

F N E R W M S I

F E R M I L A B

A U.S. DEPARTMENT OF ENERGY LABORATORY



Photo by Reidar Hahn

ALL USERS ISSUE

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The World at Work

Fermilab users blend backgrounds and cultures in the pursuit of science

by Sena Desai

They come from a farming village of 400 people in southern Slovakia, or from the concrete metropolis of 13 million in Mumbai, India. They come from as far away as Protvino, Russia, or from as nearby as Chicago.

Fermilab users are defined as scientists who are members of experimental collaborations classified as active in the annually published "Fermilab Research Program Workbook." There are more than 2,600 of them, from 213 laboratories and universities the world over; from 99 institutions representing 34 states in the U.S., and another 114 institutions representing 31 countries.

Diverse nationalities, personalities, cultures, and ideas come together on 6,800 acres of prairie at the frontier of high-energy physics research, with the goal of unraveling the mysteries of the universe.

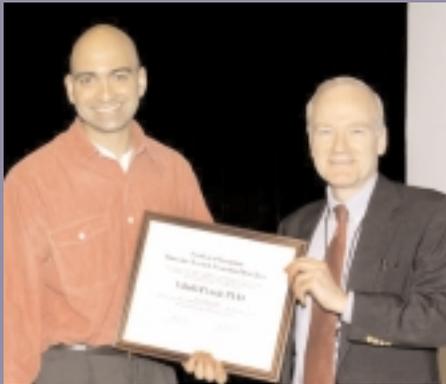
They bring with them their own styles of problem solving in their own areas of expertise. Mike Kirby, a Duke University Ph.D. student at CDF, says this blend adds a unique value to the laboratory's research. "The Japanese are big on neutrino physics and the CERN group has more experience with neural networking than we do," says Kirby. "And when there is a problem in those areas, they draw from their past experiences."

The number of Fermilab users has increased from 2,281 in 2000 to 2,615 in 2003, with students representing about 26 percent of the total. There are now 1,628 physicists and students from U.S. universities and laboratories, up from 1,469 in 2000; and 987 users from other countries, up from 812 in 2000.

The Institute of High Energy Physics in Russia has 62 researchers working at Fermilab, the highest among foreign users. Ecuador, Ireland, Slovakia, and Turkey send one researcher each. From California, Lawrence Berkeley National Laboratory sends 59 users, while the University of California, San Diego, sends one. The CDF collaboration has 720 users, while DZero has 647. For students, working with the best scientists in their field is an especially enriching experience.

Avdhesh Chandra, a Ph.D. student from the Tata Institute of Fundamental Research in India is visiting Fermilab for six months. Chandra did remote shifts from India, on the DZero detector, but now he's excited about being in the control room at Fermilab. "Working in the DZero control room is easier," he says. "I have access to experts right here, and a problem can be solved right away."

Arnold Pompos, a Purdue University student originally from that small village in Slovakia, came to Fermilab in 1996 after Run I—at what he calls the best of all times for him. "I was handed Run I data and told to use it and abuse it," he laughs. "I could not have imagined a better time to come. The data was taken, cleaned up, and ready for analysis. At this moment, Fermilab has data that no else has. No one accelerates particles like we do."



ABOVE: Universities Research Association, Inc. president Fred Bernthal (right) presents the URA Thesis Award to Valmiki Prasad, Ph.D., of the University of Chicago.

COVER PHOTO: Alvin Tollestrup (left) presents the new URA-sponsored Alvin Tollestrup Award for postdoctoral research to Juan Cruz Estrada of DZero.

ON THE WEB:

URA
Universities Research Association:
www.ura-hq.org

UEC
Users Executive Committee:
www.fnal.gov/orgs/fermilab_users_org/new_uec

New Perspectives 2003



From the GSA New Perspectives judging panel of Andreas Kronfeld, Bill Foster and Patty McBride: "As always, it was a pleasure to judge the posters. All six being judged were very good, with clear and enthusiastic explanations. It was difficult to narrow it down. Our ranking, for the top three spots: 1. Robert Zwaska, 'The NuMI Beam;' 2. Mohammad Alsharo'a, 'Mechanical Design of Radio Frequency Cavities for the Muon Collider and Neutrino Factory;' 3. Vahid Ranjbar, 'Chromaticity Measurement at the Tevatron Using Head-Tail Phase Shift Technique.' Our congratulations to the winners, and also to the others."



Kiril Datchev, Columbia University, Jocelyn Monroe, Columbia University, Melanie Novak, Indiana University (pictured), "MiniBooNE: An Overview"



Sunny Chang, University of Wisconsin, "Studies for the CDF Pre-Calorimeter Material" (with Patty McBride)

Muhammad Asharo'a, Illinois Institute of Technology, "Mechanical Design of Radio Frequency Cavities for the Muon Collider and Neutrino Factory"



Robert Zwaska, University of Texas at Austin, "The NuMI Beam"



Vahid Ranjbar, Fermilab, "Chromaticity Measurement at the Tevatron Using Head-Tail Phase Shift Technique" (with McBride and Alvin Tollestrup)



Eivaldo Santos, University of Sao Paulo, "A Study of the Neutral K_s^0 Decay at KTeV"

Photos by Reidar Hahn

Pompos is concerned about Fermilab's future prospects once the Large Hadron Collider era begins at CERN, the European Particle Physics laboratory. However, Satyanarayana Bheesette, an engineer from Tata Institute, regards the LHC era as "far away," adding: "There is a gamut of interesting science happening here that draws people from around the world."

Bheesette arrived ten years ago as part of the Tata Institute team that designed the 200 scintillation counters for DZero. He always believed that small groups of people could conduct research more effectively than large collaborations, but he was immediately and pleasantly surprised at Fermilab.

"There is a big team of people from all over the world working together, yet maintaining their identities," Bheesette says. "I do my job and I am respected for that. Fermilab's environment stimulates research."

The lab environment also offers a wide worldview. Kirby says he now has friends from 15 different countries, and the interactions can be instructive.

"Every culture has a traditional structure and a way they interact with their superiors and with each other," he says. "For example, the Italians are more expressive than we are. This just adds some spice. We all share the experience of different cultures while being on the same side—that of high-energy physics." 🌀

Numbers...

