

F E R M I N E W S

F E R M I L A B

A U.S. DEPARTMENT OF ENERGY LABORATORY



Cầu tre Bamboo Bridge **8**

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Fermilab receives \$1.28 million in DOE SciDAC awards for

ADVANCED COMPUTING TOOLS IN PHYSICS RESEARCH

by Mike Perricone

Fermilab physicists and computer scientists can stake a larger claim to the future of high-energy physics—and to the next generation of computing—thanks to their part in the first-ever awards in DOE's Scientific Discovery through Advanced Computing Program (SciDAC), announced August 14 in Washington, D.C. by Secretary of Energy Spencer Abraham.

Through the SciDAC awards, Fermilab will receive approximately \$1.28 million a year for the next three years as a participant in three nationwide collaborations: the Particle Physics Data Grid (PPDG); Advanced Computing for 21st Century Accelerator Science and Technology; and the National Computational Infrastructure for Lattice Gauge Theory.

Together, the efforts share ambitious scientific goals: creating computer tools that will allow physicists to work at their home base with up-to-the-second experimental data from sources anywhere the world; and adapting those access tools to design the high-energy physics discovery machines of the future more efficiently and economically.

"We know that there are basic questions of nature that can only be answered by building new accelerators to reach higher energy levels," said Fermilab Computing Division Head Matthias Kasemann. "These facilities will absolutely require world-wide collaboration, and computing is a critical element in making this collaboration work."

As the major next step enabled by the SciDAC awards, the PPDG, Advanced Computing and Lattice Gauge Theory collaborations will help create a new generation of scientific simulation codes for "terascale" computers: computers capable of making trillions of operations per second ("teraflops"), while handling trillions of bytes of data ("terabytes").

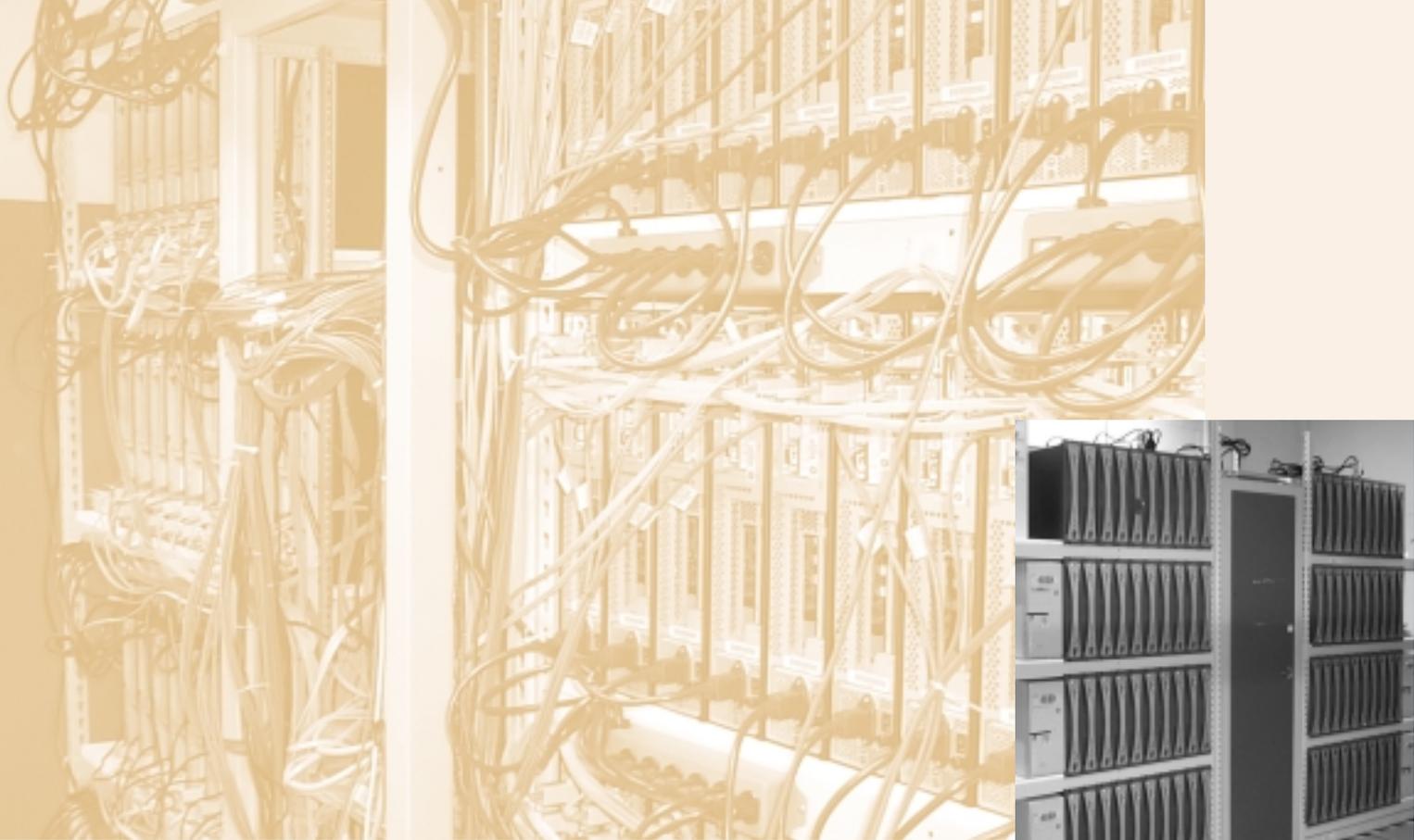
The collaborations will integrate terascale computing into developing the concept of a "collaboratory," or true collaborative laboratory. Scientists at far-flung institutions could work as if they were side by side at a central site, with the collaboratory distributing data for sharing in the analysis of particle physics experiments; in the design and development of future particle accelerators in new energy realms; and in the continuing expansion of theoretical principles and calculations in quantum chromodynamics (QCD), the sector of the Standard Model that describes the strong forces between particles.



