

Ferminews

FERMI NATIONAL ACCELERATOR LABORATORY

Experimenters grapple with future funding prospects

The Users Executive Committee hosted a special meeting on December 3. The goal of the meeting was to raise the awareness level among users of the serious funding prospects for the U.S. high-energy physics program and Fermilab in particular. Funding that, according to UEC members, "threatens the vitality of the fixed-target and collider programs."

"This is a critical time for basic research," said **Dave Cutts**, chairperson of the Users Executive Committee. "The vitality of the high-energy physics program depends on Fermilab." Fermilab is a large community. More than 2000 experimenters, including 443 graduate students are currently working at the Laboratory. "We are most of the U.S. high-energy physics program," Dave said. He also added that with a new Congress, new committee members and possible changes in procedures, now is the time to take our message to political leaders and constituents. "The problem is deeper than trying to influence a specific stage in the process. We must educate members of the public and Congress."

Prior to opening the meeting to comments from the audience, Dave urged that Fermilab users need "to make a new case for the importance of basic research."

The first experimenter to express his concerns was **Paul Slattery** (University of Rochester, E706). He implored physicists to get together behind the Witherell Subpanel and to use it as a framework. "The Witherell Subpanel represents an excellent example of the community coming together to grapple with problems." Paul emphasized that the subpanel should be the "voice of the community."

Speaking on the importance of the Fermilab program, **Melvyn Shochet** (University of Chicago, CDF) said that at the last High Energy Physics Advisory Panel Meeting there was a universal response that the Fermilab program is essential to the base program and to the field. "As a group and as individuals we must make it clear that our program [Fermilab] is critical to understanding nature, training graduate students and the future of the SSC."

Concurring, **Mike Shaevitz** (Columbia University, E815) hailed Fermilab as the premiere labora-

Now is a critical time for the Fermilab program, for the vitality of the high-energy physics program and for basic research and the country's future.—Dave Cutts, chairperson of the Users Executive Committee

tory in the country. He praised the Laboratory's strong physics program which combines both collider and fixed-target experiments and pointed to the importance of having an aggressive and realistic communications program aimed at informing our political leaders. "Stretched-out programs drive away graduate students and physicists," warned Mike. "Who will be around to run the SSC?"

The loss of trained personnel under a diminished funding scenario was one of the problems cited in the Witherell Report Executive Summary. The summary stated:

"... Because of insufficient funding and reduced opportunities, trained personnel at universities and national laboratories would be lost to the field, and future productivity would be endangered by the loss of students. The breadth and diversity of the field, important in our vision of a healthy U.S. high-energy physics program, would be seriously limited."

In an explanation of how "we got into this mess," **Chip Brock** (Michigan State University, Dzero) credited changes in how the scientific community is perceived in Washington. "To many we are just another special interest group." Chip also cited the current economic situation. "The economy has been in a free-fall and this has placed one scientific field against another in the battle for funding."

As sober as the message may sound, Chip did offer solutions to the problem. "We must recognize
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APS announces fellowship elections

The American Physical Society announced the election of **John Cumalat**, **Marjorie Shapiro** and **James Prentice** to the rank of Fellow. All three are involved in research at the Laboratory and are in the APS Division of Particles and Fields.

John Cumalat, University of Colorado at Boulder, E687, was elected "for contributions to the study of the production and decay of charmed particles and for innovations in beam and detector design."

Marjorie Shapiro, Lawrence Berkely Laboratory, CDF, was cited "for contributions to the study of high transverse momentum phenomena in proton-antiproton collisions."

James Prentice, University of Toronto, Canada, SDC, obtained this honor "for experimental studies of the spectroscopy of hadrons."

John, Marjorie and Jim will be honored at the next APS Division of Particles and Fields business meeting to be held in Washington, D.C. in April 1993. At this meeting, each newly-elected Fellow will be presented with a Fellowship certificate. Their election to Fellow will also be noted in the March 1993 *APS News*.

Three Fermilab pioneers were elected to the

rank of Fellow in the American Physical Society Physics of Beams Division. **Frank Cole**, **Don Edwards** and **Jim Griffin** will be honored at the Physics of Beams Meeting to be held in May 1993 in Washington D.C.

Frank, who joined the Laboratory in 1967 was elected "for contributions to accelerator theory in areas including nonlinear dynamics and space-charge phenomena, and for contributions to the design of accelerators for use in particle physics and in medicine."

Don Edwards who came to Fermilab in 1969 was cited "for his many contributions to accelerator science, and the key role he played on the design and commissioning of the Tevatron."

