilab's Experimental Astrophysics Group. The Sky Survey collaboration with Fermilab provides a training ground for NMSU students and a rich store of data for astrophysicists in the Astronomy Department. At the same time, the collaboration enables Fermilab physicists to extend their reach into the field of astrophysics, where particle physics and cosmology converge.



Photo courtesy of Apache Point Observatory

Apache Point Observatory. The Sloan Digital Sky Survey 2.5 meter telescope resides in the building in the left foreground. The Monitor telescope in the first dome behind that keeps track of atmospheric conditions during the sky survey.

NMSU AND THE STRUCTURE OF THE PROTON

In 1943, the famous physicist Enrico Fermi traveled from Chicago, where he and his team of scientists had produced the first self-sustaining nuclear reaction, to the mountains of New Mexico. There he and his colleagues worked on one of the best-known collaborations in history between the federal government and university scientists, the Manhattan Project. Now, more than half a century later, New Mexican physicists are making the return trip. Eight scientists from New Mexico State University at Las Cruces have come to Chicagoland to collaborate on frontier physics research at the Energy Research laboratory named in honor of Fermi. It's the kind of symmetry that scientists love.

In their first experience at Fermilab, the NMSU physicists are collaborating on a fixed-target experiment, E866, that will use a proton beam from the world's highest-energy particle accelerator, Fermilab's Tevatron, to probe the secrets of the the strong force, the fundamental force that acts within the proton and neutron of the atom's nucleus. "The strong force is perhaps the least-understood piece of the Standard Model [of particle interactions]," says NMSU physicist Vassilios Papavassiliou. "The experiment will give us a clearer picture of the structure of the proton and a better understanding of the strong force." Surely, Fermi would approve. His own early work in physics led to the recognition of the weak force, also a major area of study at Fermilab.

NMSU Professor Gary Kyle, the group's leader, explains that coming to Fermilab is a natural progression from NMSU's previous collaboration on experiments at Los Alamos



Photo by MICHAEL KIERMAN for Fermilab

A group of NMSU's Fermilab physicists, atop a campus building in Las Cruces, N.M. Left to right: Mike Beddo, post-doctoral researcher; Vassilios Papavassiliou, assistant professor; Gary Kyle, professor; and George Burleson, head of the NMSU Physics Department.

National Laboratory's Los Alamos Meson Physics Facility. There the group worked on similar physics issues using a lower-energy accelerator than the Tevatron. "We began working at LAMPF many years ago. Research there was coming to the end of the line, and we were looking for new directions. Many of our Los Alamos colleagues were collaborators on E866, and they pointed us toward Fermilab."

"LAMPF is winding down," adds Papavassiliou, "and at some point you have to go to higher energies. You can't keep doing the same experiments forever."

Kyle noted that NMSU physicists also collaborate in experiments at DOE's Continuous Electron Beam Accelerator Facility in Virginia and at the Deutsches Elektronen-Synchrotron in Hamburg, Germany. "When the fixed-target run begins, I'll be dividing my time between DESY and Fermilab," he says.

The NMSU group has the responsibility for installing the target for E866. "Our experiment will recycle the hydrogen and deuterium targets from E665 [an earlier Fermilab fixed-target experiment], and we will install them," Papavassiliou explains. "The New Mexico State group will also develop software for monitoring the experiment's efficiencies, rates, scalars and so forth." Currently Papavassiliou, on leave from teaching duties, is the only full-time NMSU physicist at Fermilab. In April, a graduate student will join him, and other members of the group will spend progressively more time at Fermilab as the start of the fixed-target run approaches.

JOINING URA

At the January 25 meeting of the Universities Research Association Council of Presidents, NMSU, along with five other universities, was inducted into membership in URA. Averett Tombes, New Mexico State's vice president for research and economic development, represented his institution at the induction into the consortium of research universities that manages Fermilab, which he called a positive step for his institution.

URA membership allows New Mexico State University "to be in a partnership—and that is the key word—with other universities very much involved in physical science research," said Tombes, who added that it was an honor to be inducted in company with the University of Pisa.