TOTAL USERS

U.S.	Physicists	Students	Subtotal	Institutions
University	761	445	1206	93
Industry	0	0	0	0
National Lab.	402	20	422	6
Subtotal	1163	465	1628	99

Non-U.S.	Physicists	Students	Subtotal	Institutions
University	459	195	654	91
Industry	0	0	0	0
National Lab.	294	39	333	23
Subtotal	753	234	987	114

TOTAL	1916	699	2615	213
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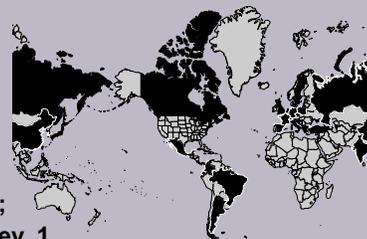


INTERNATIONAL USERS / TOP 10

INSTITUTION	Phys.	Grad.	Total
1. IHEP - Protvino (Russia)	60	2	62
2. INFN - Pisa (Italy)	36	13	49
3. JINR - Dubna (Russia)	43	2	45
4. University of Tsukuba- Japan	14	24	38
5. INFN - Frascati (Italy)	22	3	25
6. ITEP - Moscow (Russia)	25	0	25
7. University of Padova - Italy	14	9	23
8. University of Oxford - England	13	9	22
9. University of Toronto - Canada	11	10	21
10. CEA-SACLAY - France	18	2	20
10. CBPF - Brazil	15	5	20

BY COUNTRY OF HOME INSTITUTION

Italy, 203; Russia, 180; Japan, 98; United Kingdom, 83; France, 77; Germany, 53; South Korea, 43; Brazil, 39; Peoples Republic of China, 28; Canada, 26; India, 26; Mexico, 21; Switzerland, 13; Czech Republic, 12; The Netherlands, 12; Sweden, 11; Greece, 7; Colombia, 6; Spain, 6; Byelarus, 4; Finland, 4; Vietnam, 4; Israel, 3; Poland, 3; Argentina, 2; New Zealand, 2; Ecuador, 1; Ireland, 1; Slovakia, 1; Turkey, 1



U.S. USERS / TOP 10 (after FNAL, 295)

INSTITUTION	Phys.	Grad.	Total
1. Lawrence Berkeley National Lab	42	17	59
2. University of Michigan, Ann Arbor	28	23	51
3. University of Rochester	24	27	51
4. University of Chicago	19	16	35
5. SUNY at Stony Brook	18	17	35
6. Michigan State University	22	12	34
7. University of Illinois, Champaign	17	16	33
8. Harvard University	16	15	31
9. Argonne National Laboratory	29	1	30
10. University of Minnesota	18	12	30
10. Rutgers University	25	5	30

BY STATE OF HOME INSTITUTION

Illinois, 463; New York, 169; California, 162; Massachusetts, 108; Michigan, 92; Texas, 72; Indiana, 70; Pennsylvania, 58; New Jersey, 39; Florida, 37; Maryland, 31; Minnesota, 31; Kansas, 29; North Carolina, 29; New Mexico, 27; Arizona, 23; Virginia, 19; Wisconsin, 18; Colorado, 17; Iowa, 17; Rhode Island, 17; Connecticut, 14; Oklahoma, 13; Ohio, 11; Louisiana, 10; South Carolina, 10; Tennessee, 10; Washington, 7; Hawaii, 6; Puerto Rico, 6; Alabama, 4; Nebraska, 4; Oregon, 4; Delaware, 1

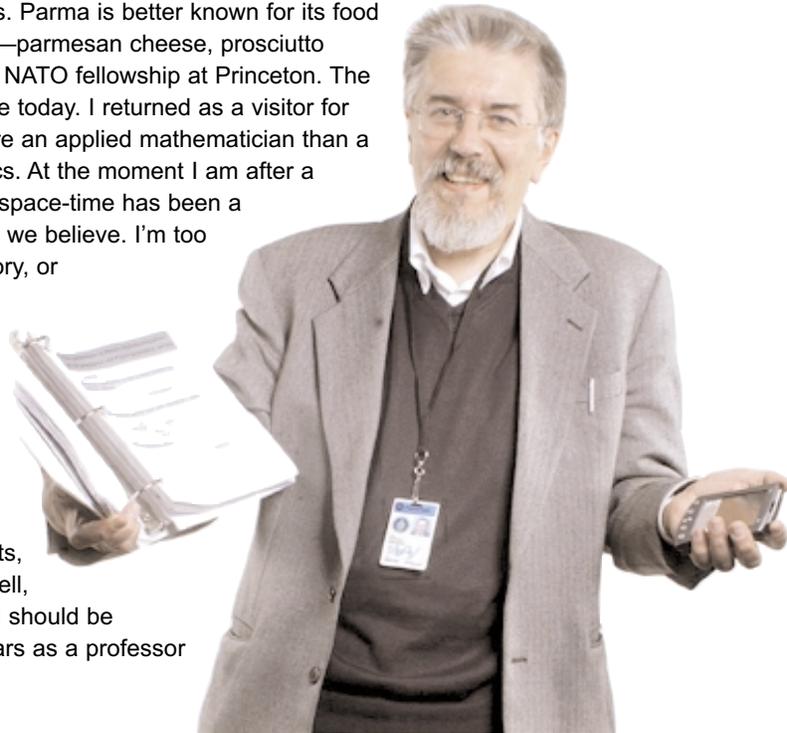


...and Faces

Enrico Onofri

*University of Parma and Theory Group,
with all-important notebook and personal organizer*