The New Muon Lab counting room houses the lattice QCD cluster that will benefit from the SciDAC award. The cluster currently consists of 80 worker computers called nodes, and a home computer. The cluster will grow to about 256 worker nodes by mid-Spring, 2002.



Matthias Kasemann
Computing Division Head



Photos by Reidar Hahn

The counting room at New Muon can house over 1,400 computers. The 80 worker nodes shown in these photos were purchased from Silicon Graphics in Fall, 2000; each node has a pair of 700 MHz Pentium III processors and 256 MB of memory. In the photo above, the wires are emanating from the back side of the computers. Visible wires include power cords, ethernet cables, and serial cables. Other cables (not shown) are for the high-performance network critical for linking the machines together while running physics codes. Typically the power of a supercomputer is expressed in terms of peak, rather than sustained, performance. The 80-node cluster in the photos has a peak performance of 112 gigaflops per second. Adding 176 computers will add about 600 peak gigaflops per second.

“The requirements of high-energy physics push computing technology to ever-higher levels and offer extraordinary opportunities for collaborative efforts,” said Fermilab Director Michael Witherell. “SciDAC represents a promising new approach to integrating science and computing at the Department of Energy.”

LATTICE GAUGE: CALCULATING A STRATEGY

The elementary particles called quarks are held together by a force called the strong force. The mathematical description of that force is called Quantum Chromodynamics (QCD); the computational method is called Lattice Gauge Theory. Studying quarks and the forces among them is a continuing challenge.

“The only way to get meaningful results in QCD is through large-scale numerical simulations,” said theorist Robert Sugar of the University of California at Santa Barbara, principal investigator of the Lattice Gauge Theory collaboration.

“In recent years, there have been major advances

in the methods for these calculations,” Sugar continued, “and the Fermilab theory group has been a leader in developing the technologies to make these calculations feasible. But, to be effective, these methods require big increases in computing power.”

Fermilab physicist Paul Mackenzie is one of the institutional leaders in the Lattice Gauge Theory collaboration, which has 65 members at 11 institutions (Fermilab, University of Illinois at Champaign-Urbana, University of California-Santa Barbara, M.I.T., Boston University, Columbia University, University of Washington, University of Utah, University of Arizona, Brookhaven National Lab, Thomas Jefferson Lab)—“pretty much the entire U.S. lattice gauge community,” Mackenzie said.

“Fermilab’s role will be the development of large, cost-effective clusters of commodity computers for lattice calculations,” Mackenzie said. “Essentially, these are ‘off-the-shelf’ computers. But we will be integrating the machines to make them perform together.”

ADVANCED COMPUTING TOOLS IN PHYSICS RESEARCH



Theorist Paul Mackenzie

Photo by Reidar Hahn

Fermilab's collider experiments are experienced at using computer clusters and have continued developing the concept for Collider Run II of the Tevatron. The Lattice Gauge Theory effort, already underway at the New Muon Lab on site, will also have a major focus on producing the clusters more economically. Mackenzie put the overall goal at reducing costs from the current \$10-\$20 per megaflop, down to as little as a dollar per megaflop. Fermilab built its own homemade supercomputer called ACPMAPS for lattice QCD calculations in the last decade, and similar computers have been built at Columbia and M.I.T. But the SciDAC program was the catalyst for these various groups to get together and apply for joint funding.

"The U.S. has traditionally been a leader in the field of QCD," said Sugar, "but recently our nation has lagged behind the Europeans and Japanese in the computing facilities required for this research. The SciDAC grant will allow us to take some very important first steps in creating this needed infrastructure."

When the computer clusters are built, the huge amounts of data they generate must be stored somewhere—and physicists must be able to find what they need. SciDAC will fund an effort in Storage Resource Management, for example, placing the data on tapes and using robots to carry out physicists' commands for search and retrieval.

"It means matching tens of thousands of tape cartridges to tens of thousands of tape drives, and doing it quickly and reliably," said Donald Holmgren of Fermilab's Computing Division. "We'll be developing software for a physicist to issue a command to find the kind of data needed, instead of 'Go To Tape Number 123456.'"

The Lattice Gauge Theory collaboration will build computer facilities at Fermilab, Brookhaven (in conjunction with Columbia University) and Thomas Jefferson National Accelerator Facility to serve as hubs making experimental data available to scientists and students at widespread locations.



Computer scientist Ruth Pordes

Photo by Jenny Mullins

THE GRID: CROSSING BORDERS AND BOUNDARIES

The World Wide Web was developed to exchange information among particle physicists, but particle physics experiments now generate more data than the Web can handle. So physicists often put data on tapes and ship the tapes from one place to another—an anachronism in the Age of the Internet. But that's changing, and SciDAC will accelerate the change.

A major element of Fermilab's contributions to the Compact Muon Solenoid Detector (CMS) being built for CERN, the European Particle Physics Laboratory, is the formulation of a distributed computing system for widespread access to data when CERN's Large Hadron Collider begins operation later this decade. Fermilab's DZero experiment has established its own computing grid called SAM, used to offer access for experiment collaborators at six sites in Europe.

With SciDAC support, the nine-institution PPDG collaboration (Fermilab, SLAC, Lawrence Berkeley Lab, Argonne, Brookhaven Lab, Thomas Jefferson National Accelerator Facility, CalTech, University of Wisconsin, University of California-San Diego) will develop the distributed computing concept for particle physics experiments at the major U.S. high-energy physics research facilities. Both DZero and the US/CMS collaboration are member experiments. The goal: to offer access to the worldwide research community, developing what's called "middleware" to make maximum use of the bandwidths or transmission capacity available on the network.

For example, middleware can act as a sort of “search engine” for resources when a physicist isn’t sure of the location of needed data. Middleware can determine the best access point for the data, and the best way to transmit it over the network. Instead of using one process at one speed, middleware can manage different processes at different speeds simultaneously to make the best use of the available bandwidth.

