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National Forum Sheds Light on the State of Science

A bipartisan group of government representatives and public officials shared their budget concerns and hopes with the Universities Research Association's (URA) governing body of university presidents.

by Donald Sena, Office of Public Affairs

WASHINGTON, D.C. — For the second straight year, funding scenarios for research programs provided the main focus of an annual science forum, as a bipartisan panel of government representatives and Clinton administration members urged the scientific community to continue their communication with the American public and their representatives on the importance of science in the nation.

Addressing the gathering of URA university presidents, speakers even expressed reserved optimism that this nascent dialogue was beginning to have an impact, citing favorable science funding proposals from both political parties. However, the speakers also cautioned that the budget and the budgeting process will continue to present tough obstacles in the years to come.

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Photos by Lara Zullo

Senator Pete Domenici (R–NM) addresses the URA Council of Presidents' meeting and policy forum.

INSIDE

As the sunlight streamed into the crowded auditorium, senior members of more than 70 prestigious universities listened to the bipartisan group of speakers.

Shaping Fermilab and the Surrounding Community

Several Laboratory employees participate in public service around the Fox Valley.

by Leila Belkora, Office of Public Affairs

By day, Fermilab physicist Chuck Brown collaborates in an experiment to study the internal structure of the proton, looking for clues to the positions of quarks inside the particle. About two evenings a week, however, he takes his place around the table at Geneva city council meetings. As an alderman representing the first ward, which includes the historic downtown, he helps shape the future of the city he has called home for the past 22 years.

"Cities run a lot of things that people forget about: water, sewers, streets, police and fire," he said. "There's a lot of detailed work. The city of Geneva is a $20 million business, and so are the other little towns around here. In a sense, the city council is the governing body of a medium-size business."

Brown plays a particularly visible role in his community; many of his colleagues at Fermilab also participate in local organizations. In Warrenville, Batavia, Aurora, West Chicago, and other towns within commuting distance, Fermilab employees and users sit on school, library, and park district boards, fight fires or help run organizations that serve people in need. The volunteers have this in common: they say their efforts make a difference, and they get a lot of personal satisfaction from helping the community.

"I think I can speak for a lot of people I know. The reason they participate is that they feel like donating time and effort to running the things that make the social fabric of these small towns as strong as it is," said Brown.

Children provided the impetus for many of Fermilab's community leaders to get involved. Adrienne Kolb, Fermilab's archivist, sits on a scholarship committee for Hubble Middle School in Warrenville and is past president of the local Parent Teacher's Association. She began volunteering with the PTA in 1985 when her son was in kindergarten, and still values the connection with the educational community. "It keeps me up to speed with the policies of the school district," she said.

For others, running for elected office happened almost by chance. James Szyplik, a member of Visual Media Services at the Lab, said his wife read in his town's newspaper that there were vacant seats on the library board. The opportunity beckoned to Szyplik, who never drives through a small town without stopping to take a look at the local library and its architecture; he's now a trustee of the Helen Plum Library in Lombard.

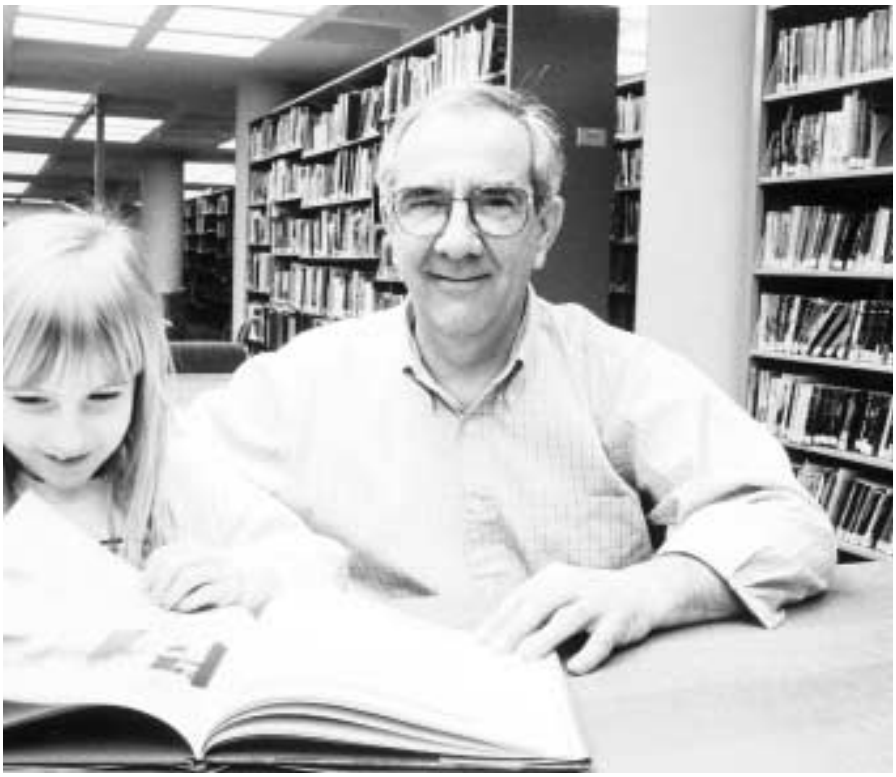
As a member of the library board and part of a delegation from DuPage County, Szyplik has twice traveled to Washington, D.C. to lobby Congress for public library funding.