Jim Griffin was honored "for conception and development of numerous techniques for manipulation of particles in longitudinal phase space leading to successful operations of the Fermilab Proton/Antiproton Colliding Beam Program." Jim joined the Laboratory staff in 1969.

Frank and Jim are now retired from the Lab. Don left the Lab in 1988 to work at the SSC. He returned to Fermilab in 1992.

Senator Johnston visits Laboratory

*Director **John Peoples** discusses the physics program at Fermilab with Senator J. Bennett Johnston, Louisiana, who visited the Laboratory on December 1. Senator Johnston serves on the Committee on Appropriations and chairs the Senate Energy and Water Development Appropriations Subcommittee. This subcommittee is responsible for shepherding the Energy and Water Development bill through the Senate. It recommends dollar values and how those dollars are to be allocated. Once passed into law, the Energy and Water Development Appropriations provide the funds for Fermilab and other DOE facilities and programs.*



*This was the Senator's first trip to Fermilab and he came to learn more about the Laboratory. The Senator, according to Deputy Director **Ken Stanfield**, has a very sincere interest in science and has been a strong supporter of the SSC.*

*While at the Lab the Senator met with members of the Directorate, toured the Laboratory, visited the CDF and Dzero experiments and met with **Steve Holmes**, head of the Accelerator Division, to discuss the Main Injector Project. Senator Johnston was accompanied on the trip by **Cherri Lagenfeld**, newly appointed manager of the DOE Chicago Field Office.*

What about Bob?

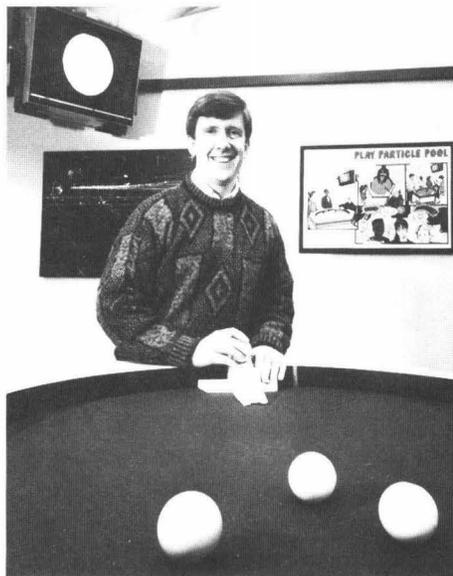
Like many people here at Fermilab, Bob Grimm finds the Laboratory an intellectually stimulating place to work. Bob is so captivated by the things he learns here that he says he always leaves at the end of the day feeling much smarter than when he arrived.

Bob is a high school physics teacher on a one-year sabbatical working at the Leon Lederman Science Education Center. He claims that by working here, his students will have a much more credible teacher when he returns to the classroom.

At the Lederman Center, Bob is in charge of setting up and maintaining the interactive learning centers scattered throughout the building. Since he began his sabbatical from Fremd High School in Palatine in July of this year, Bob has assisted in designing experiments and creating learning materials to help students understand the experiments.

"My job," said Bob, "is to make the learning centers work so that students can learn about Fermilab and particle physics in a hands-on way." The trick is to use the same center and have it work for students of all ages from first grade to college, Bob added.

Part of Bob's job involves maintenance, repair and construction of the centers. More recently, however, his responsibilities have



turned to the teaching aspect of his position. "The tools I use have changed," said Bob. "I have gone from hammer and nail to pencil and paper."

Bob recently completed the Visitor's Log Book which visitors to the Lederman Center can use to record their progress as they move from experiment to experiment.

Although Bob's sabbatical is only a few months old, he is not new to Fermilab. Previously, he taught physics at the 1988 Summer Institute for Science and Mathematics Teachers, and was involved in several workshops for teachers during the summers between 1989 and 1991.

In addition to his experience in the field of science, Bob also brings to his new position great teaching skill, having been

awarded the Presidential Award for Excellence in Science Teaching in 1991.

Just as Bob's colleagues have great respect for him, Bob said he, as well, has great respect for the Laboratory's education program and what it is trying to accomplish. "Fermilab has set before it a near impossible task in trying to teach particle physics hands-on," Bob said, "but, I think they've done it. I see people come out of the (Lederman Center) with a better understanding of particle physics. That's an extremely lofty subject to try to get a 12-year-old to understand—and they do. By the time they finish, the students understand what an accelerator is, what a detector is and how these things help us understand matter. What an exciting place."