The PPDG collaboration will use computing resources of the experiments themselves (such as DZero at Fermilab, BABAR at SLAC and US/CMS, which included the data grid concept in its original planning) for distribution. By reducing travel as a requirement for access, the PPDG hopes the result will dramatically increase the participation by students and the educational uses by universities.

“This is a very exciting opportunity for people in high-energy physics software development to collaborate with leaders in the computer science field at the universities,” said computer scientist Ruth Pordes of Fermilab’s Computing Division, who serves as the collaboration coordinator. “All these proposals offer a new dimension to collaboration across laboratories and across technical and scientific domains.”

Kasemann described Fermilab as providing the “test bed” as the distributive computing concept meets real-world demands of high-energy physics. Fermilab’s experiments will offer the first implementation and the first trials of the PPDG, but Kasemann pointed out that the benefits aren’t directed only at decentralized experimenters: the access to distributive computing power will expand computing capabilities beyond those available at a single central site.

“We as physicists need this greater computing power to fulfill our mission,” Kasemann said.

On the Web:

www.science.doe.gov/scidac

ADVANCED COMPUTING FOR 21ST CENTURY ACCELERATORS

The accelerators that fuel the demands for expanded computing power are also demanding greater computing power in their design and operation. The collaboration on Advanced Computing for 21st Century Accelerator Science and Technology involves 10 institutions (Fermilab, SLAC, Los Alamos National Lab, Lawrence Berkeley National Lab, Brookhaven National Lab, Thomas Jefferson Lab, Stanford University, UCLA, University of California-Berkeley, University of Maryland, USC, Tech-X, Sandia National Lab, University of California-Davis), developing high-performance simulation codes to use existing accelerators more efficiently and help streamline the design of future accelerators.

The Fermilab effort will develop simulation software for improving the performance of the lab’s accelerators; and will contribute to design studies for future machines and improvements, including a proton driver upgrade, ionization cooling for neutrino factories and muon colliders, and the Linear Collider, one of the possibilities for the next generation of high-energy physics accelerators.

“It’s more cost-effective to simulate accelerators than to build prototypes that may require several changes,” said Fermilab physicist Panagiotos Spentzouris. “It’s also important to note the opportunities that are opened up for students. I have two computer science students from Kansas State University working with me.”

SciDAC is an integrated program to help create a new generation of scientific simulation codes. All told, the SciDAC awards will offer \$57 million to 51 projects in this fiscal year, advancing fundamental research in such areas as climate modeling, fusion energy sciences, chemical sciences and nuclear astrophysics, as well as high-energy physics and high-performance computing. 🏠



The New Muon Lab, site of the lattice QCD computing cluster.

Photo by Reidar Hahn



by Kurt Riesselmann

Kesich finds the Virtue in the WATER



Photo by Stephen Shuman

Paul Kesich using a groundwater probe at one of Fermilab's new monitoring wells.

Fermilab hydrologist Paul Kesich works every day to understand the ecological importance of groundwater. But his latest assignment has gained him a unique insight into water's symbolic importance as an issue of trust.

The Department of Energy selected Kesich to be a member of a Technical Advisory Review Team that works with Native Americans in New Mexico to establish an independent monitoring program. The team, established in 1999, helps Pueblo Indians living near Los Alamos National Laboratory to examine whether operations at the laboratory have caused pollution.

"There is a lack of trust," said Kesich, who has a Master's degree in hydrology from Northern Illinois University. "The Pueblos requested and received information from LANL, but they are concerned that they might not have obtained all information they would like. For their peace of mind they decided to start their own environmental monitoring program."

In 1992, the Cochiti, Jemez, San Ildefonso and Santa Clara Pueblos, the four Native American communities closest to LANL, signed formal accords with the Department of Energy. As part of the accords and subsequent agreements, the Pueblos have received DOE funding since 1996 to develop and implement environmental monitoring programs for air, soil and water.

The DOE team of technical environmental experts, including Kesich, annually reviews the Pueblos' progress and offers guidance and scientific input.

"DOE asked us to take the viewpoint of being a Pueblo member," Kesich explained. "The Pueblos prefer to have their own tribal people do the work, perhaps bringing in Indians from other Pueblos. We are assisting people from their own nation to do the job."

Kesich knows the challenges of setting up a monitoring program. He has spent the last five years developing a comprehensive groundwater program at Fermilab.

"Until 1996, the Fermilab groundwater monitoring program relied on old farm wells," recalled Bill Griffing, head of Fermilab's Environment, Safety and Health section. "A lot of these wells weren't necessarily in the best locations to determine whether we were affecting the groundwater. Our data grid had big holes. Ideally, you want wells close to potential problem areas. Paul recognized and addressed the issue. He put in lots of effort to strengthen the program."

Kesich established a network of 63 new monitoring wells, which go through approximately 60 feet of glacial silt and clay into the groundwater-carrying bedrock formation underneath the Fermilab site. Using geological analyses and computer simulations of water flow, Kesich and his colleagues have investigated the vulnerability of the Fermilab site to contamination.

"Today our monitoring data is far more comprehensive than it was five years ago," said Griffing. "Now all monitoring wells are strategically located. The sampling from our wells indicates that we are below the limits of detection of contaminants such as tritium in our Class-1 groundwater, the drinking water located in the bedrock.

Tritium, a radioactive isotope of hydrogen, is a concern at Fermilab. Although the laboratory has no nuclear reactor and builds no weapons, high-energy proton beams created by accelerators can produce small amounts of tritium

when hitting beam targets or other devices which may deflect beam particles into the surrounding underground area. To minimize this possibility, scientists install shielding material around experimental areas.

Experts like Kesich carefully review the accelerator experiments and look for possible environmental impact. They simulate how contaminants may enter the ground and move through different layers of rock. In addition, they regularly collect groundwater samples and send them to external laboratories for testing.