"The federal budget is about $130 million for all the public libraries in the U.S., which is not much," he said.

Szyplik's library is also helping to solve a community problem by joining forces with the libraries of local schools.

"Education is in a financial bind, and a lot of times the thing that gets cut is the libraries in the schools. Because they can't buy books they need, they work out agreements with the libraries in their village," he said.

Fermilab user and DZero collaborator Michael Fortner also got his start through an ad in the paper. He and his wife bought a 100-year-old house near downtown West Chicago. A few years later he responded to a call for volunteers to sit on the town's historical commission, thinking, "I like this old house I live in, so perhaps I'd like the historical commission."



James Szyplik of Visual Media Services, who sits on the board of the Helen Plum Library in Lombard, and his granddaughter.

Photo by Bonnie Szyplik

Photo by Reidar Hahn

Library Assistant Angie Richardson is organizing a basketball game to benefit a child development center in Aurora.

Kathy Johnson, inset photo, volunteers her skills as a painter and floral designer to the Aurora Historical Society. Below are cut-out figures in 1890s dress, painted by Johnson.

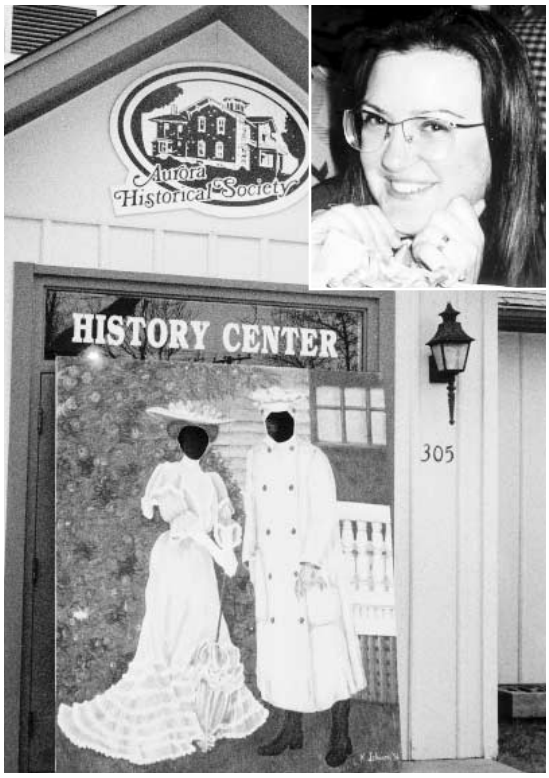


Photo by Leila Belkora

Fortner discovered that he could put his professional skills to good use on the historical commission.

"As a professional researcher I know how to look things up, get facts, and get a fairly complete picture of what's going on. The volumes of record books weren't going to put me off," he said.

His research led West Chicago to designate its first historic district. Later he sat on the city planning commission and on a citizen's advisory committee to the school board that sought to realign the boundaries of the school districts.

"Again, working with numbers and demographics and trying to situate things, I thought my scientific background could bring a lot of help to the issue, and it did," he said. Fortner is now an alderman, and running for mayor of West Chicago.

Some Lab employees support civic groups and organizations out of a passion for a cause, or as an outlet for their creative skills. Or both. Directorate staff member Kathy Johnson serves on the Special Events Committee of the Aurora Historical Society and contributes painting and floral design services for special functions.

"Much of what the Aurora Historical Society accomplishes is through a small, hard-working corps of volunteers. My contribution is one way to give something in return to a community that has given much to me," she said.

A similar motive animates Library Assistant Angela Richardson. Richardson is organizing an alumni basketball game between East and West Aurora High Schools to benefit the Marie Wilkinson Child Development Center, which serves children from low-income families.

"Marie Wilkinson has been in Aurora for about 70 years—she won't say how old she is—and has worked for fair housing policies. I really admire the things she has done, and I've lived in Aurora all my life. I asked myself, 'what can I do to help?'" said Richardson.

Library Administrator Sara Tompson is passionate about her twin causes of feminism and library activism, too, but serves a more far-flung community.

Tompson, who is past Vice President of the Illinois National Organization for Women, said, "I had this life plan—actually it's a little off, but it's starting to work—that I would do NOW in my twenties and librarianship activism in my thirties." Tompson sits on the board of the non-profit Women's Assistance Fund, which provides some small financial assistance to women who are victims of sexual harassment, and helps women and children through education and information.

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More Public Servants

Other Fermilab employees and users who sit on community boards.

Susan Dahl (Laboratory Services)

David Harding (Beams Division)

Gerald Jones (Business Services)

Paula Lambertz (Beams Division)

Ernie Malamud (Directorate)

James Volk (Beams Division)

Some Lab employees support civic groups and organizations out of a passion for a cause, or as an outlet for their creative skills. Or both.

Science Forum

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‘ At least this Congress is starting off with some signs of hope, unlike the situation that prevailed when I spoke with you two years ago. But to take advantage of this will require a redoubled effort on your part to move the political system in your direction.”

- Rep. George Brown, (D–Calif.)