NMSU is in New Mexico's Second Congressional District, represented by

Congressman Joe Skeen (R-NM) interviewed on the occasion of NMSU's induction into URA, Bruce Donisthorpe, legislative assistant to Skeen, told a reporter that the congressman is a supporter of science.

"Clearly, Congressman Skeen sees a positive role between government and science. In particular, the congressman feels the most important thing the government can do is provide sufficient and stable funding sources,"



URA President Fred Bernthal (left) congratulates Averett Tombes, vice president for research and economic development at New Mexico State University. NMSU was one of six academic institutions elected to URA in 1996.

Donisthorpe said. He added that, given the present fiscal environment and attitudes about government spending, there are going to have to be more partnerships among government, universities and other entities, in which each member provides something "to bring to the table."

Fermilab and NMSU are bringing stars and gluons to the table, in a research partnership that promises much more than scientific pot luck. □

University of New Mexico...

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Matthews said generates excellent physics.

"Right from the beginning, we were partially aimed towards the SSC, but, quite truthfully, we were mostly aimed at Fermilab. For teaching, for young faculty and for graduate students, you have to have on-going experiments. So, immediately, we joined CDF," Matthews explained.

CDF is one of two collider detectors at the Laboratory, devices that track particles resulting from collisions of protons and antiprotons accelerated to high energy. The energies produced in these violent collisions are similar to the levels present at the Big Bang.



University of New Mexico professors, students and technicians in a silicon detector laboratory on the Albuquerque campus. Left to right: John Matthews, professor; Bevin Moore, undergraduate student; Steve Worm, postdoc; Eric Moore, graduate student; Nicki Bruner, graduate student; Sally Seidel, professor; Ling Yu, graduate student; Martin Hoeferkamp, electrical engineer. Seated is Grant Gorfine, postdoc.

Within CDF are many sophisticated projects, from particle-tracking layers to radiation studies to new data acquisition techniques. Matthews, Gold and Sally Seidel, the third faculty member, were particularly interested in the silicon vertex particle tracking system inside the detector. Each had a different background relevant to the technology—Matthews with radiation damage studies, Gold with data acquisition techniques and Seidel with the tracking detectors. A silicon vertex tracker (SVX), made possible by technology from the microelectronics industry, consists of a piece of silicon with microscopic detector strips imprinted directly on it. The strips are sensitive to particles passing through them. As a particle

passes through the detector, it knocks out electrons that microstrips collect; this is the "signal" of the particle. Computers translate the signal into readouts that physicists study.

The combination of CDF and the silicon technology "was a perfect match for hardware and a perfect match for our physics interests," said Matthews; so, in late 1991, they joined the collaboration.

The SVX system was a major player in the discovery of the top quark, announced in March 1995, and is presently active in the continuing study of top. Nicola Bacchetta, UNM's first research associate, worked full-time at CDF from February 1992 to December 1993. Matthews said Bacchetta, now a faculty member at the University of Padova in Italy, was one of the experts who commissioned the original SVX, and taught many people about the technology. In one infamous incident, Bacchetta was in the CDF main control room during run Ia when he noticed the SVX temperature was much hotter than normal. He quickly turned off the power, averting by minutes permanent damage to the SVX system, according to Matthews.

SVX-II: THE LATEST UPGRADE

Presently, the UNM group is focused on the upgrade of the SVX detector, SVX-II. As Fermilab prepares for the future in high-energy physics, the Laboratory must maintain a certain synergy. If technology advances in one field, other areas must progress in parallel, as with the CDF experiment. The Main Injector, a new accelerator being built at Fermilab and scheduled to begin operating in 1999, will greatly increase the luminosity of the Tevatron, resulting in many more collisions per second at the CDF detector. Without upgrades, CDF would not be able to keep up with the Main Injector and the extra luminosity would be wasted.

This is where New Mexico comes in.