Parma, Italy, is a 2000-year-old town established as a Roman camp on the way to Gallia. The University of Parma has some 30,000 students and a unique Science Campus. Parma is better known for its food than for its university, but this is because the food is *REALLY* good—parmesan cheese, prosciutto ham, much more. I first came to Fermilab briefly in 1976 while on a NATO fellowship at Princeton. The site was beautiful, like today, and the physics was at the frontier, like today. I returned as a visitor for several summers, and now I am on sabbatical from Parma. I'm more an applied mathematician than a physicist, but my main goal is solving problems in theoretical physics. At the moment I am after a problem in two-dimensional quantum field theory. Two dimensional space-time has been a kind of playground for theorists, but it could be more important than we believe. I'm too old to work on such frontier problems as quantum gravity, or M-theory, or noncommutative geometry. I hope to really understand the nature of quark confinement and the role of non-perturbative effects in quantum chromodynamics. It's an old problem, and many people claim to have the solution, but I believe that we are still far from a satisfactory solution. As a boy, the main attraction for me was mathematics. Such books as Hilbert-ConVossen, "*Intuitive Geometry*," and Courant-Robbins, "*What is Mathematics?*" were on my desk together with Carl Barks' "*Donald Duck*" (I keep all of these at my fingers even today). The quest for Nature's inner secrets, started by the Greeks, continued by Kepler, Galileo, Newton, Maxwell, Einstein, Fermi...it represents the highest of human aspirations and should be supported by all countries which claim to be civilized. In my late years as a professor in Italy, I'll fight this battle!



Michel Sorel

*Columbia University and MiniBooNE,
with MiniBooNE horn components*

The first time I came to Fermilab was in 1996, as a summer student from the University of Bologna, to learn physics and to contribute to the upgrade of the CDF detector. I've kept an excellent "souvenir" of that summer. It made it easier for me to decide to start a Ph.D. at a U.S. institution three years later. I came back to Fermilab two and a half years ago, this time to study neutrinos. In the near-term, I will do my best to contribute to the first physics results of MiniBooNE. This is a pretty exciting and busy time for us! I have not made up my mind on what I'd like to do next: I may continue with neutrinos, or perhaps learn about cosmology. It is also going to depend on what MiniBooNE sees. Doing research in physics is for me both a noble and fun activity—noble, because it is motivated by the general interest of knowledge; and fun, because it requires a certain dose of personal creativity, unlike many other jobs! Getting to continuously contest your points of view with those of other physicists adds to the fun.





Chris Hays

*Duke University and CDF,
with papers*

I came to Fermilab as a graduate student on NuTeV, stayed to do my thesis work at DZero, and now I'm a post-doc at CDF. I am working on the offline tracking, and on searches for new particles. Most recently, I have worked on a search for doubly-charged particles decaying to leptons. The CDF tracking chambers will be the key components of a number of the world's best measurements, crucial steps toward understanding the origin of mass and of the matter-antimatter asymmetry in the universe. The search for doubly-charged particles has the potential to dramatically alter our view of the universe. If we find a doubly-charged Higgs particle, it will provide circumstantial evidence for a right-handed weak force, a completely new force with new particles and interactions. With this new force, the low neutrino masses could be explained as a by-product of the large scale at which the left-right symmetry is broken. What motivates me in my day-to-day work is simple curiosity, a drive to understand how things work at the most fundamental level. What motivates me to give my life to improving our understanding of the universe is the belief that an understanding of the universe provides an important perspective on our place in it. We do not just live in the universe, we are a part of it. Understanding how it works gives us a sense of what our role in the universe is, and what it can be.

Amber Jenkins

*Imperial College, London, and DZero,
with CP Violation teddy bears*

As a scientist, I believe that communication is vital. What good is our research if we are not able to share it? Particle physics is a very esoteric subject, so we have to think outside the box to do this. I once explained the concept of CP violation to my boyfriend using teddy bears...an amusing yet highly effective method!! For me, coming to Fermilab is a once-in-a-lifetime opportunity. We are working together in an international collaboration sharing a common goal and similar passions. We are asking the most fundamental questions of the universe: Where do we come from? How was the universe created? How will it end? These are the most challenging questions humanity can ask, and for me the most inspiring ones. In the short term, I hope to complete my Ph.D.! I want to continue my research, and to always be excited and challenged by the work that I do. I would like to travel and see more of the world and of other cultures, to have a family and share my passions with my children. And to never stop learning. I am amazed and inspired by the people I meet: by their dedication, motivation and thirst for knowledge.



Simona Murgia

*Stanford University and MINOS,
with hardhat*

I am originally from Cagliari, Italy. I left my beautiful island, Sardinia, to attend graduate school at Michigan State University, and soon joined the CDF collaboration. It is a very exciting time for neutrino physics. Other experiments have led us to believe that neutrinos have mass, and the goal of MINOS to detect and verify neutrino oscillations, and to make mass measurements. That final stage, the measurement, is a big part of what makes the work of an experimental particle physicist gratifying. The near and far MINOS detectors are being built and tested before data taking begins in early 2005, when a beam of neutrinos will be sent from Fermilab to a mine in northern Minnesota, where the far detector is located half a mile underground. I spent some time in Minnesota this past winter working on the detector assembly and commissioning. As the detector is being built, plane by plane, the data coming in—mostly from cosmic muons—is recorded, and we are searching for a signature from atmospheric neutrinos. The detector is already being put to work before it is even completed! It is very impressive how much work it takes before an experiment goes on-line, but in the end everything comes together and we learn something new.



Photos by Reidar Hahn

Levan Babukhadia

*SUNY at Stony Brook and DZero,
with Central Track Trigger digital boards*

I find it fascinating that as a physicist, not only can I ask the “big questions” about Mother Nature, but also work day-to-day on actually finding answers. At the Tevatron, the world’s energy frontier, I’m working on searches for a Higgs particle. Central as it is to the Standard Model, the Higgs itself is a window to new physics. And I’m excited working on searches for supersymmetric Higgs, particularly promising at these early stages of Run II. Earlier, as a leader of a team of physicists and engineers, I worked on the fast, digital Central Track Trigger for DZero in Run II, and in particular the VHDL firmware, or ‘brains’, for its 500+ FPGAs. I’ve worked on Atlas at CERN, on inclusive jet cross sections in Run I, and in theory and phenomenology. Back in Tbilisi, Georgia, I started as a theorist working on topological field theoretical models in (2+1) dimensions, which are interesting because the Chern-Simons interaction provides an alternative to the Higgs mechanism. Since then I have also worked on models of weak and strong interactions. As exciting as it is to be able to work on such a variety of topics, it is intriguing that ordinary matter as we know it seems to comprise only a tiny fraction of our universe. So I am sure there are a lot of surprises awaiting us in the near future, as we attempt to unveil the nature of the Higgs and of supersymmetry, if it’s there, and of dark matter and maybe even of dark energy.