The URA’s Council of Presidents’ Annual Meeting and Policy Forum, held February 5 in an overflowing auditorium at the National Academy of Sciences, allowed influential speakers to address senior members of research universities about the present and future of science endeavors. URA operates Fermi National Accelerator Laboratory for the U.S. Department of Energy; the Council of Presidents, URA’s constituent body, comprises 86 university presidents from member institutions around the world. Senator Pete V. Domenici (R–NM) and Rep. George E. Brown, Jr. (D–Calif.) addressed the gathering, along with Martha Krebs, director of DOE’s Office of Energy Research and Neal Lane, Director of the National Science Foundation. Fermilab Director John Peoples reported on the state of the Laboratory during the day–long event.

Outgoing Council of Presidents’ Chairman E. Gordon Gee, president of Ohio State University, welcomed the participants, who included representatives from more than 70 of the member universities. URA President Fred Bernthal began the meeting by reporting on the Association’s activities in 1996, including the signing of a new five–year contract to manage Fermilab and the successful completion of the Superconducting Super Collider shutdown.

Familiar Terrain

Rep. Brown, ranking minority member on the House Science Committee, opened the most widely anticipated portion of the proceedings—the policy forum. Brown said when he addressed the URA conference two years ago, he outlined the threats to federal funding for research and development, and urged the science community to pick up the fight against the cuts and consider ways that science could address the “broader social problems facing society.”

Photos by Lara Zullo

Rep. George Brown (D–Calif.), senior minority member on the House Science Committee, detailed his proposal for increased science funding.

This time around Brown said many of the same concerns still exist. Speaking the day before President Clinton delivered his budget to Capitol Hill, Brown said he expected a "soft freeze" for general science funding, providing enough growth to offset inflation. He also warned that the proposed balanced budget amendment is a big threat to the science community, since many of the initial cuts needed to balance the budget will come from discretionary spending, where science programs reside.

However, amid these concerns, the congressman said that recently some hope has been seen in terms of positive funding initiatives from both parties. Brown mentioned Senator Phil Gramm's (R–Tex) recent bill to double basic science and medical research funding over ten years. Brown also outlined his own plan that proposes to balance the budget in five years, while allowing for a five percent annual increase in research and development funds. The congressman said that he hoped to form an "unlikely alliance" with Gramm to forge bipartisan support for these science initiatives.

"At least this Congress is starting off with some signs of hope, unlike the situation that prevailed when I spoke with you two years ago. But to take advantage of this will require a redoubled effort on your part to move the political system in your direction," said Brown.

Brown went on to stress his belief that science and scientists need to assume a broader role in society, taking into account the ever–changing landscape of the nation and the world.

"I am increasingly convinced that it is no longer sufficient to simply push for more funding in R&D programs. We must all apply ourselves to the task of social change...," said Brown. He later added, "I am encouraged by the increased political activism by the science, engineering and academic community. I will continue to challenge your community to use that activism and apply your considerable talents and resources to a larger set of problems."

Housekeeping

The Council of Presidents briefly interrupted the policy forum to take care of business. The group heard reports on URA finances, the URA Board of Trustees and the Fermilab Board of Overseers. The council also elected a new chair (Shirley Strum Kenny, president of the State University of New York at Stony Brook) and vice chair (Ray Bowen, president of Texas A&M University) and several trustees.

James Cronin, a Nobel Laureate from the University of Chicago, detailed the status of the Pierre Auger Observatory Project. This science program will attempt to discover the source of very high–energy cosmic rays. Two observatories, in Utah and Argentina, will measure the nature, energy and direction of these cosmic rays—the most energetic particles observed in nature, greatly surpassing the energy produced by the world's most powerful particle accelerators.

Familiar Faces

Martha Krebs, a familiar speaker at URA conferences, stressed that DOE is a science agency, supporting research of all types. She previewed the President's FY1998 budget, which showed that the Clinton Administration's funding request for DOE's Office of Energy Research was a tick over flat from the FY1997 appropriation (see page 11 for details on the President's budget as it pertains to Fermilab). Krebs said this was an improvement over dramatic cuts that earlier plans had forecasted. She credited the small victory partially to the science community's efforts to heed her call on reaching out to the public about the importance of science.

"In large measure, you delivered. All of [the outreach] made a difference," said Krebs, cautioning, "It's a great advance over where we were...but I think we need to recapitulate the efforts of the past year."

Krebs, too, cited Senator Gramm's authorization bill for increased science funding—an initiative that will need an accompanying House bill and an appropriation counterpart. She also said DOE has continued to investigate ways to foster more cutting–edge science at new world–class facilities in the country, including the Main Injector and a possible CZero detector hall at Fermilab and the B–Factory at SLAC, among other projects. Krebs also said the Administration supports U.S. involvement in the Large Hadron Collider at CERN, noting she had initialed an agreement on February 3 to participate in that project.

Neal Lane, another familiar face at the URA conference and in the fight for increasing the profile of science in the national debate, spoke of changing the role of scientists amid more scrutiny about research funds. He said that he believed "we can and we really should be on the cusp of a new, albeit different, golden era of science in America."