As Bob continues to work here under a "honeymoon glow," as he calls his enthusiasm for the job, in the future he will be concentrating on putting together a new Inner Space/Outer Space Room and a Technology Room in the Lederman Center. Bob said he hopes the Technology Center will become a hands-on interactive "switchyard" where students can run experiments using different computer technologies.

And you can be sure that even after Bob has returned to his classroom, his enthusiasm will remain and he will continue to tell his students about Fermilab and "what a fun and cool place (it is) to work."

Oh Tannenbaum, Oh Tannenbaum

It's beginning to look a lot like Christmas in the Wilson Hall Atrium—thanks to a special group of Santa's helpers. Among those who helped ring in the Christmas season were the children from the Children's Center. They arrived December 10 to add their spirit and hand-made ornaments and decorations to the Christmas tree adorning the Atrium. **Bob Hall** (FES/Rds. & Grnds.) hand selected the 25-foot Douglas Fir from Montello, Wisconsin. Its safe delivery was the responsibility of **Sam Gallejos** from Shipping and Receiving, while the tree was set up and supported with cables by the Roads and Grounds crew. **Roger Slisz** and **Jim Kalina** of Roads and Grounds also sprayed the tree with sodium silicate, a fire retardant.

The tree was decorated by **Charlotte Smith** (FES/E&P), chairperson of the Christmas tree decorating committee; **Colleen Choy** (Directorate); **Robin Dombeck** (LS/Educ. Ofc.); **Alicia Filak** (Internal Audit); **Ray Fonseca** (FES/Bld. Mng.); **Jorge Hernandez** (FES/Bld. Mng.); **Lisa Jenkins** (FES/E&P); **Nanette Larson** (BS/Telecomm.); **Lupe Rodriguez** (RD/EE); **Sharon Rowland** (BS/Emer. Srvs.); **Diana Topalski** (FES/E&P); **Joe Trevino** (FES/Bld. Mng.) and **Renee Walter-Smith** (BS/Rcvg./Shp.).

Charlotte offered her thanks to those who helped decorate and also to those supervisors who allowed their employees to help give joy to the Fermilab community.



Many Lab employees work hard each year to select, erect and decorate a tree we can all enjoy.

Business Services Section assists small and minority-owned businesses

Over the past ten years, the Fermilab Purchasing Department has received recognition from both the Department of Energy and the Small Business Administration for its support to small and disadvantaged (minority-owned) businesses. According to **Dick Auskalis**, head of Procurement, even if our cooperation wasn't mandated by law, we would still be supportive of small concerns. "It is just good business," said Dick.

In 1978, a public law was passed requiring anyone who receives a federal government contract in excess of half a million dollars for goods or a million dollars for construction to develop a small business and small disadvantaged business subcontracting plan. This plan, submitted to the government agency providing the funding, outlines what percentage of the contract will be placed with small business firms and minority-owned firms.

Because Fermilab is a government contractor, it must annually submit such a plan to the Department of Energy. This plan is prepared by Dick Auskalis and submitted



Many of the commodities **Bob Johnson** purchases for the Lab can be supplied by small and minority-owned businesses. Bob purchases such items as safety products, metals, printing and speciality products. Bob said that one of the resources he finds useful in locating minority vendors is the Greater Chicago Minority Business Directory published by the Chicago Regional Purchasing Council. Pictured above is Bob (r) with vendor Charles Steel of Inter-City Supply Corp., Inc.

to **Andy Mravca**, Manager of the DOE Batavia Area Office. According to Dick, there are no predetermined, government-required percentages. "Some contracts do not lend themselves to partnership with small business, such as very labor-intensive contracts or very high-technology products, so it would be unreasonable to attach an arbitrary percentage," said Dick.

In the Laboratory's 1992 Small and Disadvantaged Business Subcontracting Plan, the Purchasing and Contracts Departments established that the Lab would strive to place 55% of its goods and services dollars with small businesses and 3.2% with disadvantaged businesses. The final percentage of Fermilab dollars spent in FY92 exceeded the plan. **Fifty-seven percent was placed with small businesses and 3.4% was placed with minority-owned businesses.**

What makes this accomplishment so



One of the ways Fermilab purchasing administrators assist small and minority-owned business is to try to encourage large manufacturers to work with them as authorized distributors. "These 'marriages' are beneficial to both the large company and the small companies," said **Joe Morgan**. In the photo above, Joe talks with Tom Carter (l) and Robert Tanaka of Access Electronic Inc. Joe recently assisted AEI in becoming a distributor for 3M Connector Company and LEMCO Connector. This type of action on the part of Joe earned him the 1990 Buyer of the Year Award from the Chicago Regional Purchasing Council, Inc. Minority Business Subcouncil.

outstanding is that the everyday mix of goods and services required at Fermilab does not lend itself well to purchasing from small and minority-owned companies. "The problem that the buyers experience is that it is sometimes difficult to find a small or minority vendor for certain commodities or services," said Dick. "The minority- and small-business communities have not caught up in many areas of high technology. Many of the products we purchase such as electronics, electronic components, computing or cryogenics are not supplied by minority companies. They are only available through very large corporations," said Dick.