THE OLD

DOE-Re-Mi

*Marburger tells
restive users
to bank on
exciting research,
not spinoffs*

by Mike Perricone

Money makes the beam go 'round. Money is the root of all upgrades, and the root of all luminosity.

Money also became a pointed source of debate as John Marburger, Director of the Office of Science and Technology Policy and science advisor to the President, offered a Washington-based perspective to the Fermilab Annual Users Meeting on June 2 in Wilson Hall's Ramsey Auditorium.

The former director of Brookhaven National Laboratory, Marburger stressed the need to make effective use of limited funding, when tight budgets mean there are only so many resources available in the system—"similar to the law of conservation of energy, though not as elegantly stated."

Marburger said OSTP is trying to bring funding agencies together in planning big science, as a reaction to budget pressures. He cited the National Science Foundation and the National Aeronautics and Space Administration beginning to work jointly on plans for building telescopes. Desperate funding, he implied, calls for desperate measures.

"If things don't change," Marburger said, "budgets are likely to get less and less adequate for each 'stovepipe' lab effort. It may get to the point where the science is no longer competitive. I'd hate to see that happen."

While big science might seem like a bargain to scientists, Marburger countered: "big-apparatus science is expensive, requiring big machines and big computers." The science community is a source of advice for science policy, he said, but the advice must come from a knowledge of funding realities, and of the competitive demands of other labs and other sciences. An electron-positron collider might make sense for high-energy physics, but his question is how it would fit into flat funding.

"How much would it cost?" Marburger asked rhetorically. "Take a number—say \$6 billion, and say the U.S. share is a third of that, or \$2 billion. You do the math. It'll take 10 years to build, and \$200 million a year for our share seems reasonable. At what point do we think the current high-energy physics budget can sustain a \$200 million construction effort? That's the kind of thinking we have to start with."

From beginning to end, from MiniBooNE data to the nearly completed MINOS far detector, from the Sloan Digital Sky Survey to the closing "open mike" session, the Users Meeting offered a challenge to users' thinking.

Fermilab Director Michael Witherell led off the talks by showing the climb in Tevatron luminosity since September 2002. But he offered a draft plan with

ON THE WEB:

Annual Users Meeting:
www.fnal.gov/orgs/fermilab_users_org

**Fermilab Long Range
Planning Committee:**
[www.fnal.gov/directorate/Longrange/
Long_range_planning_public.html](http://www.fnal.gov/directorate/Longrange/Long_range_planning_public.html)



John Marburger: "To have an impact on policy, you must inform yourselves about the process, and interact in a way that transmits your vision of what should be done."

lower base and stretch goals for integrated luminosity in Run II, and pointed to still tighter budgets in FY '04 and in the foreseeable future. Witherell also announced the formation of a Fermilab Long Range Planning Committee under the leadership of Associate Director for Research Hugh Montgomery.

Maintaining the accelerator complex with the 20-year-old Tevatron and the 32-year-old Linac strains staff and budget, Beams Division head Roger Dixon forthrightly reported. The Linac is running on "borrowed tubes," some hard-to-get power amplifier tubes on loan from Brookhaven Lab. With antiprotons the long-range key to luminosity. Dixon has created a dedicated Recycler Department, under Sergei Nagaitsev and Cons Gattusso. Dixon also encouraged users to collaborate on the collider itself.

Meeting organizer John Conway of Rutgers University and UEC chair Chris White of Illinois Institute of Technology were pleased with the larger-than-usual turnout of about 500 registrants. In addition to Marburger on the program, Conway was also able to include Robin Staffin, the Department of Energy's deputy associate director for high-energy and nuclear physics, and Marv Goldberg, program director for mathematics and physical sciences at the National Science Foundation. Fred Gilman, chairman of the DOE-NSF High-Energy Physics Advisory Panel, was not on the program but was in the audience.

The "open mike" session on Tuesday afternoon fulfilled its mission, leaving the users and the lab with serious questions to consider:

■ *With tight budgets, what is the "opportunity cost" of running the collider vs. preparing for the future?*

■ *Should the next big decision on the direction of the field wait for LHC data?*

■ *Is 2009 too late for luminosity goals, with researchers expected to begin heading for LHC in 2007?*

■ *Can the lab make a strong statement of its desire to host a world linear collider?*

■ *Was the effort on the Tevatron limited by being lab-centered in contrast with large scale user contributions in CDF and DZero upgrades?*

■ *Will tight budgets result in the biggest projects "sucking all the oxygen out of the room," at the expense of smaller projects and R&D efforts?*

■ *In the LHC era, can Fermilab make itself "not just the best place to be if you're not at CERN, but the best place to do physics?"*

■ *Have 12 years at the energy frontier been perceived as a "failure" in Washington? Is the best long-term solution to focus on the short term—run the machines and produce data—and do that short term very well?*

Marburger wasn't present for the open mike session, but some of his comments would have fit well. He said it was critical to compete for funding, not on the basis of technological spinoffs, but on the basis of "exciting research that we have to find out about, ideas that people are interested in, the same approach that worked for the space program." He conceded that the budget process was far from perfect.

"But there is a sense of responsibility in Congress, to spend consistently with a vision," Marburger said. "To have an impact on policy, you must inform yourselves about the process, and interact in a way that transmits your vision of what should be done." 🗨️

No

Graduate
Student
Association
connects
young
scientists
with life
at Fermilab

ON THE WEB:

**Graduate Student Association
of Fermilab**

www.fnal.gov/orgs/gsa/about/index.html

ALL WORK, *Play?*

by Elizabeth Clements

Qualifiers, owl shifts, C++, dissertations—a few of the cacophonous words that describe the frenetic life of a graduate student at Fermilab.

Fermilab is home to one of the largest concentrations of high-energy physics graduate students (and quite possibly the largest volume of high caffeine beverages) around the globe. In a lab with 2,000 employees and more than 2,600 users, a graduate student can easily feel lost in the crowd. This is how Benn Tannenbaum felt when he was a graduate student at Fermilab.