Lane detailed what he called the narrow view of the role of the scientist, and the place a science degree holds, in the eyes of the public at the present time. He said researchers will need to take a broader societal role in the future, urging the developers of future graduate

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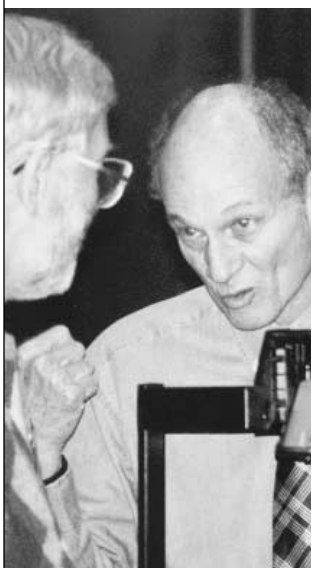
Martha Krebs, director of DOE's Office of Energy Research, said increased outreach by the science community has helped funding scenarios.

James Cronin, from the University of Chicago, reported on the Pierre Auger project. "The prospect for the discovery of new physics or astrophysics is likely," said the Nobel Laureate.



Photos by Lara Zullo

Photo by Reneé Hahn

Part of the DZero team from MSU pose with their detector.

Photo courtesy of Michigan State University

Some members of the MSU high-energy physics group on the East Lansing campus, posing with boxes of fiber optics for the CDF endplug upgrade. First row, left to right: Joey Huston, Ron Richards (engineer), Brian Vankuik and Dean Schooltz (undergraduate students). On ladder are Cheryl Trevino and Mike Nila (graduate students), Bob Miller (research associate) and Carl Bromberg (top of ladder).

The Michigan State—Fermilab Bond

The particle physics group from East Lansing continues to take full advantage of Fermilab's facilities.

by Donald Sena, Office of Public Affairs

Michigan State University's relationship with Fermi National Accelerator Laboratory combines a rich history on the Batavia, IL site with active experimentation in high–energy physics.

And a whole lot of people.

While Michigan State researchers were around to receive the earliest particle beams from Fermilab's accelerators, a large MSU team now has active groups at not one, but both collider experiments, a faculty member on the Laboratory's Board of Overseers, past chairs of the Users Executive Committee and a cospokesman for a 450–member international science collaboration.

"We've been bonded to Fermilab in important ways for a lot of years," said Raymond "Chip" Brock, chair of the Michigan State University Department of Physics and Astronomy.

And that bond is certain to continue into the new century, as the MSU group plans years more research at the energy frontier, while having a strong influence on Fermilab's future with TeV2000, a project designed to guide the Laboratory into new physics with powerful new accelerators. Michigan State's successful science endeavors are no surprise to those familiar with the university.

"As one of the original land–grant universities, MSU is now a prestigious university with an international reputation for quality research, including the area of high–energy [physics] research," said Congresswoman Debbie Stabenow (D–Mich.), an MSU alumnus. "Research endeavors like Fermilab or like the National Superconducting Cyclotron Laboratory at MSU are important not only to specific universities but also to this nation's economy."

The Michigan State high–energy physics group, started in 1968 by Maris Abolins and Gerry Smith, presently has seven faculty members in experimental physics and six theorist faculty members, along with five graduate students in theory and eight graduate students in experimental particle physics.

History

Michigan State faculty members have a tradition at Fermilab, conducting an array of fixed–target experiments dating back to the Laboratory's infancy. Carl Bromberg, a professor at MSU for 18 years, based his doctoral thesis on a Fermilab experiment that began in 1970 and used one of the Lab's earliest particle beams directed into a bubble chamber. Later in his career Bromberg teamed with Joey Huston, also of MSU, to direct Experiment 706, which had three runs in the late '80s and early '90s. Experimenters designed the study to measure the production of single photons at high transverse momentum, which is a test for Quantum Chromodynamics (QCD), the theory that describes how particles carrying the strong charge interact with each other. This early work in QCD has remained a central theme in the physics interests of the entire Michigan State group, with several researchers attacking the theory from disparate angles.

Another team of current Michigan State professors worked on Experiment 594 and its successor, E773, during the '70s and '80s. Abolins, Brock and Harry Weerts all helped lead the series of experiments, which focused on neutrino scattering and neutral current physics.

Collider Physics

After completing fixed–target work and adding more faculty members, Michigan State entered the world of colliding beams. A large MSU team joined the DZero experiment before there was even a detector in Batavia. In the early '90s, a separate MSU team joined the CDF collaboration, making the university one of a select group of institutions that have researchers on the competing collider experiments.

MSU professors Bernard Pope, James Linnemann, Brock, Weerts and Abolins all took on the task of building major parts of the nascent DZero detector, including the design and construction of the Level 1 trigger, Level 2 trigger, liquid argon calorimeter charge collection boards and cosmic ray shield.

Various members of the team studied QCD and the electroweak force in the analysis phase. Weerts was the first head of the QCD group at DZero and became coordinator of the entire physics analysis in 1994, one year before the experiment, along with CDF, announced the discovery of the elusive top quark. This winter he became cospokesman of DZero.

The entire Michigan State / DZero team, including undergraduate students, are participating in the critical upgrade of the detector for Run II. The Main Injector, Fermilab's newest accelerator now under construction, will bring many more proton–antiproton collisions, or increased luminosity, to the detectors. The trigger system, devices that record the interesting collisions and discard the routine events, must be able to keep up with that higher luminosity. Linnemann is leading the trigger upgrade, along with Abolins. When the data begins streaming in, Weerts, Pope and Abolins will continue with their QCD studies, while Brock will continue his work in precision electroweak measurements.