The Pueblo Indians hope to establish a similar monitoring program. When offering his advice, Kesich had to take into account the very different geology of the Los Alamos area. In addition, he encountered some unique challenges.

“The federal environmental standards are the standards of Western cultures,” Kesich said. “They may not be appropriate for the tribes, which have, for example, other uses of plants than we do. Since tribe members are not allowed to share many aspects of their ancient life style, we must help them to establish standards on their own.”



Logo of the Indian Pueblo Cultural Center

Gaining the trust of the Pueblo Indians is probably the most important aspect of Kesich’s work with the tribes.

“When I visit the Pueblos, I pretend I’m going to a foreign country,” Kesich said. “I am very respectful of their culture. They are in a renewal process of educating their kids about their own culture. But they don’t live in a bubble: they realize it’s the 21st century.”

Officials at DOE have recognized Kesich’s important contributions to the Pueblo project beyond his technical expertise.

“Paul’s personality and approach as a Review Team member have been greatly appreciated,” said Patricia Coffin, the program manager for the Los Alamos Pueblo Project. “Paul quickly made the Pueblo staff feel at ease, thereby allowing more open and trusting dialogue. This has led to more frequent and open dialogue between the Pueblo staff and LANL.”

Both DOE and the Pueblos consider the past reviews a success, strengthening the relationship between the two.

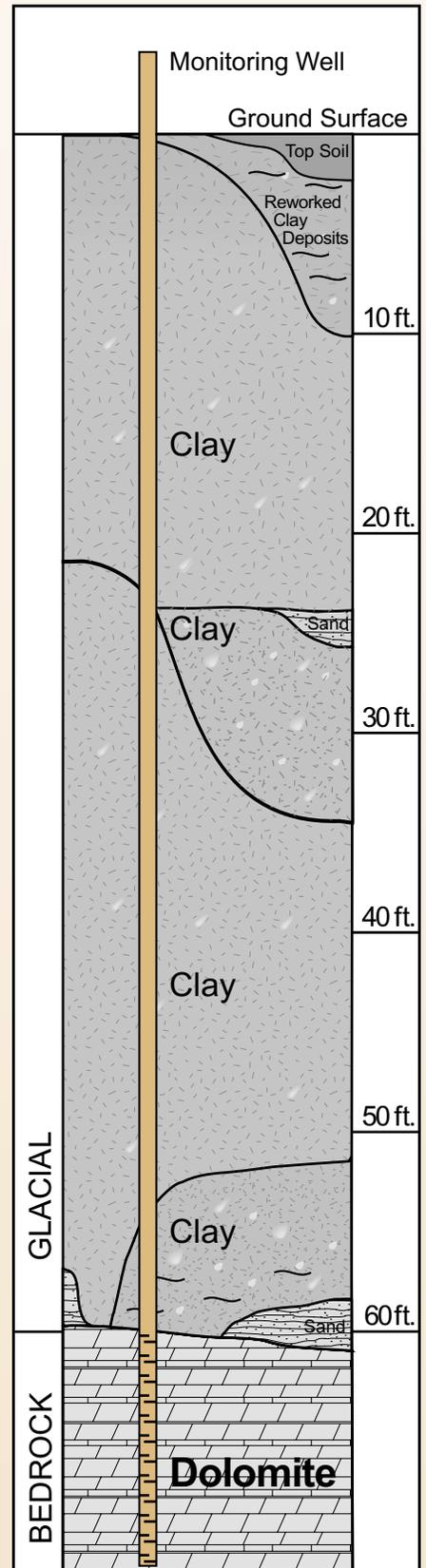
“Paul’s professionalism and invaluable assistance have been key elements in this success,” Coffin said. 🌟

On the Web:

Fermilab’s Environment, Safety and Health Section:
www.esh.fnal.gov/home/esh_home_page.html

Los Alamos National Laboratory: www.lanl.gov

Indian Pueblo Cultural Center: www.indianpueblo.org



Bedrock holds large amounts of drinking water (called Class 1). At Fermilab, it is located about 60 feet below the ground surface, covered by layers of glacial silt and clay where water (Class 2) moves too slowly to supply potable water.

Cầu tre

Bamboo Bridge

by Judy Jackson

Slender as sunbeams, lashed together of rope and bamboo, the characteristic “monkey bridges” of Vietnam crisscross the country’s inland waterways. By ones and twos, holding the rope handrails, travelers cross the *cầu tre* as they pass from shore to shore.

Earlier this year, a group of Vietnamese physicists crossed another sort of bridge, perhaps as slender, from their home Institute of Physics in Ho Chi Minh City to the DZero experiment at Fermilab.

On July 31, Professor Nguyen Mong Giao of the Institute of Physics, Ho Chi Minh City, Vietnam, received a letter from the spokesmen of Fermilab’s DZero experiment. “Dear Professor Giao,” the letter said, “It is with great pleasure that we welcome you and your colleagues in the HEP group at the Institute of Physics in Ho Chi Minh City as full members of the DZero Collaboration. Your membership was ratified by vote of the DZero Institutional Board on July 26, 2001....Welcome to DZero!”

The journey from the city formerly known as Saigon to Batavia, Illinois is a long one, but the travelers to this far-off shore appear to have arrived. Today, Run II at the Tevatron finds Giao (pronounced Zow) and two of his graduate students from Ho Chi Minh City already hard at work on the DZero detector, very glad to be there.

“For me, Fermilab is the most famous and the most important center of high-energy physics in the world,” said graduate student Trang Hoang. “This is a very important opportunity for me, really more than I could imagine.”

Like most such opportunities, this one arose from a human relationship. It began with a conversation between Fermilab physicist and DZero collaborator Boaz Klima and the man most U.S. physicists think of when they associate physics and Vietnam, an energetic Vietnamese theorist from the University of Paris at Orsay, Jean Trần Thanh Vân. Trần, as he is known, is the organizer of some world’s most respected physics conferences. In 2000, Trần asked Klima, an old friend, to lend a hand at the famous *Rencontres de Moriond* in France.