The UNM team, along with other collaborators, is in the trenches developing the next generation of SVX detectors that experimenters will install in CDF. Jeff Spalding, a CDF collaborator and head of the silicon vertex upgrade, said UNM is "one of the major contributors" to the newest generation of SVX technology, along with other university and Fermilab groups. Spalding said the New Mexico team has taken on a broad range of responsibilities for the upgrade, something he called "quite impressive." Their tasks include developing the conceptual design of SVX-II,

testing the prototype silicon detectors, running simulation studies and developing the power supplies and the high-speed data acquisition systems for SVX-II, among other responsibilities. In the near future, UNM will administer quality assurance for the actual silicon detectors that vendors supply, a demanding task to ensure that components perform as researchers designed them. The result will be a more advanced detector system, capable of keeping up with enhanced luminosity, according to Matthews.

Money is a key issue with the detector upgrades, however. CDF and DZero, the other collider detector at Fermilab, need more funding to keep their upgrades on schedule. Insufficient funding will delay the Main Injector's benefits.

STUDENT INVOLVEMENT

The SVX-II upgrade project has another advantage for UNM: the components and testing devices are small enough for scientists and students to do research and development in laboratories on the UNM campus. This allows more students at the University of New Mexico, including younger graduate students and undergraduates, to participate in the cutting-edge work, providing a good complement to the classroom physics curriculum, Matthews says. One undergraduate, Eric Gottlieb, had a major role in generating an innovative software package for SVX data acquisition, a development that the group recently submitted for a patent.

"The advantage of an experimental program is that...you can get people [involved] early on, and, if they can get excited about science, the chance of them staying in [the field] is really high," Matthews said.

Besides communicating by phone and e-mail, the UNM team keeps informed of work at Fermilab via videoconferencing, allowing them to attend important CDF meetings while in New Mexico. UNM faculty members visit Fermilab once or twice a month, often bringing graduate students with them.

THE BIRTH OF A PROGRAM

How does a university start a high-energy physics program in the first place?

UNM formed the group in response to substantial interest on the campus in collider physics at the highest energy frontiers. The Superconducting Super Collider planned for Waxahachie, Texas, about 600 miles from the UNM campus, generated much of that inter-

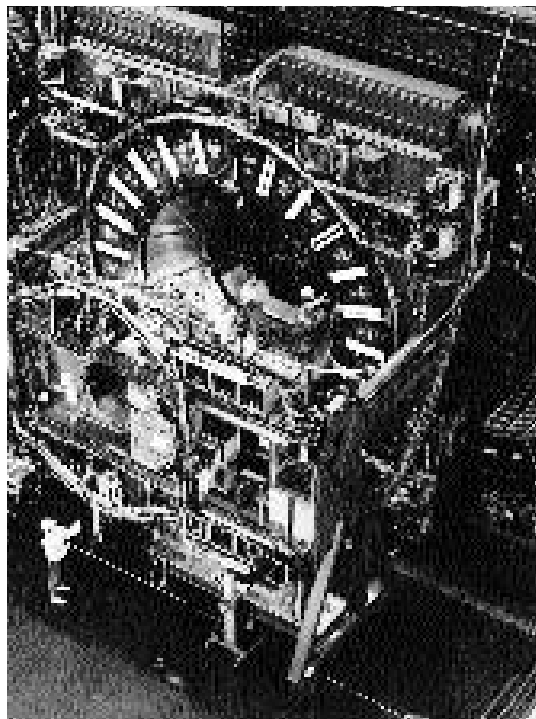
est. Matthews said many universities would like to start programs, but it helps to have an entity nearby to propel the desire to reality; in this case, the SSC was the driving force. In fact, the UNM program was one of the first start-up groups supported by the Texas National Research Laboratory Commission, a group formed to help support various aspects of the SSC's research program.

The high-energy physics program at UNM "was one of the...positive spin-offs of the SSC," said Matthews. The SSC and the Texas commission "were really critical in getting our group going."

Timing was important in the high-energy physics group's birth; Congress eventually canceled the SSC project in 1993, but the New Mexico group continued.

Ken Stanfield, Fermilab's deputy director, said there is a strong history of collaboration—like the one with UNM—between academia and the government; a tradition, he said, that should continue.

Fermilab is "a product of [the academic community] getting together and saying, 'We need to work together to build this facility so university groups can do this kind of research,'" said Stanfield. "We see [Fermilab] as an extension of the university community." □



The Collider Detector at Fermilab (CDF).