CDF

After completing E706 in 1992, Huston and Bromberg joined the CDF collaboration. Presently, the two professors, along with their students and an engineer and research associate, are developing and testing the upgrade to the endplug and the calorimeter's optics system. This system, drawing upon technology similar to the fiber optics in phone lines, uses scintillation and optical fibers to capture light and reconstruct information about interesting particle interactions that occur in the detector.

"Whenever something with scintillation has come up, we usually raise our hands," said Bromberg.

Along with the calorimetry and optics work, the MSU group at CDF is also helping develop the upgraded central tracking chamber and building the intermediate muon system. Huston, further expanding his institution's interests in the theory of the strong force, is the QCD coconvener for CDF.

Photo by Reidar Hahn

Simona Murgia, a graduate student from Michigan State University, working on the CDF upgrade at Fermilab.

CDF–DZero Interplay

A microcosm of the healthy scientific competition that exists between CDF and DZero recently played out during an interview with Huston and Brock. The two researchers discussed the subject of Run II physics ideas and both mentioned they would like to do more with jet cross sections at high transverse energies—a topic of some disagreement recently between the two experiments.

[When protons and antiprotons collide, some physicists study the collisions that cause the shower of secondary particles (jets) to fly off at angles near 90 degrees (transverse direction). This is an indication of high–transverse energy, or a proton and antiproton both bringing extremely high energy to a collision. The cross section is how often a scientist "sees" this type of high–transverse energy collision.]

CDF and DZero compared their results on this topic with theory predictions. Huston said CDF wrote a paper in 1996 that reported an excess of cross sections above the Standard Model prediction, while Brock said the DZero collaboration wrote a subsequent paper that reported no such excess. The two researchers vigorously discussed the differences in their papers during a recent interview—seemingly enjoying the healthy disagreement that they were having—before stopping themselves.

"What you are witnessing here is interesting, as we have two groups from one university" engaged in collider physics, said Brock.

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Public Service

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Library Administrator Sara Tompson volunteers for a non-profit agency to support women and children.

Some Lab employees, like Communications Operator Derek Piec, volunteer their job skills to the local community. At Fermilab, Piec monitors lab-wide fire, security and utility alarms and dispatches the security guards and Fire Department. During the summer he and fellow ham-radio amateurs go out and spot for severe weather.

"The whole public service field, that's what got me here into the Communications Center," said Piec. "I always liked helping in the community. For the most part everyone's pretty friendly. They say 'nice job.' You get a good feeling of confidence."

Fortner says more scientists at Fermilab could probably do the same. "Perhaps we as scientists forget that we have special training that applies beyond the realm of scientific research. The ability to solve a problem by breaking it down into pieces and identifying a solution for each part translates to non-scientific endeavors." ■

Photos by Reidar Hahn

Communications Operator Derek Piec uses his personal ham radio equipment to help spot tornadoes.

Michigan State

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Theory and Experiment

C.P. Yuan, a theoretical physicist at MSU, jumped in at the end of the cross section discussion to clear up some points on the cross section theories, illustrating another unique characteristic of the Michigan State physics program. Brock and Huston said they and their teams work closely with the theoretical group in the department to attack the major particle physics questions of our age.

"We like this interaction among theorists and experimentalists. The way I think of it is we are all physicists," said Weerts. "And, although we yell at each other sometimes, in the end without each other, we can't make any progress."

A reflection of this philosophy is The Coordinated Theoretical–Experimental Project on QCD. Created by Michigan State theorist Wu-Ki Tung and housed primarily at the East Lansing campus, CTEQ includes 17 theorists and experimentalists from 10 universities and laboratories working in a close collaboration.

In addition to pushing the boundaries of QCD, Michigan State, along with their state counterpart, the University of Michigan, are striving to have a larger impact on the entire field of high–energy physics. MSU's Chip Brock and Dan Amidei, from the University of Michigan, started TeV2000, a workshop designed to generate a working physics plan for Fermilab's future.

Student Participation

One important element of all this work is the participation of MSU students, graduate and undergraduate, in the experiments at Fermilab. Michigan State has a laboratory and production facility, allowing much of the particle physics hardware and software design and construction to occur on campus with students. Huston said he now has five undergraduates working 20 hours a week on CDF equipment for the upgrade. At least one student, senior Ryan Hooper, said he wants to pursue high–energy physics in his graduate studies.

"We're all professors of physics and we work at universities primarily because we like to teach," said Brock. "It's inherent to this [work] that we have to balance both sides of the fence between research and teaching." ■

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degree programs in science to prepare students to make contributions in atypical places, including education, business, government and other fields. He said that some of this activity is already occurring.

"In the end, the system must encourage those who aspire to be the next Einstein or Fermi to go for it. The world will need them," said Lane. However, he later added, "There are many pockets within science departments that are bubbling with, what my generation might characterize as, 'unconventional activity.' Although these examples of innovation and change are still the exception and not the norm, they are exciting, diverse and growing rapidly."