“During our discussions, Trần asked if I would help him,” Klima said recently. “He said there was a small experimental particle physics group starting in Ho Chi Minh City. He asked if I would go there to give a talk and see how serious they were.”

When Klima arrived in Ho Chi Minh City in July, he found a very small group indeed: one. Professor Giao was the sole experimental particle physicist in





A Vietnamese *cầu tre*, or monkey bridge, painted on a silk panel.

the country of Vietnam. He had worked on experiments in Dubna, Russia until 1985, when events brought him home to the Physics Institute in Vietnam. About 40 scientists work at the Physics Institute, mostly in solid state and applications physics. With no possibility for experiments in high-energy physics, Giao devoted himself to theory and teaching.

“We have good students,” Giao said, “but not too many opportunities for them.”

In fact, Klima found, there were plenty students eager to become experimental particle physicists. They had enormous enthusiasm, but they lacked one crucial element: an experiment to work on.

“There were many young graduate students in Ho Chi Minh City who wanted to talk about physics,” Klima said, “We talked for hours into the night. I left a summary of DZero research for them to read and told them I would do what I could.”



Photos by Reidar Hahn

Professor Nguyen Mong Giao, foreground, with students Trang Hoang (left) and Han Do, of the Physics Institute in Ho Chi Minh City.

At the Trân-organized *Rencontres du Vietnam* conference in Hanoi the same month, Klima met with the president of the Vietnamese equivalent of the National Science Foundation, the National Centre for Science and Technology, Professor Nguyen Van Hieu.

“We talked about the possibility of Vietnamese physicists coming to Fermilab to collaborate on an experiment,” Klima said. “I told Hieu that we would help over here, but that he also had to work on his end. I couldn’t make any promises, of course, from Fermilab or DZero. Hieu said he would see what could be done.”

Back at Fermilab, with the help of DZero founding father Paul Grannis and Associate Director Roy Rubinstein, Klima went to work. Ultimately, Fermilab Director Mike Witherell approved a plan that would provide funding for the Vietnamese group for three years, enough to support the equivalent of one full-time person at Fermilab per year. For their part, the NCST in Vietnam arranged to pay for travel and for computers so that students returning from Fermilab could continue to participate in DZero from Ho Chi Minh City.

The next step was to join DZero. Klima helped the Vietnamese fill out an application.



Members of the DZero collaboration assembled for a portrait as they prepared for Run II at the Tevatron.

“In order for them to become collaborators,” said DZero spokesperson John Womersley, “we needed to identify projects that they could work on that would make a solid contribution to the experiment. We found critical software development and electronics projects where their help was much needed.”

Last spring, Professor Giao arrived at DZero. Three weeks later, the first student, Trang Hoang, arrived. In June, first-year graduate student Han Do joined them. Hoang went to work on Analog Front End boards, developing software to test these electronics for the readout of DZero’s fiber tracker. Do began helping to develop software for the Level 3 trigger system that identifies potentially significant particle events. Both students will return to Vietnam this fall, to make room for others back home to come to the U.S.

For his Vietnamese students, Giao said, life is different in the U.S. but “they are very happy. People at Fermilab and at DZero are very kind.

For me and for the people from Ho Chi Minh City, the chance to work at the energy frontier, at the Tevatron, with the potential for discovery, is very important. We are all working hard to learn English. In the dorm, after work, there are opportunities for conversation, for connection with physicists and students from many U.S. universities.”

The DZero collaboration is equally pleased.

“From a narrow viewpoint,” Womersley said, “we are gaining the enthusiastic participation of highly motivated young people who have already impressed those who are working with them. In a larger sense, when we discussed admitting them, we felt we had an opportunity to do something good to help forge international connections for this physics group who want to break out, to push science forward in their country.”

Klima agreed.

“They are truly starting from scratch,” he said. “They had no network, no seed money, nothing. This collaboration will give them a tremendous boost and establish the high-energy physics credentials of this group-in-the-making. Twenty years from now, people will say, ‘They were the pioneers.’”

Giao looks forward to the day when his graduate students will become colleagues, and he will no longer be the only experimental particle physicist in Vietnam.

“Collaboration with DZero is important for Vietnam,” he said “because Fermilab is the world center of our science. It is a good chance to develop science and technology in Vietnam. It is a chance to build a bridge between Ho Chi Minh City and Batavia.”

As they look forward to the next few years, the Vietnamese physicists have at least one thing in common with the rest of their DZero collaborators. All three hope that at the end of the bridge lies a Higgs boson. 🌟

Auditorium Committee Makes Sure

THE SHOW GOES ON

by Mike Perricone

When the lights go down and the curtain goes up on September 15 for Opening Night of Fermilab's 2001-2002 Arts Series, the 30 members of the Auditorium Committee can pause to congratulate each other on a job well done.

But just for a moment. Then they'll get right back to work on their current job: planning for next year's series, and for Opening Night a year from now.

"This is the time of the big shopping trip," said Arts Series Coordinator Janet MacKay-Galbraith, who will attend the Midwest Arts Conference in St. Paul, Minn. starting September 19.

One of the largest performing arts trade shows in the country, the conference offers workshops for arts planners and an array of hundreds of exhibits where artists' representatives display their offerings and availability.

"You literally go up and down the aisles, talking with representatives and picking up their material," said MacKay-Galbraith, who has more than a decade of experience in the process. "Obviously, some are more appealing than others. Then the Auditorium Committee will begin considering the choices. We work a little differently from most arts councils. We don't have one person deciding and reporting back to a board. We have 30 people making the decisions."