***“The labs
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– John Matthews,
professor of physics at the
University of New Mexico

URA Forum...

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get battles, saying that the government shutdowns hurt many people but did show that the federal workforce is bloated. He agreed Washington must make changes in its spending habits in parts of the government.

However, Myers, a House member since 1967 but not seeking reelection in November, said that research and education efforts supported by the government are important to the nation and its future. The Congressman has been a supporter of research over the years as a member of the Appropriations Committee and, more recently, as chair of the Energy and Water Development subcommittee.

"If I only had one dollar to spend in the federal government, I would spend it on research," said Myers.

Nevertheless, the Congressman said not everyone feels as he does and had dire predictions for science funding in the U.S., citing the bipartisan mantra in the nation's capital: No more big government.

"I'm afraid in the priorities, some of the scientific research is going to suffer," said Myers. "We are already seeing it now."

After questioning Myers, one audience member said losing a lawmaker like the Indiana congressman will ultimately hurt all of science, as he may be replaced with a representative who wants to cut deep into research programs. Rodin agreed and thanked the Congressman "for all you have done for us."

GOVERNMENT'S DIRECTION

Rep. Steven H. Schiff (R-N.M.), a member of the Science committee and chair of the Basic Research subcommittee, emphasized that it was important for the science community to understand where Congress and the president are going in terms of the government's role in the lives of people. He said the GOP leadership believes "forced downsizing" in the

private sector has led to increased productivity and efficiency, but that government and government-related activities have never been forced to undergo the same transition. Schiff said many government representatives believe this is a worthy goal to pursue, regardless of the present budget and deficit problems.

Schiff (a Chicago native with a physicist brother) said there is a commitment from both parties to support



Rep. Steve Schiff (R-NM)

science and research, but they differ on the approach. Generally, the pre-1995 Democratic majority held a philosophy that applied research was the best direction for government-supported science in order to help people now, according to the Congressman. Schiff said he believes the Democratic majority killed the Superconducting Super Collider because they saw no immediate practical application resulting from the research.

Across the aisle, he said, the current Republican majority believes basic research is the better course to follow; Schiff said the GOP feels the practical, applied research is a form of "corporate welfare" and gets too close to government involvement in the marketplace.

"The Republican majority thinks government should be funding research at its most basic level," said Schiff. In fact, he believes the SSC

would pass through Congress now.

Schiff called these two positions "gross generalities" of the view towards scientific research in the U.S., and his outlook differs from both. Government should first decide where its priorities are in science, regardless of whether it is basic or applied, according to the Congressman. He said basic research often turns into the applied version, and applied research spawns pure research—both quite unexpectedly.

"Basic research never knows when it gets to applied research, but it always does," he said.

Although "one *or* the other" is the prevailing view in Washington, the Congressman said it should not determine the direction for science.

"I don't think there is a brick wall between" the two types, said Schiff. "There is room for both."

Schiff also cautioned that any dialogue with government representatives initiated by the scientific community should remain free of political maneuvering.

"My advice would be: regardless of talking to Democrats or Republicans—and I hope you talk with both—you stay nonpartisan. There is no room for science and research, as a profession, to be taking political sides. There is no reason you shouldn't feel equally welcome in both offices," said Schiff.

ELECTION OF MEMBERS

The Council of Presidents, taking a break from the forum, elected six new universities to URA, bringing the total membership to 86 institutions. The new members include the University of Pisa in Italy, the University of California-Davis, Kansas State University, New Mexico State University and the University of New Mexico. The Council provisionally elected the University of Florida, pending the receipt of a formal application letter. The new members easily met the established criteria, having a "reasonable output of Ph.D.'s in relevant disciplines" and the commit-

Photo by KELLY CHENOWETH For Fermilab

ment to support at least two experimental high-energy physics faculty positions.

FORMING THE DEBATE

John Gibbons, assistant to President Clinton for science and technology, resumed the policy forum, saying that in a time of movement towards more fiscal responsibility everything comes under scrutiny, as government tries to optimize its investments. He said education and research are two examples where investment has greatly paid off in the past.