A Budget Veteran

After Fermilab Director John Peoples presented a state of the Laboratory report, Senator Domenici, chairman of the Budget Committee and chairman of the Appropriations Subcommittee on Energy and Water Development, closed the forum with a spirited address on funding and the federal method of budgeting, and how it pertains to science research.

The senior senator from New Mexico began by explaining the piece of the pie that science maintains in the U.S. budget. During the John F. Kennedy administration, the entitlements, or mandatory spending portion, totaled only 17 percent of the budget, leaving the rest for discretionary spending. Domenici said now more than 65 percent of the budget is occupied by entitlements.

"...Little or no science funding of any type comes within that automatic pilot of expenditures," said Domenici. He went on to detail that of the remaining 35 percent or so of the budget, about half goes to defense spending, leaving only about 17 percent for the rest of the government, including all of the science programs, education, infrastructure and other federal programs. He said the entitlement program is cumbersome, limiting money for other important programs; however, the senator said he sees growing support in the government for greatly increasing science funding over the next decade

"I think there is a growing cognizance of the fact that one thing we ought to maximize is our commitment to science. So long as it is being run right, so long as it is competitive, so long as it is peer reviewed, we ought to put more rather than less in science," said Domenici.

However, he quickly added that he worries not all government representatives are ready to make the tough choice of reining in the entitlements, such as Medicare.

Domenici also sees other problems with the rigorous funding system in the U.S., including the annual budget dance and an improper gauge of inflation. The senator said a blue-ribbon panel recently reported that the Consumer Price Index, the government's inflation indicator, may be too high by as much as 1.1 percent. Recalculating the index could pour millions of dollars back into the federal coffers. He also said he supports moving the U.S. to biennial budgets as a way of bringing stability to programs dependent on government funds. He added that this change alone could have extremely positive results on science research in this country.

"We are going to try and give you at least a little tiny bit of continuity and security by appropriating your programs for two years at a time. I think you will be ecstatic," said Domenici.

The senator concluded his address by answering a question from the audience about the possible restructuring or dismantling of the Department of Energy. He said he expects the topic to be revisited again by the 105th Congress, but he added that if Federico Peña, President Clinton's choice for Energy Secretary, can make some substantial management changes, Domenici believes Congress will leave DOE in place. ■

Neal Lane, director of NSF, spoke of a new role for scientists in the future.

Photos by Lara Zullo

David Schramm (right), from the University of Chicago, and Barry Barish, from the California Institute of Technology, talk during a break in the proceedings.

Updates

January 30—February 11

ACCELERATOR

Bob Mau, head of accelerator operations, said fixed-target experiments suffered from interruptions in beam delivery early in the week (Feb. 3-9), and did better on the weekend, while the reverse was true for the Antiproton Source.

"The big things going on last week for fixed-target operations were: we had a maintenance and development period, and we had a raccoon that took down the accelerator. In the pbar source, we pretty much ran all week. On the weekend we had problems with a magnet that needed flushing, and then we had problems with a water leak so we had to dump the stack again," he said.

The raccoon got into Feeder 23, which supplies power to the Switchyard, part of the Transfer Hall, and some accelerator operations offices. A 13,800-volt line electrocuted the animal.

Beams Division crew used the maintenance period to work in the Booster in preparation for the test of the 8 GeV line that runs from the Booster to the Main Injector.

"We had two RF stations to work on at Main Ring RF, and a bunch of little problems," said Mau.

During the time the accelerator ran, the intensity was typically 2.2 to 2.3 x 10^{13}, according to Mau.

FIXED-TARGET

Collaborators provided this update on fixed-target experiments.

E799 / E832 KTeV "KTeV continues to run in E799 phase II mode, searching for a wide array of rare kaon decays. The major detector work done over the Christmas shutdown has paid off in higher component reliability and higher quality data. On a good day we now typically equal our yields for the entire nine week run of E799 phase I. However, a large number of protons-on-target still stand between us and the sensitivities we must reach in order to probe the standard model at a meaningful level," said Ron Ray of Fermilab.

E866 NuSea "E866 continues steadily taking data on the Drell-Yan cross sections on the proton and deuterium at kinematics optimized for high mass virtual photons. The experiment will continue in this mode with little change for roughly another month," said Don Geesaman of Argonne National Laboratory

E835 Charmonium "E835 continues the search for the eta_c'. The performance of the pbar source has improved. Over the last ten days we took about 7 pb^-1 of integrated luminosity. The antiproton beam was decelerated successfully below the eta_c mass where we took data to study the background," said George Zioulas, from the University of California at Irvine.

E862 Antihydrogen "Problems with the trajectory of the antiproton beam in the Accumulator meant that the experiment saw no events for about two weeks. These problems have been corrected in the last few days, and the experiment is once again observing antihydrogen production.

After the current store, we will probably return to running roughly 50 percent of the time with the stripping foil out. We anticipate running in this mode for three to four weeks during which time we should see about 10 events with the foil in and no e+ / Pbar coincidence event with the foil out," said David Christian of Fermilab.

E815 NuTeV "The analysis of our first 1e18 protons for preliminary physics distributions is underway and we're starting to attack some of the subtler problems of understanding the energy spectrum. We have good starting agreement between data and Monte Carlo for our muon / hadron energy response. On the whole, we're beginning to do the real work of analysis while girding ourselves for the rest of the run," said Bob Bernstein of Fermilab.