Auditorium Committee chair Ray Yarema, whose "other" job is head of the Particle Physics Division's Electrical Engineering Department, calls the committee "a small army of people who are mobilized to pull this off. Without them, it wouldn't happen."

They're at their busiest now, from September to December, meeting more frequently than their usual once-a-month schedule. They will discuss the possibilities for next season, the balance in the types of performances and the prices. They will vote on proposals for the program. Auditorium Committee members are appointed by the Fermilab director for two-year terms. Employees and alumni tend to make extended commitments; Hazel Cramer, a retiree, has served for 29 years. All are volunteers, augmented by four part-time employees: arts coordinator MacKay-Galbraith, stage manager Neil Christiansen, ticket manager Kathy Johnson, adding to her duties, as Wilson Hall receptionist, and Al Johnson, technical support.

During the season, the monthly committee meetings focus on reviews of the latest performance, which Yarema calls "Ebert-and-Roeper sessions" after TV's lively film review program. "Our meetings are pretty vibrant," he said. "Nobody is afraid to offer an opinion."



Ramsey Auditorium

Staffing is also scheduled for the upcoming performance. A show requires 13 or 14 volunteers, usually including eight ushers. Committee members enjoy one major benefit: complimentary tickets.

But the 840-seat Ramsey Auditorium is far from a “papered” house. Paid attendance has risen nearly 50 percent over the past four seasons, from an average of 451 in 1997-98 to an average of 660 in 2000-01. The youth segment of the audiences has grown over that period from under five percent to 20 percent for some shows, following a reduction in prices for those under 18 years of age. The pricing policy grew from the results of an audience survey, showing the full prices were regarded as too high for a “family night” of entertainment.

Yet the survey also showed that audiences wanted more performances. This year’s schedule includes the addition of a Sunday afternoon series of three classical music performances, held in the Art Gallery on the second floor of Wilson Hall. The gallery plan calls for seating of about 170.

“We hope this series will become very popular,” Yarema said. “There’s certainly a core of people interested in classical music, and we thought a

different venue from the Auditorium might offer a more intimate setting for chamber music. This series also adds three performances to our normal schedule of 12 performances during the year.”

The classical series is one benefit of the growing general audience for the series. As Yarema noted, “When you get full houses, you can try more things and take more chances.” The growing audiences have also underwritten improvements in the lighting and sound systems.

The Auditorium’s new speakers were recently the focus of a feature story in *Sound and Communication* magazine. The committee has also added ticketing software and a ticket printer, bringing those logistics systems up to date. Instead of poring over stacks of pre-printed tickets that may be incomplete or out of order, Johnson now can make seat selections by computer and print individual tickets with the names of the purchasers.

No amount of planning and upgrades can prevent the inevitable glitches. Yarema recalled the lecturer who had to cancel after a tree fell on him following a severe storm. But to the best of the committee’s abilities, the show will go on—this year, next year and in the years to come. 🍷



Photos by Reidar Hahn

The Auditorium Committee, from left: Al Russell, Janet MacKay-Galbraith, Tom Carter, Liz Buckley-Geer, Fritz Bartlett, Jorge Morfin, Fred Ullrich, Liz Sexton-Kennedy, Rafael Silva, Brian Chase, Hank Glass, Gary Leonard, Paul Derwent, Gene Dentino, Terry O’Brien, Rose Moore, Hans Jöstlein, Marc Larwill, Jody Federwitz, Lauri Carpenter, Marc Mengel, Kaori Maeshima, Kathy Johnson, Ray Yarema and Herman White. Not shown: Morris Binkley, Diana Canzone, Neil Christiansen, Hazel Cramer, Jim Hoff, Trish MacLachlan and Rob Plunkett.

Fermilab Arts Series 2001-2002 Season



Saturday, September 15

OPENING NIGHT

Carol Wincenc, flute & Nancy Allen, harp

\$17 (\$9 ages 18 and under)

Carol Wincenc Masterclass, sponsored by the Chicago Flute Club at 4 p.m.

Their program will include works by Gorecki, Bach, Tower, Gossec, Ravel, Ibert, and Bartok. Opening night festivities will include a masterclass by Ms. Wincenc, sponsored by the Chicago Flute Club, a pre-concert talk by Donald Peck, Principal Flutist of the Chicago Symphony, 1958-1999; and a formal reception.

Saturday, October 20

**Newport Folk Festival Presents
Suzanne Vega with Bob Hillman**

\$29 (no student discounts)

"A fine example of quality and creative strength, Suzanne Vega sings her truths, which stand out like diamonds over the last fifteen years." – *Jazz and Tzaz (Greece)*

Saturday, November 10

Trio Voronezh

\$17 (\$9 ages 18 and under)

"Both as soloists and in ensemble the young Russians displayed such fiery virtuosity and temperament that the audience again and again yelled 'Bravo!'" - *Sudkurier (Germany)*

Saturday, December 1

The Christmas Schooner

\$17 (\$9 ages 18 and under)

"A classic...humorous and heartwarming...a touching slice of life...that can be enjoyed by the whole family...an inheritance to be treasured." – *Mary Houlihan-Skilton, Chicago Sun Times*

Saturday, January 26, 2002

Marc Smith's Uptown Poetry Slam

\$18 (\$9 ages 18 and under)

Including four performance poets, a four piece jazz band, and Marc Smith (The Slampapi)

"Smith's slam...has the covertly high-minded purpose of reconnecting the American people to poetry...Smith is almost visionary on the need to rescue poetry from its lowly status in the nation's cultural life." – *Smithsonian Magazine*

Saturday, February 16, 2002

Halley's Comet featuring John Amos

\$24 (\$12 ages 18 and under)

"A funny and touching journey through 76 years of the American experience." – *Daily News, New York*

Saturday, March 23, 2002

Solas

\$20 (\$10 ages 18 and under)

"...the best Irish traditional band in the world." – *Boston Herald*

Saturday, April 20, 2002

LUMA

\$18 (\$9 ages 18 and under)

"The show never fails to amaze, it is literally and figuratively illuminating." – *Chicago Tribune*

Saturday May 11, 2002

Doc Watson

\$23 (\$12 ages 18 and under)

"He is the godfather of the guitarists in the 'new acoustic music' scene, and as virtuosic as any of them." – *The New York Times*

GALLERY SERIES

Three classical performances presented in the 2nd Floor Art Gallery on Sunday afternoons at 2:30 p.m. Tickets available only as a series for \$30 until January 1. After that date, single tickets will be available at \$15 each.