“We felt that the field as a whole wasn’t really looking at or listening to graduate students’ concerns about the future of high-energy physics,” said Tannenbaum, currently the American Physical Society Congressional Science Fellow, working with Representative Edward Markey (Massachusetts, 7th CD). “[Graduate students] are the future of the field. We needed to be involved to make ourselves heard.”

In 1995, Benn Tannenbaum, Tacy Joffe-Minor, John Kim and Michael Begel formally established the Graduate Student Association (GSA) as the voice for graduate students at Fermilab.

The main mission of the GSA is to represent the needs of the graduate students by acting as a liaison with the directorate, the experiments, and the Users’ Executive Committee. Other main objectives of the GSA include continuing the education of graduate students by providing scholarships for C++ computing and academic physics classes, distributing information about employment opportunities, participating in outreach and education activities and, perhaps most significant of all, organizing social events.

Each October, the graduate student population nominates and elects five new representatives to manage and organize the GSA. The 2003 representatives are Amber Jenkins, Imperial College London, DZero; Andy Haas, University of Washington, DZero; Jun Zhang, Columbia University, Astro-Theory; Martin Hennecke, Karlsruhe University, CDF; and Reid Mumford, John Hopkins University, CDF. While some political representatives have inaugural balls, the newly elected GSA officers always kick off their term with the annual Halloween party.

“One hundred and twenty people partied in the [Kuhn] barn all night this year, and everybody had fantastic costumes. There was also apple bobbing, pumpkin carving and prizes,” Jenkins said. “One of the roles of the GSA is to organize social events for the young physics community, which is how, in reality, we probably touch graduate students the most.”

The GSA social calendar does not stop at Halloween. In the spring, the GSA officers organized a bingo night, renaming the game Fermi. They are also

GSA



Photo by Reidar Hahn

The 2003 GSA Representatives (from left to right): Martin Hennecke, Karlsruhe University, CDF; Andy Haas, University of Washington, DZero; Amber Jenkins, Imperial College London, DZero; Reid Mumford, John Hopkins University, CDF and Jun Zhang, Columbia University, Astro-Theory.

planning a summer triathlon, consisting of fifty laps in the pool, a 25K bike ride and a run once around the main ring (teams are welcome). This summer's highlight is Pachanga Season, a series of Latin-American parties with music and dancing all night long in Fermilab's village.

Although social activities are understandably important to Fermilab's graduate students, the GSA's agenda has more on it than bingo and the Merengue. In March, the Universities Research Association sent the GSA Officers on the UEC's eighth annual trip to Washington, D.C. The GSA Officers met with senators and representatives to raise awareness of high-energy physics, and of the DOE Office of Science as the largest single funder of the physical sciences in the United States. GSA also sponsors the New Perspectives Conference, which features talks by Fermilab's graduate students from various experiments during the Users Annual Meeting.

"The New Perspectives Conference is the GSA's longest-lasting legacy, and I'm especially happy that it is still continuing," said Tannenbaum. "New Perspectives is really the only chance for graduate students to hear what work is going on outside their own experiments. The Users' Meeting tends to be very high-level and political. New Perspectives features the people who are down in the trenches doing the actual work."

While social events and trips sound like fun and games, many graduate students would argue that "down in the trenches with a ball and chain" is an accurate description of what they do. As Mumford explained wryly, "We organize the social events to take our minds off the misery."

In reality, graduate students play an integral role in fulfilling the lab's science mission. From writing software to taking shifts to conducting analysis (and at some point even graduating), the students quickly become the experts in their experiments.

"[Graduate students] make the thing run. The experiment would fall over without us," said Haas with a laugh. "The professors are busy teaching classes and preparing talks. The young people actually do the work. Every now and then, we even have good new ideas—and we know C++."

John Womersley, the DZero co-spokesperson, could not agree more.

"Graduate students are the heart of these big experiments," he said. "They are the driving force behind the analysis, and they know the most about the experiments. Almost every paper published is based on the work of graduate students with their advisors. They are young, enthusiastic, and, of course, brilliant." ☺

USERS OFFICE

in HIGH Demand



Barbara Book (left) and Dianne Snyder compare notes while setting up the Users Office to handle new demands for foreign user data.

ON THE WEB:

Fermilab Users' Office:

www.fnal.gov/pub/forphysicists/users/

Guide for Newcomers from Foreign Countries:

www.fnal.gov/pub/forphysicists/users/newcomers/

Reporting Visa Status Changes:

www.fnal.gov/pub/forphysicists/users/visa_status.html

New DOE regulations raise concerns among users

by Kurt Riesselmann

With more than 50 roads and 100 buildings situated on 10 square miles, Fermilab can easily overwhelm a first-time visitor. But the Fermilab Users Center provides a home away from home.

"It's the first interface that users have with Fermilab," said Chris White, professor at Illinois Institute of Technology and chairman of the Fermilab Users Executive Committee. "Other than scientists, there are only a few other people at the lab that users work with. Dianne is the face of the laboratory."

Dianne is Dianne Snyder, who has worked in the Users' Office for over six years and took over as head of the office with the retirement of Pat Sorensen in January. Snyder and Barb Book, who joined the office in March, function as the "reference desk" at Fermilab, fielding questions ranging from badges to computer accounts, from housing to safety training, from car rentals to medical insurance, from maps and brochures to "Procedures for Experimenters" and the Graduate Student Association's "Guide to Life at Fermilab."

DOE REQUESTS ADDITIONAL INFORMATION

Just two weeks after taking over the office, Snyder faced a baptism by fire. A Department of Energy directive required national laboratories by April 4 to collect additional data on all foreign visitors and verify their legal status in the U.S., even those already living and working somewhere in the United States. With Fermilab Associate Director for Administration Bruce Chrisman, Snyder had to understand and implement the new DOE requirements.

"It was mind-boggling with all the changes," said Snyder, who has been at the lab for almost 25 years. "We had appointments with users every fifteen minutes and dealt with walk-ins at the same time. We had a stream of people, sometimes 20 people deep, plus phone calls and emails about the new requirements. We never have had a dull moment."