E872 Donut "Major modifications to our shielding have been completed. Early next week test emulsion sheets will arrive from Japan and an exposure is in the works. We are eager to see the results from this test," said Vittorio Paolone from the University of Pittsburgh.

E781 SELEX "SELEX has been pretty calm during the past two weeks.The run is going smoothly, except for dead raccoons and other interruptions. We are still working on the procedures to up our intensity request. That is taking longer to implement than we had expected; part of doing science is dealing with surprises, I guess. We are writing data steadily at the present time and would like to make sure that changes improve things, not harm them," said Jim Russ.

E831 FOCUS "The target region microvertex detector, installed during the Christmas shutdown, is being calibrated and has been integrated into the normal data taking system. Some minor upgrades of the spectrometer improved the livetime of the data acquisition system and the quality of the events we are taking. We are monitoring our data on a charm-yield-per-day basis and we are using this information to optimize the quantity and quality of the data we are collecting," said Matteo Boschini, from Fermilab.

E871 HyperCP "We seem to have been particularly beset with gremlins this past week. The air conditioning for our front–end electronics failed, causing a couple days of down time to fix it and to fix electronics that had been damaged by overheating. We also found part of our gas system contaminated by oil, the source of which we are still trying to track down. And finally, one of our chambers broke a wire. Aside from these problems, everything has been running smoothly, with the accelerator delivering great beam," said Craig Dukes, from the University of Virginia and cospokesman for the study.

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
Cakes for Special Occasions
Dietary Restrictions
Contact Tita, x3524

Lunch
Wednesday
February 26

Chicken Coconut Curry
Jasmine Rice
with Chutney
Apple Almond Strudel

Dinner
CARNIVAL
Thursday
February 27

Arrepitas de Yuca
con Sopa de Platanoes
Roast Suckling Pig
Moro de Guandules
Chayote Guisado
Coconut Cake with
Rum Caramel Sauce

Lunch
Wednesday
March 5

Lebanese Platter with
Pita Bread
Baklava

Dinner
Thursday
March 6

Vol-Au-Vents with Seafood
Stuffed Flank Steak
Mushroom Risotto
Chocolate Souffle with
Creme' Anglais

Main Injector 8 GeV line to see beam

Main Injector Project Manager Steve Holmes said the Beams Division will run beam through the 8 GeV line for the first time ever during the week of February 17.

"This will be the first test of a beamline based on permanent magnet technology anywhere in the world," he said. "Construction of the 8 GeV line with permanent magnets has allowed us to develop the technology that will form the basis of the antiproton Recycler Ring, and, of course, is cheaper to operate than a conventional electromagnet line would be. We're looking forward to seeing how it works."

LAB NOTES

West Wilson Gate Closes on Weekends

Beginning February 15, the Laboratory began closing the Wilson Street gate to automobile traffic on weekends, as a cost-saving measure. The entrance remains open to bicycle traffic.

Before deciding to close the gate to cars, Fermilab officials evaluated results of a survey of Wilson Gate users. Questionnaires revealed that an average of only 75 vehicles per weekend day used the Wilson gate. Most, although not all, survey respondents said that using the Pine Street entrance instead of Wilson Street would pose little disruption to their activities at Fermilab on weekends.

Several respondents expressed concern about safety on Kirk Road, despite the recently installed left turn lanes. Laboratory officials pledged to continue to work with Kane County to understand and resolve traffic safety problems on Kirk Road.

Is Your Mail Station Correct?

With the reorganizations and personnel moves occurring within the Laboratory, please be sure to report your new mail station to the Personnel Department as soon as possible. This will insure that your mail and your payroll advice are delivered to the proper location. In addition, it will assist the Property Office in verifying your location for inventory information regarding sensitive items assigned to you.

President's Budget Would Fund Fermilab Detector Upgrades, Main Injector, New Projects

by Judy Jackson, Office of Public Affairs

The budget that will determine the course of particle physics research at Fermilab for the fiscal year that begins on October 1, 1997 began its perilous course through the federal legislative process on Thursday, February 6. The release of the President's Budget Request for Fiscal Year 1998 signaled the official start of the budget season that will—probably—end next September with an appropriation from Congress to fund Fermilab's research activities for another year.

For Fermilab, initial indications were moderately heartening; the Budget Request did not contain the wholesale cuts in funding that some earlier plans had forecast. The FY1998 Budget Request for the Laboratory included $31 million for the final phase of Main Injector construction, $5.5 million for engineering design of the NuMI (Neutrinos at the Main Injector) Project, and $5 million for construction of a new collision hall at the CZero region of the Tevatron. In addition, the $264.3 million total budget request for the Fermilab budget includes funds for upgrading the DZero and CDF detectors, to enable them to take advantage of the increase in proton-antiproton collision rates that the Main Injector will provide when it begins operating in FY1999.

The total High-Energy Physics budget request of $675 million also includes $35 million for the U.S. contribution to the Large Hadron Collider at CERN. Fermilab will play a leading role in the U.S. LHC effort, in both accelerator design and construction and detector development. Fermilab physicist Jim Strait is Project Manager for the three-laboratory U.S. consortium that will be responsible for certain key accelerator components, and Fermilab is the lead U.S. laboratory for the CMS detector for the LHC. Thus, some of the $35 million FY1998 LHC request would be spent at Fermilab.