He added that there are many goals to work towards in the future, including establishing a greater connection with federal, state and local governments in terms of research and science, and fostering collaborations between the domestic and international communities in research and technology.

Gibbons also emphasized that it was important for the scientific community to voice their concerns and opinions about the future of government-supported research, saying the public needs to understand the importance of the work in times of budget constraints.

The government "needs everyone's help in forming the debate about education and research in federal accounts," said Gibbons.

He also said it was vital to "emphasize and re-emphasize" the place of importance that universities hold in this country. He said academic institutions are economic drivers in their communities, as well as major employers and a great source of innovation.

"The knowledge industry is a terribly important industry," Gibbons said.

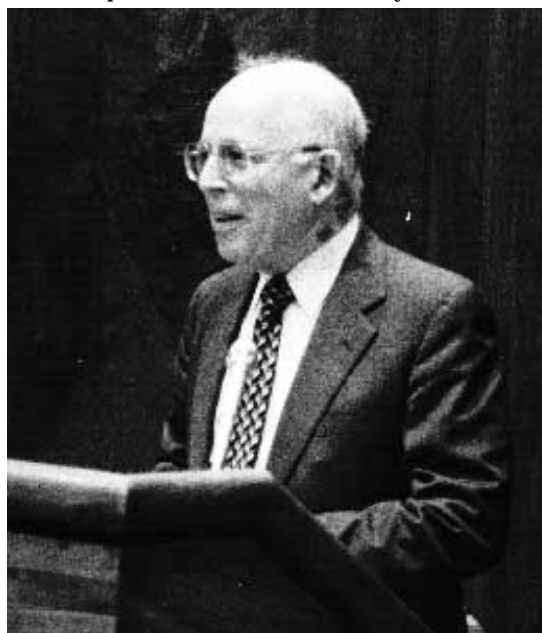
LONG-TERM DOWNSIZING

Neal Lane, director of the National Science Foundation, spoke of the short- and long-term effects of a shrinking budget and the budget debate itself, saying the recent government shutdowns have hit the National Science Foundation hard.

Lane said the National Institute of

Health estimated the government shutdowns put it about six months behind, a gap that may be the same or worse for NSF. But he is equally concerned that the long-term downsizing will target the federal research and development programs.

"The federal investment in non-defense R&D is projected by the AAAS to decrease by approximately 33 percent in real terms by 2002,



John Gibbons, assistant to the president for science and technology.

and the cuts in education are larger," said Lane.

Lane, echoing a familiar theme, said the failure to raise awareness about the benefits of science and technology may prove detrimental.

"One thing that has been striking during this year of budget battles and, most recently, the shutdown, is the perceived stony silence of the science and technology community, the universities.. and, with a few exceptions, business and industry, which depend on the knowledge and technologies that research provides. And I can assure you that this perceived lack of concern has not gone unnoticed in Washington," said Lane.

A YEAR OF SUCCESS

Fermilab Deputy Director Ken Stanfield, continuing the fast-paced meeting, detailed Fermilab's accomplishments of the past year and goals

for the future. He reported the Laboratory's Tevatron, the world's highest energy particle accelerator, performed beyond expectations in 1995, leading to the discovery of the top quark, which completed the third generation of matter postulated by the Standard Model. Stanfield also spoke of some new projects and developments that will keep Fermilab at the frontier of energy research, including the Main Injector.

He did express worries about future funding for key upgrades at the Laboratory—especially for the collider detectors—but said these concerns will not suppress the Laboratory's desire to continue to perform solid experiments, addressing the most important high-energy physics questions and mysteries.

"We have goals and plans to make full use of our vantage point at the energy frontier for the coming year and for the next decade," said Stanfield.

FUTURE PARTNERSHIPS

Martha Krebs, director of DOE's Office of Energy Research, concluded the forum by reiterating many of the views

heard earlier in the day. She too pondered future funding scenarios, saying that a "flat-flat" budget may be imminent for high-energy physics. A flat-flat budget is one that stays constant, or flat, not in spending power but in actual numbers of dollars, thus losing ground to inflation.