Sunday, January 13, 2002

David Schrader

Bach's Goldberg Variations performed on the harpsichord by one of Chicago's finest musicians.

Sunday, February 27, 2002

Christopher Laughlin

Classical guitarist heads guitar department at Milwaukee's Wisconsin Conservatory of Music, has performed throughout the world.

Sunday, March 31, 2002

Champagne Players

Strings and winds from the Lyric Opera Orchestra present a varied repertoire, including the Dohnany Serenade.

All Fermilab Arts and Lecture Series programs (except for the Gallery Series) begin at 8 p.m. in Wilson Hall's Ramsey Auditorium. For more information call(630)-840-ARTS, Fax to (630)-840-5501, or email audweb@fnal.gov.

On the Web: <http://www.fnal.gov/culture>

CALENDAR

SEPTEMBER 14

Fermilab Film Series Presents:

One Day in September
Dir.: Kevin Macdonald,
Switz/UK/Germany (1999) 94 min.

All shows are on Friday nights at 8 p.m. in Ramsey Auditorium, in Wilson Hall at Fermilab. Tickets are sold at the door: Adults - \$4, Children (under 12) - \$1, Fermilab students - \$2.

The 1972 Munich Olympics were interrupted by Palestinian terrorists taking Israeli athletes hostage. Winner of the '99 Academy Award for Best Documentary Feature. For more information call (630)-840-ARTS, Fax to (630)-840-5501, or email audweb@fnal.gov.

AUGUST 30

NALWO Coffee for newcomers and visitors, Thursday, August 30, 2001, the Kuhn Barn (weather permitting) otherwise - Housing Office (Aspen East) 10:30 a.m. - 12:00 Noon.

Website for Fermilab events: <http://www.fnal.gov/faw/events.html>

ONGOING

NALWO
Free English classes in the Users' Center for FNAL guests, visitors and their spouses. The schedule is: Monday and Friday, 9:30 a.m. - 11:00 a.m. Separate classes for beginners and advanced students.

DANCING

International folk dancing, Thursdays, 7:30-10 p.m., Village Barn, newcomers always welcome. Scottish country dancing, Tuesdays, 7:30 - 10 p.m., Village Barn, newcomers always welcome. For information on either dancing group, call Mady, (630) 584-0825 or Doug, x8194, or email folkdance@fnal.gov.

The Fermilab Barn Dance series, featuring traditional square and contra dances in the Fermilab Village barn, presents barn dances on Sunday. Admission is \$5 for adults, \$2 for age 12-18, and free for under 12 years old.

A new season of Fermilab Barn Dances, featuring traditional square and contra dances in the Fermilab Village barn, will start Sunday, September 9, 2001, at 6:30 PM. Music will be provided by The Common Taters. Caller Tony Scarimbolo will teach every dance. Beginners are welcome. Come with a partner or without; bring the family or not. Admission is \$5 for adults, \$2 for age 12-18, and free for under 12 years old. The Sunday evening dances will continue October 14 and on the second Sunday evening of each month through next June. The Sunday afternoon dances resume November 18, at 2:00 p.m., and will continue on the third Sunday of each month through April.

For more information contact Dave Harding (x2971, harding@fnal.gov) or Lynn Garren (x2061, garren@fnal.gov). Check our Web page (<http://www.fnal.gov/orgs/folkclub/>) for schedule updates.

MILESTONES

MARRIED

Jamieson Olsen (ID 10831, PPD-Electrical Engineering) to Christine Grosz on June 30th, 2001.

BORN

To Emanuela Barzi (ID 10965N, Technical Division-Development and Test), a son, Leonardo, on August 8 in Naperville, Illinois.

RETIRING

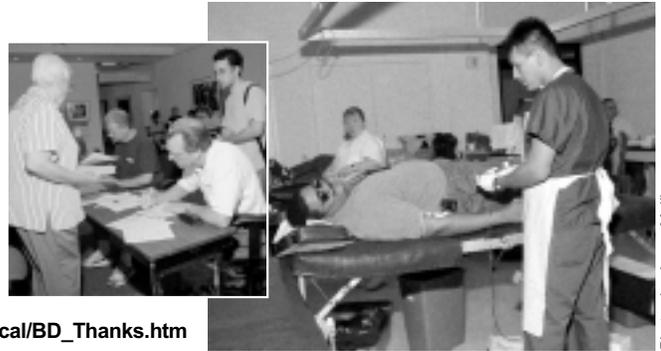
James Richardson, ID 2334 BS-AD-Section Office. Retired on January 12, 2001. His last day of work was August 6, 2001.

DONATED

By Fermilab employees: 84 pints of blood, during the Blood Drive on Tuesday, August 7, held in association with Heartland Blood Center.