Budget season has begun, but it is a long way from the snows of February to the frosts of October. In the meantime, the FY1998 budget will occupy much of Congress's attention during the long, hot appropriations season that will ultimately determine the resemblance, if any, between the President's Budget Request and the FY1998 Budget. ■

CLASSIFIEDS

FOR SALE

■ 1986 Mazda 323, 2-door hatchback, fuel injected, 4-speed manual trans, 72k miles, $1,000. Call Mark Champion, x3697 or (630) 584–5769.

■ Misc. items for sale: wood desk, 20"x40"; Hoosier cabinet; old abbey chair; couch, great for screened porch; three 10-speed bicycles; oak lumber scraps. Photos available. Must sell. Call Mark Champion, x3697 or (630) 584–5769.

■ Townhome, 2 bedrooms. 1-1/2 bath, 3 levels w/finished basement. Oak floor on main level, utility room, storage area. End unit with lake view and deck, nice neighborhood, close to shopping, train and I-88. Naperville School District 204, low utility bills, $82,900. Association Fee: $98. Call Chris & Vicki Kuhnen, (630) 978-7044

■ 55-gallon fish tank. Two power head filters, a top water filter, an under-gravel filter, gravel, plants, decorations, lights, heater, pumps, spare parts and the fish too! $350, firm. Fisher Stereo System, all component system including 5–track CD, dual cassette, receiver, amp, turn table, 2 tower speakers, and remote control, $400 obo. JVC 4-head VCR, $100. Call Martha, x3511 for all.

■ 12 HP International Harvester Cub Cadet Tractor w/48" mower deck. Excellent condition $750; 10 cu/ft garden cart $60; 30" lawn sweeper $20; 8 hp chipper/shredder $325; Gas powered lawn blower/vac $45; Homelite gas powered line trimmer $40; Homelite gas powered water pump w/hoses $140. Piano, cabinet upright, circa 1917, keys and action have been reconditioned. Wood has been stripped and needs finishing, includes bench, $100 obo. Call Ed Dijak, (630) 690-1145.

WANTED

■ Interactive, experienced childcare sought: Long term position from April or May 1997 caring for pleasant, musical 2-1/2 year old girl five days/week, 9 a.m. to 5 p.m. English fluency and car necessary; cognitive development training and/or musical inclination desirable. Salary competitive. References please. Nicole Jordan and David Herrup, Warrenville, 393-3970.

MILESTONES

AWARD

Nelson Sample, BSS/Procurement, will be honored as one of the "Outstanding Buyers" for 1997 by the Minority Business Committee of the Chicago Minority Business Development Council, Inc. This award pays tribute to individuals in corporate America and the public sector who have made extraordinary contributions to minority businesses through substantive purchasing or contracting activities. The presentation will be at MBC's 19th Annual Awards Program and Celebration, April 2, 1997.

CALENDAR

FEBRUARY 21

Potluck Supper in the Village Barn, 5:30-8 p.m. Please bring a dish to serve 6-8 or $3 to cover costs (plus $1 for adults drinking alcoholic beverages). Babysitting and pizza for kids provided.

FEBRUARY 22

An Evening of Solo Piano: Philip Glass. An evening of solo piano with Philip Glass is a rare opportunity to experience a more personal view of this important American composer. Debuting an all new program of compositions for piano, this concert reveals the intricacies of Glass's style in its most elemental form. Simultaneously stirring and meditative, this event provides a fond reacquaintance as well as it does a perfect introduction.

Fermilab welcomes this rare event to Ramsey Auditorium on Saturday, February 22 at 8 p.m. Tickets are $17 and available through our box office at (630) 840-ARTS.

FEBRUARY 26

Wellness Works, Fat Measurement 11:30 a.m.–Noon in the Users Office.

FEBRUARY 27

Wellness Works, Brown Bag Seminar on Menopause from Noon -1 p.m. with Carol Weinberg, M.D. in 1 West.

MARCH 2

Swing Dance Workshop, 2–5 p.m. in the Village Barn. $5 per person. Call Mady, (630) 584-0825 for more information.

MARCH 6

Wellness Works, Brown Bag Seminar on Attention Deficit Disorder, Noon–1 p.m. In One West with Dr. Tracy Scott of Cornerstone Clinical Associates

MARCH 9

Barn dance at the Village Barn from 7–10 p.m. The dance features live music by The Dead Mules and calling by Tony Scarimbolo. The dances are contras, squares, and circle dances. All dances are taught, and people of all ages and experience levels are welcome. You don't need to come with a partner. Admission is $5. Children under 12 are free. The barn dance is sponsored by the Fermilab Folk Club. For more information, contact Lynn Garren, x2061 or Dave Harding, x2971.

ONGOING

English lessons, Thursdays 10–noon in the Users Center, call Jeanette Antoniuk, (630) 769-6518.
NALWO coffee mornings, Thursdays 10 a.m. in the User's Center, call Selitha Raja, (630) 305-7769.
In the Village Barn, international folk dancing, Thursdays 7:30–10 p.m., call Mady, (630) 584-0825; Scottish country dancing Tuesdays 7–9:30 p.m.; call Doug, x8194.

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