Snyder gathered and entered data for about 1,400 users, and was noted for combining courtesy with efficiency.

"She took over the job just at the time that a huge new workload evolved, and she's done a superb job," said assistant director Roy Rubinstein. "Though the users weren't happy about the new requirements, they respected the way that Dianne dealt with them."

CONTROVERSY OVER SPECIAL PROCEDURE

Fermilab doesn't carry out classified research, but the new DOE order requires scientists born in, or with citizenship of, a country on the U.S. State Department's list of "State Sponsors of Terrorism" to obtain authorization before coming to the lab. The special procedure applies to all non-U.S. citizens of or born in Cuba, Libya, Iran, Iraq, North Korea, Sudan and Syria, even if they are already in the United States on a valid visa.

Some users point out that even at the height of the Cold War the U.S. allowed Russian scientists to work at Fermilab. Other scientists fear being unable to attend the Lepton-Photon conference at Fermilab in August.

“In an open international scientific community, this rubs people the wrong way,” said White. “Our lab is about inclusion, not exclusion. The current rules make it hard for certain scientists to access the lab simply due to where they were born, or their citizenship. If we put too many barriers to scientific access at Fermilab, users may decide to do their research elsewhere, where there are fewer impediments to free travel.”

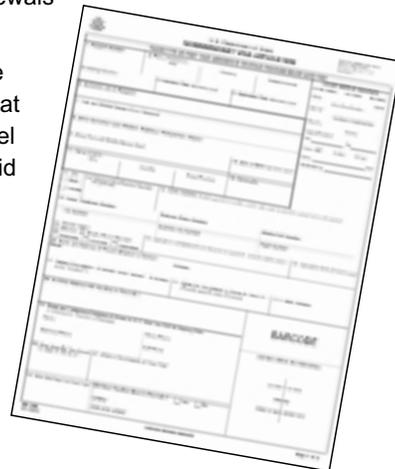
Meanwhile, the European research center CERN has an existing collaboration with Iran, one of the countries on the State Department list. The Iranian government has agreed to contribute components worth about \$1.1 million to the CMS detector. Two students from Iran are currently working at CERN, and four scientists are constructing hardware in Teheran. Fermilab manages the U.S. DOE contributions to the CMS experiment at CERN, and would have to obtain prior DOE permission if Iranian collaborators wished to attend a CMS conference at Fermilab.

“To the best extent we can, we deal with all users the same way. We do not discriminate,” said Rubinstein. “We realize, if getting into Fermilab remains difficult, experimenters might decide to hold future collaboration meetings at universities or other places outside Fermilab.”

OTHER VISA PROBLEMS

Adding further complications are what seem to be new policies on visa applications and renewals that often hinder scientific collaboration.

“No existing U.S. visa is really appropriate for long-term international collaboration that requires non-U.S. users to frequently travel to the U.S. over a long period of time,” said Chrisman. “The INS is restricting the use of the B-1 visa that Fermilab visitors frequently used. The next best thing, the J-1 visa, poses problems of its own. For non-U.S. users these are big, big issues.”



“It’s the *FIRST INTERFACE* that *USERS HAVE* with Fermilab.”

—UEC Chair Chris White



Photo by Reidar Hahn

The Users Office, headed by Dianne Snyder, is the first stop for every new user. Sooner or later all users, like Bruce Knuteson who has worked on Fermilab experiments for six years, return to the Office to obtain more information or to file additional paperwork.

USERS OFFICE

Visa problems for scientists pre-date the changes effected after September 11, 2001. The previous month, the UEC had been sufficiently concerned to conduct a survey of users at several national laboratories, resulting in a request

that the State Department introduce a new type of visa for visiting scientists.

“Many U.S. agencies are interested in this idea,” said Rubinstein. “But since 9/11 the emphasis has been on security issues.”

Heightened security concerns have slowed down visa processing. For Fermilab employees and users without U.S. citizenship, leaving the U.S. has often resulted in delayed returns, prompting some scientists to cancel their participation in meetings outside the U.S. Hiring a scientist from a foreign country is also more difficult.

“We’ve made job offers to non-U.S. citizens,” said Chrisman. “There have been delays, and

the process takes up a lot of time of Fermilab to deal with this.”

John Marburger, director of the Office of Science and Technology Policy and science advisor to the President of the U.S., has spoken often about the visa issue (see *FERMINEWS*, Vol. 26, No. 7, April 25, 2003). At the Fermilab Users’ Meeting on June 2, he spoke about it again to more than 400 Fermilab scientists.

“This is a very serious issue that my office is working on every day,” he said. “The good news is that there is the consensus of international collaboration. We are not rejecting people. There is the practical problem of not making any decision [on visa applications]. We must improve this. I’m optimistic about solving it since it is clear it needs to be resolved. We have to either do a better job at dealing with this backlog or add more people.”

Either way, Snyder, Book and the Users Office will be there to do what’s needed. 🔄

“It was *MIND-BOGGLING* with all the changes.”