On the Web:

www.esh.fnal.gov:8001/Medical/BD_Thanks.htm



Photos by Jenny Mullins

LUNCH SERVED FROM
11:30 A.M. TO 1 P.M.
\$10/PERSON

DINNER SERVED AT 7 P.M.
\$23/PERSON

Chef Léon MENU

FOR RESERVATIONS, CALL X4512
CAKES FOR SPECIAL OCCASIONS
DIETARY RESTRICTIONS
CONTACT TITA, X3524

[HTTP://WWW.FNAL.GOV/FAW/EVENTS/MENUS.HTML](http://WWW.FNAL.GOV/FAW/EVENTS/MENUS.HTML)

LUNCH WEDNESDAY, SEPTEMBER 5

*Chicken with Tamarind Gravy
Lime Grilled Vegetables
Cherry Turnovers with Ice Cream*

DINNER THURSDAY, SEPTEMBER 6

*Pasta with Pesto
Sauteed Scallops in White Wine
Sundried Tomatoes and Garlic
Wilted Greens
Pear and Honey Napoleons
with Hazelnuts*

LUNCH WEDNESDAY, SEPTEMBER 12

*Cajun Shrimp Kebabs
Coconut Rice
Vegetable of the Season
Mango Flan*

DINNER THURSDAY, SEPTEMBER 13

*Seafood Chowder
Herb Roasted Lamb
with Green Peppercorn Sauce
Vegetable of the Season
Pots de Creme with Chocolate
and Grand Marnier*

F E R M I N E W S

F E R M I L A B
A U.S. DEPARTMENT OF ENERGY LABORATORY

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The deadline for the Friday, September 14, 2001, issue is Tuesday, September 4, 2001. Please send classified ads and story ideas by mail to the Public Affairs Office, MS 206, Fermilab, P.O. Box 500, Batavia, IL 60510, or by e-mail to ferminews@fnal.gov. Letters from readers are welcome. Please include your name and daytime phone number.

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CLASSIFIEDS

FOR SALE

■ '90 Chevy Lumina, 4dr, 3.1L, air, automatic, power steering, AM/FM/cass., 86K miles. Very good condition. \$2,600 o.b.o. henrique@fnal.gov, x6380 (office) or x3547 (home).

■ '90 Ford Taurus GL, white, 104K miles, very good condition. Auto, airbag, ABS, new brakes. Very comfortable, \$1,700. Chan Hoon Chung, x6840, or chchung@fnal.gov.

■ '79 Dodge van, 125K miles, good condition, \$500. michgall@fnal.gov or call 212-751-0522. Bigfoot off-road goped—2-cycle motorized scooter, green, 10" pneumatic tires, two years old, lightly used, excellent condition. See www.goped.com for additional info and picture; \$750 new, asking \$350. Pat x4740

■ Suzuki GT380 motorcycle \$200, men's 10 speed \$25, young man's Giant bicycle \$40, treadmill \$75, exercise bike \$30, rowing exerciser \$10, weight bench \$40, heavy bag \$30, LH golf clubs w/bag & cart \$15, canning jars, Mac 030 pc w/monitor-CD-modem-etc. \$100, heavy duty aluminum 25' extension ladder \$100, w/w kayak with new accessories \$500, e-mail hawke@fnal.gov or 815-286-7387.

■ Tonneau cover for short-bed Chevy pickup. Black, excellent condition. \$50 markl@fnal.gov, Mark x4776

■ Full size student/beginner's violin. One year old, comes with everything needed to start playing including case and Mel Bay's "Anyone Can Play Violin" video. \$50.00 x4747.

■ Moving Sale: Computer Shelf, \$10; TV Center 2 yrs old, black, \$60; TV Shelf, \$10; Desk \$10; Book shelf \$30; Twin Mattress and Box, \$110; Full Mattress and Box set, \$45; Night Table, \$5; TV Toshiba, 26", \$75; Leather Sofa + Coffee Table, \$260; 5 piece Italian-made Master Bedroom Set, King/Queen Size 2years new \$600, Ping Pong table 2yrs new \$125.

WANTED

■ Rental accommodations for Fermilab Cooperative Education student employees. Prefer inexpensive, short-term arrangements (5 to 8 months in duration) that do not require a lease. Great oppty. to rent single room in private residence with shared amenities. To list, or for more information, please contact Shelley Krivich, Employment Dept., at krivich@fnal.gov or 630-840-5809. Serious inquiries only.

HOUSES FOR SALE

■ Victorian style home in Hinckley, with loads of charm. Only 25 minutes to the lab. 3BR, 2 Baths, woodburning stove in family room. Over 1/2 acre, with fruit trees and garden area. Eat-in kitchen with walk-in pantry. Formal dining room, living room with restored woodwork. New roof, wiring, bathroom and more. \$156,900 Motivated sellers! Scott X4083, hawke@fnal.gov

■ Kaneville, 3 BR, hardwood floors, 2 BA, tiled floors, large living room with-wood burning stove, family room off kitchen, maple cabinets. Dishwasher, gas stove, Honeywell elec. A/C. Air cleaner, full basement, 2+ car garage, small barn, 1-acre lot. PRICE REDUCED TO \$175,000. 630-557-2397.

OPEN HOUSE AT ARGONNE



Argonne National Laboratory invites you to join thousands of your friends and neighbors at its Open House on Saturday, Sept. 15, from 9:30 a.m. to 4:30 p.m. Learn about the exciting research and technology that will shape the way we live in the 21st century. Argonne Adventure 2001: Science and Technology for Today and Tomorrow will feature more than 100 exhibits staffed by professional scientists, engineers and researchers to answer your questions about Argonne's more than 200 research programs. For details see www.anl.gov/OPA/openhouse.htm.



HEAD OF MEDIA RELATIONS

The American Physical Society seeks a media relations professional to promote physics in the popular media. Based at APS Headquarters in College Park, MD this person will develop and coordinate all media relations for APS. Responsibilities include working as part of a team that identifies physics news stories, locates press contacts in the physics community, and pitches the stories to the national media. Opportunities to travel exist. The qualified applicant will have a bachelor's degree in science, and preferably additional scientific work experience (physics a plus). Considerable experience interacting with the media is necessary. Excellent oral and written communication skills are required. Competitive starting salary and outstanding benefits package offered. To apply, send cover letter including salary requirement, resume, and contact information for three professional references to Alan Chodos, APS Associate Executive Officer, by e-mail to chodos@aps.org. or to 1 Physics Ellipse, College Park, MD 20740.



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