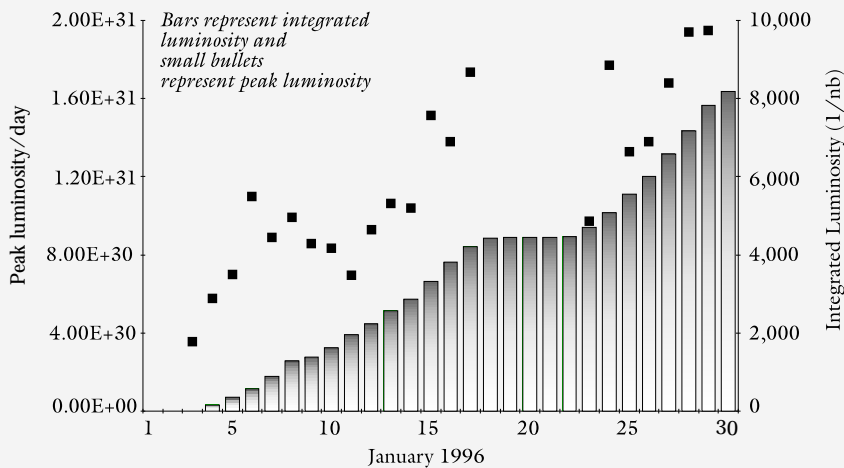
Krebs also addressed possible changes and consequences for government-sponsored science in the years ahead, saying that the applied research program already has been "devastated," but that the future looks a little brighter for basic research under the present Congress. Krebs also said everyone's approach to science and research must change, including encouraging more partnerships.

"The kind of partnership the URA has between government and universities is the kind of thing we are going to have to do more of," Krebs said. □

ACCELERATOR UPDATE

LAB NOTE

Peak Luminosity and Integrated Luminosity



URA SCHOLARSHIPS

Applications for URA scholarships are due March 1. URA awards a number of scholarships to regular, full-time Fermilab employees' children who are currently high school seniors and who will begin a four-year college degree program next fall. Applications are available from, and should be returned to, Personnel, WH 15SE, Mail Station 124.

Scholarships are awarded on the basis of S.A.T. scores. The maximum amount of the scholarship is \$3,000 for tuition and fees and is renewable for four years if the student progresses in good academic standing. Applicants will be notified regarding the scholarships in early April.

BENEFITS NOTES

MAMMOGRAPHY SCREENING

The Lab is again offering on-site mammography screenings for employees, retirees and spouses. We encourage you to take advantage of this opportunity. When breast cancer is discovered in its earliest stages, it is nearly 100 percent curable.

Employees of Delnor Community Hospital will set up a portable unit in the Northwest Conference Room on the 15th floor of Wilson Hall, with screens to ensure privacy. The mammogram will be recorded by skilled female technologists.

Mammograms are a covered expense under the CIGNA PPO plan. Delnor is a PPO provider and is able to obtain a reduced rate for CIGNA PPO members. Since the rate is based on volume, we do not know the reduced cost to PPO members at this time. Mammograms qualify as part of the \$200 annual physical benefit under the CIGNA PPO plan. This means that the mammogram will be covered at 100 percent unless you have already received your \$200 annual physical benefit for 1996, in which

case it will be covered at 90 percent if you satisfied the \$100 PPO deductible.

REGISTRATION: Thurs., Feb. 15 from 11:30 a.m.- 1:30 p.m. in the Atrium near the 1 West Conference room. You will complete a consent form and a brief medical history. Men may register their spouses and pick up forms to be brought along to the test.

SCREENING DATES: March 4 through March 8. **SCREENING TIMES:** Mon., Wed., Fri. 8 a.m. - 5 p.m. Tue., Thur. 8 a.m. - 3 p.m. If you have any questions about the mammography screening, call the Benefits Office at x3395 or x4362.

NEW BOOKLETS

During the past six months benefit plan booklets were updated and mailed to employees' mail stops. If you did not get any of the following booklets, contact the Benefits Office for a copy at x3395, or email kay_campbell@qmgate.fnal.gov. Group Dental Insurance Plan (Insurance Certificate); Group Dental Plan Summary Plan

Description; Group Medical Plans for Active and Retired Employees; Life and Accident Plans; Long Term Disability Insurance; Supplemental Retirement Plan Summary.