—Diane Snyder

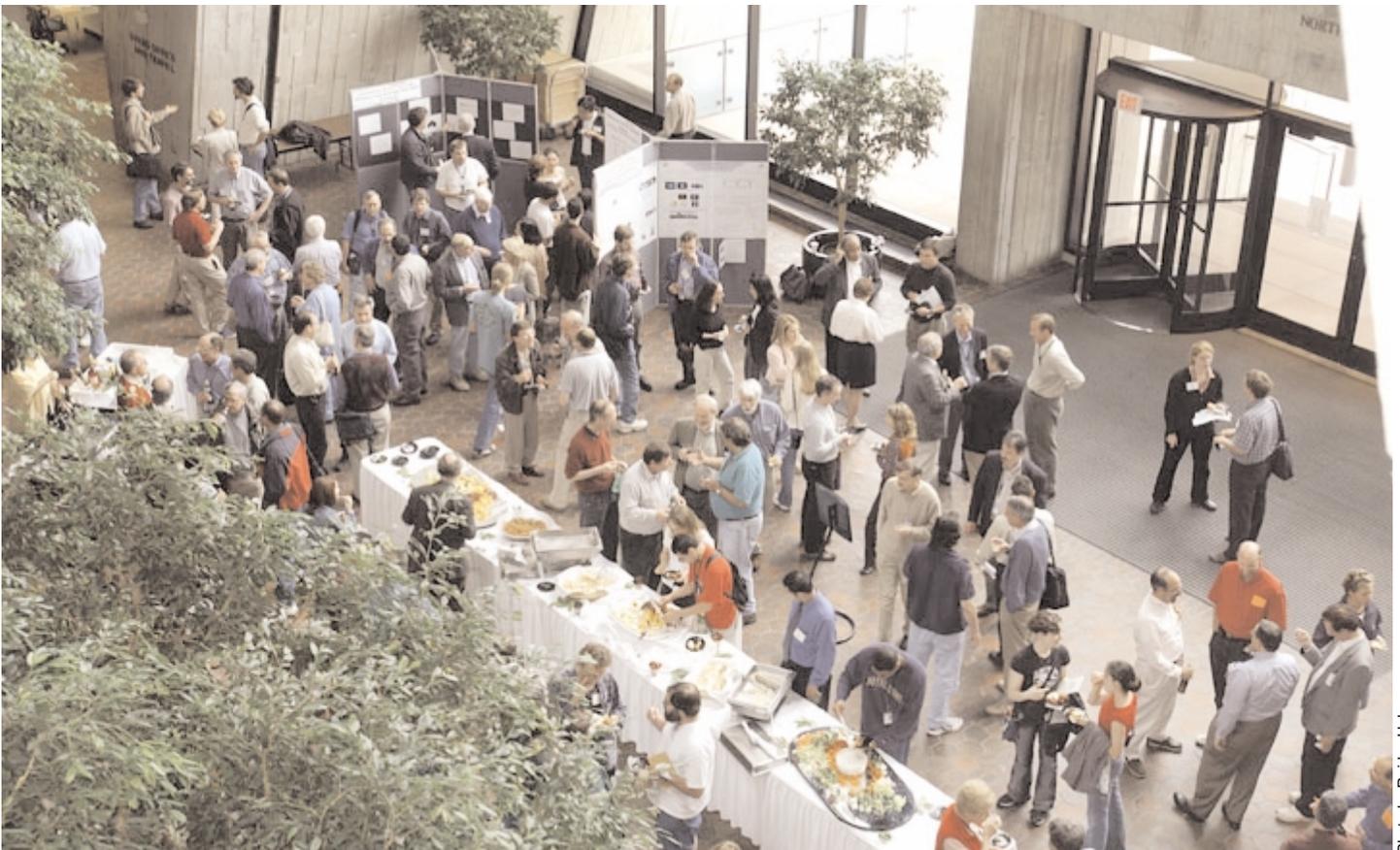


Photo by Reidar Hahn

Users are never far from the Users Office, which is at the upper left corner in this photo of the GSA poster session, “New Perspectives 2003.”

FERMILAB ARTS SERIES SUMMER SEASON

To purchase tickets for Arts and Lecture Series events, or for further information or telephone reservations, call 630-840-ARTS weekdays between 9 a.m. and 4 p.m. Phone reservations are held for five working days, but will be released for sale if not paid for within that time. Will-Call tickets may be picked up, or available tickets purchased, at the lobby box office on the night of the performance beginning at 7 p.m. When coming to this event, only the Pine Street entrance to Fermilab will be open. For more information, check out our web page at www.fnal.gov/culture.

CHRISTINE LAVIN IN WHAT WAS I THINKING?

June 14, 2003; \$17 (\$9 ages 18 and under)

"Lavin knows how to keep her audience guessing thinking and laughing at the same time"
- The Washington Post



In Christine Lavin's smart and funny theatre/concert you hear the soundtrack of American life: its people (*Strangers Talk to Me*); preoccupations (*Making Friends with My Grey Hair*); realities (*I Was in Love with a Difficult Man*); inanities (*What Was I Thinking?*); flutters (*Harrison Ford*) and hard facts (*Looked Good on Paper*). An award winning

singer/songwriter/ guitarist/comedienne, she has recorded and released fourteen albums of original material, sings her own and others' songs on three disks of the "Four Bitchin' Babes" (a group she founded, nurtured and performed in during the 1990's), and has put together and produced eight compilations showcasing the works of dozens of singer/songwriters. From her award winning songs to her adroit comedy and twirling batons, Christine Lavin is an original.

APRIL VERCH

July 19, 2003; \$18 (\$9 ages 18 and under)

"It's always a good thing for a performer to leave an audience howling for more. But she is such a startlingly brilliant player/performer you have to wonder whether even too much would be enough."
- Halifax Herald



Emerging from the thick of the traditional music scene, the fiddling and step dance vitality of an April Verch concert is a breath of fresh air. Though she has deep roots in the fiddling of her native Ottawa Valley in Canada, April's broad repertoire features traditional and contemporary

tunes ranging from French Canadian to Appalachian, from Bluegrass to Celtic, and Brazilian to Old Time, not to mention her own colorful compositions. No matter what you call it, April's music is beguiling in the way it brilliantly balances contemporary élan and traditional resonance. This young musician is highly sought-after, not only for her master fiddling, but also for her virtuoso Ottawa Valley step dancing. April's award-winning performances of this dynamic, high-energy form of dancing never fail to bring the house down.

CORKY SIEGEL'S CHAMBER BLUES WITH BONNIE KOLOC

August 23, 2003; \$20 (\$10 ages 18 and under)

"Corky Siegel's Chamber Blues - Classical Music, elegant and precise, marries the loose and passionate blues in this utterly winning musical program."
- The Austin Chronicle

For almost four decades the defining cultural arts critics from Rolling Stone, Stereophile, Down Beat, Billboard, Jazziz, New York Times, and Washington Post have all recognized Corky Siegel as a "phenomenal virtuoso on harmonica... a deftly accomplished genius of the Blues" and a pioneer who brings his original award-winning benchmark compositions to delighted audiences globally. New fans and longtime followers of Corky's blues career have been quick to embrace his freshly innovative, genre-busting Chamber Blues.

Chicago singer/songwriter Bonnie Koloc joins Chamber Blues for a multi-media event titled "Bestiary" which features some of Bonnie's original artwork and songs. Koloc is often considered, along with John Prine and Steve Goodman, as one of Chicago's top three singer/songwriters.



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LUNCH WEDNESDAY, JUNE 18

Shish kebabs with Pita
Garlic Tahini
Rice Pilaf
Baklava

DINNER THURSDAY, JUNE 19

Vol-au-Vents with
mushrooms Duxelle
Roasted Red Snapper with
Tomato Chili Sauce
Vegetable of the Season
Apricot Pecan Cake

LUNCH WEDNESDAY, JUNE 25

Catfish Fillets with
VeraCruz Sauce
Black Beans and Rice
Banana Chocolate Spring Rolls

DINNER THURSDAY, JUNE 26

Smoked Salmon Platter
Butter flied Leg of Lamb
Stuffed Tomatoes
Steamed Green Beans
Chocolate Hazelnut Cake

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**The deadline for the Friday, June 27,
2003 issue is Tuesday, June 17, 2003.**

Please send classified ads and story ideas
by mail to the Public Affairs Office, MS 206,
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FOR SALE

- '00 Toyota Corolla, 57K miles, AC, cruise control, power steering, good condition. \$7,500 o.b.o. Contact 630-840-6651 or ilinda@fnal.gov
- '95 Dodge Intrepid sedan, black, 3.3L V6, 166K miles, automatic, power window, power seats, power lock, AM/FM/cass. Runs great, good body and interior. \$1,800. Contact Sali at 630-840-3734.
- '94 Chrysler Concorde 3.5L AC, cruise control, moon roof, radio and all mod-cons. Runs very well and is a very comfortable car in good condition. Asking price \$3,300 o.b.o. Contact sineadf@fnal.gov.
- '91 Honda Civic DX 2-door hatchback, blue, 143K miles, automatic, AM/FM cassette, almost new battery, radiator, exhaust & 2 tires. Passed emission test in Dec. 2002, runs strong. \$1,200 o.b.o. Contact Dehong 630-840-8746 or dhzhang@fnal.gov
- '91 Volkswagen Corrado G60, 72K miles, excellent condition, loaded. Too many items to list. \$7,000 o.b.o. Contact Steve Carrigan at 630-840-8879 or SCarrigan@fnal.gov.
- '85 Chevy Celebrity, 7 passenger wagon, 6 cyl., only 97K miles, auto, AM/FM, excellent condition. \$1,000 o.b.o. Contact Jiyong Zhao 630-961-9428 or Meiqin Xiao 630-840-6765.
- '80 Honda CB750 motorcycle with packs, windshield, trunk, only 15K miles. KB Book value \$1,100, asking \$700, as is. Contact 630-803-0801 to see.

- Drop-in bedliner for short bed Chevy S10 pickup. Like new condition. Came out of a 2001 model but will fit multiple years, \$150. Contact Mike 630-840-4663 or 630-513-7939.
- Bear Cat Chipper/shredder, model 70080, 8 horse power Briggs & Stratton Engine. New \$900+, rarely used, excellent condition, \$350 o.b.o. Contact 630-859-3789 or 630-840-6633.
- 100A SquareD Breaker Box, with full compliment of breakers (including one double-pole). Perfect sub-panel for garage or shed. Separate disconnect box included. Contact 630-840-6571 for picture, \$50.
- Spare Washer/Dryer due to relocation. Kenmor, about 4 years new. White, automatic. Super capacity 5-cycle washer. Super sized electric dryer (no gas line needed). Asking \$150/each o.b.o. Contact 630-961-6574.
- Blue sleeper-sofa; very good condition, \$140; Blue wingback recliner, \$60; Contact Maury Goodman 630-393-2431.
- Waterbed, king size, honey pine color, bookcase headboard, motionless mattress, safety liner, heater, padded rails, \$150. Contact Ron at 630-840-8864 or 630-466-1823 eves.

WANTED:

An old 3-speed bicycle (with old-fashioned handlebars), either gender, in any condition. Contact Henry at 773-702-7479, or frisch@fnal.gov.

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HOUSE FOR SALE

■ 8 Rm. 4 Br. 2625 Sq.Ft. Less than 4 mi. from Fermilab. Contact Larry 630-840-4386 or alarkanoe@aol.com

BIBLE EXPLORATION FOR LUNCH

■ Would you like to be a happier person? Interested in what the Bible has to say about happiness? Want to explore this on your own terms, devoid of outside pressure or obligation? Then join us noon - 12:35 p.m. every Wednesday in the Small Dining Room of Wilson Hall (WH-1SW). The current study is entitled 'Journey into Happiness' and no preparation is necessary. Info at 630-840-3607 or dykhuis@fnal.gov.

MILESTONES

RETIRING

■ Jimmy Elemeier, PPD -Mechanical Dept., retired May 15, 2003.

DEDICATED

■ On May 16, 2003: Andy's Pond, named for Andy Mravca (1933-2002), who served more than 20 years as DOE Fermi Area Manager, and who was also instrumental in working with founding director Robert Wilson in the construction of the laboratory. Mravca's family gathered for the dedication ceremony.



CORRECTION

■ The *FERMINEWS* photo story "A Gallery of Skills"(vol. 26, no. 9, May 23, 2003) mistakenly listed Donna Lamore as the only contributor for "Andy's Quilt." In fact, Lamore was one of six contributors, along with Sheila Cisko, Joann Larson, Amber Boehlein, Linda Bagby and Liz Buckley-Geer. *FERMINEWS* regrets the error.



Calling All Fermilab Technicians!

For a group photo to appear in a special All-Technicians Issue of *FERMINEWS*, technicians from all divisions and sections are invited to gather at the front entrance of Wilson Hall at 11 a.m. on Wednesday, June 18. Representatives of Fermilab Visual Media Services will coordinate the photo. The group photo will include all those employees in the categories of Technicians, Technical Specialists and Operations Specialists, as well as those who might have different job descriptions but consider themselves technicians. Thanks for your help!

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