DON'T LOSE YOUR MONEY

The filing deadline for submitting 1995 claims to your CIGNA Health Care Reimbursement Account and Dependent Care Reimbursement Account is the close of business March 31, 1996. Some employees have substantial funds left in their accounts. Under IRS regulations, "If you don't use it, you lose it."

UPDATED DIRECTORY

Come to the Benefits Office (WH15SW) or call x3395 if you would like a copy of the new Preferred Provider Directory that includes an updated list of physicians, hospitals, and other health care providers in the PPO network. You can also verify the network status of the provider by calling the toll free number on your insurance ID card. Remember, when you use a provider in the network, you save yourself and Fermilab money!

FERMILAB CALENDAR

FEB. 9

The Y-Me National Breast Cancer Organization presents a Breast Cancer Awareness Seminar, sponsored by the Wellness Committee. The program covers early detection methods, treatment options, and possible risk factors and how they can be reduced. 12 - 1 in Curia II.

FEB. 10

The Fermilab Art Series presents the Joshua Redman Quartet. Tickets \$18. 8 p.m., Ramsey Auditorium. Call (708) 840-ARTS for information and reservations.

FEB. 11

The Fermilab Folk Club is sponsoring additional barn dances in the months of February, March and April. The extra dances will be held on the third Sunday of the month from 2 to 5 p.m. Regular barn dances are on the second Sunday of the month from 7 to 10 p.m. For more information, contact Lynn Garren (x2061, garren@fnal.gov) or Dave Harding (harding@fnal.gov).

FEB. 12

Step/aerobics classes will be held Mondays and Wednesdays, 5:45 p.m.-6:45 p.m. in the Recreation facility, February 12 through April 3. Muscle toning classes will be held Tuesdays and Thursdays, 5:30 p.m.-6:30 p.m., at the same location. The cost is \$40 for each 8-week session. Register and pay 24 hours prior to the start of each session in the Recreation Office, WH15W or send your name and check (payable to Bod Squad) to M.S. 126. You must be a current member of the facility to participate.

FEB. 13 & 14

The Wellness Works Committee presents the premiere of "Covert Bailey's Fit or Fat of the 90's," a humorous but realistic look at how to stay fit. The video will be shown in 1 West in two parts. Part I will be held Tuesday, February 13 from 12-

1 p.m. and Part II, Wednesday, February 14 from 12-1 p.m.

FEB. 16

Nalrec invites you to a 1970s celebration at Kuhn Barn, 5:15 p.m. until 9:15 p.m. For more information, look for the posters in the mail or at your favorite elevator.

FEB. 20

Blood Pressure Screening, 11:30 a.m. to 1 p.m., in the Users Office.

FEB. 21

Country Line Dancing classes will be held at the Kuhn Barn beginning Feb. 21, every Wednesday evening from 5:30 p.m.-7:30 p.m. (8 weeks) until April 17 (no class on March 13). Cost for the class is \$5 per session. Two new dances will be taught each week. Dance step sheets will be

provided. You don't need a partner, but feel free to bring one. No registration is needed. For more information contact Jean, x2548.

FEB. 24

Fermilab Arts Series presents Altan, playing with a distinctive style that combines the melodic quality of Irish tunes with the power and drive of Scottish music. Tickets \$15. 8 p.m., Ramsey Auditorium. Call (708) 840-ARTS for information and reservations.

MAR. 19

Blood Pressure Screening, 11:30 a.m. to 1 p.m., in the Users Office

Chez Léon MENU

Lunch served from 11:30 a.m. to 1 p.m. - \$8/person

Dinner served at 7 p.m. - \$20/person

For reservations call x4512

Dietary Restrictions - Contact Tita, x3524

WEDNESDAY, FEBRUARY 28

Catfish Filet with Coarse-Grained Mustard Sauce

Glazed Carrots with Dill

New Potatoes with Mint and Peas

Banana Bourbon Cake with Bourbon

Creme Anglaise

WEDNESDAY, MARCH 6

Cheese Fondue

Mixed Salad

Fresh Fruit Compote

Chantilly

THURSDAY, FEBRUARY 29 -

CARNIVAL

Wear a Costume - Get a Gift

Roast Suckling Pig

Coconut Rice

Vegetables of the Season

Rum Cake

THURSDAY, MARCH 7

Minestrone Soup

Roast Leg of Lamb with Ratatouille

Parsleyed Rice

Apple Walnut Cake with Creme

LETTERS TO THE EDITOR

Howdy,

I noticed several errors in the most recent FermiNews, Vol 19, #2. In the lead article on New Year's resolutions, Peter Garbincius is listed as being the "Research Division Fixed-Target Run Coordinator". This is incorrect. (I happen to have that title). Also, Peter Garbincius is not in the Research Division, but is in the Physics Section.

In the article on page 2 on Accelerator Archaeology, mention was made in several places of a team finding a slowly burning live wire in a cable tray "in the fixed-target areas" in 1992. Later on, it is stated that Mike Coburn (AD) led the project "in the fixed-target areas." The fixed-target areas are the responsibility of the Research Division, not the Accelerator Division. I would have heard of these problems if they occurred in the Research Division. I suspect that the author (or the person he interviewed) meant the "switch-yard area" of Accelerator Division.

*-Bruce Baller, Research Division,
Associate Head for Fixed Target Operations*

I found the "New Year's Resolutions" cover story in the latest issue of FermiNews a clever approach and very interesting to read. 1996 will be busy around here!

I was, however, disappointed that only one gender was represented by all your respondents. A sad commentary on the state of women in science in general and physics in particular?

*-Sara Tompson, M.S., Library Administrator
sara@fnlib.fnal.gov*

[Ed: We printed all the resolutions we received by the deadline, and Yun Wang was our sole female respondent. Our sampling of scientists was not representative of the Fermilab population, but it is true that there are fewer women than men in physics.]

CLASSIFIEDS

FOR SALE

■ 1989 Ford Escort, 105,000 miles, very good condition. Sun roof, AC, power steering and brakes, FM/AM cassette. \$1800. Contact Margaret at (708) 383-8643, or dagwood@fnald.fnal.gov.

■ New Sealy twin mattress, Firm Spiral. Call Tricia at x3324 or (708) 416-0507.

■ 1990 Mitsubishi Eclipse GSX, All Wheel Drive, 16 valve dual overhead cam intercooled turbo, 5 speed, AC, cruise, FM/AM cassette, 68,283 miles. New: 1KA battery, brakes, timing belts, Pirelli P7000 205/55ZR16. Must see (no rust) and test drive; \$9314. Call Bob x3769, (708) 879-6355, or FLORA@ADMAIL.FNAL.GOV.

■ Sega Game Gear with rechargeable powerpack, like new, \$95, or best offer. Includes 2 game cartridges. Call Hank at x8105 or (708) 475-1160.

■ Warrenville townhouse. Two story end unit on quiet corner lot, 10 minutes from Wilson Hall. Two bedrooms + loft, 2 full bathrooms, 1-car attached garage, fireplace, deck. Many recent updates including roof, furnace, carpeting and driveway. All appliances included. Mint move-in condition. No monthly assessment. \$104,900. Call Darren at x3530, or darrenq@fnal.gov.

■ Sears spray paint gun (never used), \$35; ladies' 26-inch Schwinn bicycle with baskets (needs tubes and tires), \$20; reel-type push lawn mover, \$20; one piece lift-top laminate lower-school desk, \$10; miscellaneous kitchen cabinets, \$10 each. Call Bruce at x2359 or (708) 871-1532.

■ 1987 Honda Accord DX, 4 door, 5 speed, moonroof, AC, cruise, AM/FM cassette, 47,000 miles, excellent condition, \$3600. Contact Peter at x2629, (708) 231-5557 or pcooper@fnal.fnal.gov.

The deadline for the Friday, February 23 issue of FermiNews is Tuesday, February 13.

Please send your article submissions, classified advertisements and ideas to the Office of Public Affairs, MS 206 or Email: TOPQUARK@fnal.gov

FermiNews welcomes letters from readers.

Please include your name and daytime phone number.

FermiNews

Fermi National Accelerator Laboratory

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