It is more difficult to reach a goal of 3.2% placement with disadvantaged business in an organization such as Fermilab, said Dick. "It is far easier for others outside of the high-tech, scientific world, such as manufacturers, to reach these goals.

Despite these difficulties the Purchasing and Contracts Departments have been Continued on page 5



The Contracts and Purchasing Departments participate annually in the Chicago Business Opportunity Fair. "The fair gives purchasing and contract administrators the opportunity to meet with representatives from small, disadvantaged or woman-owned businesses," said **Rich Farritor**. "Participation in this event allows us to develop a lead list of small or disadvantaged businesses that provide services which Fermilab utilizes," said **Ron Cypret**. Pictured above Ron (c) and **James Wilson** (l) (FES/O&M/Mech.) meet with Dale Kelley, president of Metal Box International, a supplier of sheet metal products.

Business continued

successful. This success is due in large part to the efforts of the purchasing and contract administrators. Using a database that lists not only products and services, but also information on the vendors, the buyers strive to put together bid lists that are very favorable to small and minority-owned businesses.

Although the foundation of the small and disadvantaged business program is public law, a lot of corporations around the country recognize the value of doing business with small companies and see a correlation between the economic strength of our country and the strength of small businesses.

According to the U.S. Small Business Administration, small businesses provided all the new net jobs from 1988 to 1990 and created 40% of the nation's high-technology jobs during the past decade. The proven innovation and creativity of small-business owners is also a plus. "Small businesses have been responsible for the invention of such noteworthy products as the personal computer, helicopter, zipper, contact lens and pacemaker," said Dick. Their ability to be responsive to customer service expectations is also a clear advantage, Dick added.

Over the last few years, those involved in purchasing have recognized that the growth

and influence of minority-owned businesses may be even more important to our nation's economic growth. The U.S. Census Bureau reported that the number of minority-owned businesses grew by nearly half a million between 1982 and 1987. This was more than four times the rate of growth for all businesses and these numbers are projected to grow larger in the future.

"What we are doing is recognizing diversity and the value of diversity. We now realize that the economic health of our country is directly tied to bringing minority-business people into the mainstream," said Dick.

Supporting this program involves more than just placing business. "We work with small businesses to help them develop. Sometimes we have to stretch—help them learn how to respond to bids. We work closely with them, reaching out a little more to help them so that they become competitive," said Dick.

The Department of Energy and the Small Business Administration periodically review Fermilab's program. The Laboratory has always passed these reviews very well, because there is a commitment on the part of the Laboratory that goes beyond just upholding a law.

The team

*The Fermilab purchasing and contract administrators and supervisors work hard throughout each year to purchase goods and services for Laboratory personnel while at the same time playing a very supportive role for small and minority-owned businesses. Those responsible for the FY92 success story are: **Dick Auskalnis** (Procurement), **Bryon Clark** (Purchasing), **Joe Collins** (Purchasing), **Bill Couch** (Purchasing), **Ron Cypret** (Contracts), **Rich Farritor** (Contracts), **Betty Fay** (Contracts), **Gary Gross** (Contracts), **Joanne Hall** (Purchasing), **Bob Huite** (Contracts), **Bob Johnson** (Purchasing), **Bill Koncelik** (Purchasing), **Leonard Mack** (Purchasing), **Joe Miller** (Purchasing), **Joe Morgan** (Purchasing), **Mike Ralls** (Section Office), **Don Rogus** (Purchasing), **Nelson Sample** (Contracts), **Monica Veracini-Watson** (Contracts) and **Larry Vonasch** (Contracts).*

What determines if a business is considered small or disadvantaged

In 1978 the Federal Government passed Public Law 95-507, an act designed to promote support of small and disadvantaged businesses. Almost fifteen years later, the U.S. business people and economists are seeing clearly the advantages of supporting small- and disadvantaged-business owners.

What is a disadvantaged business

According to federal regulation, a disadvantage business is one that is owned by an individual who is "socially" or "economically" disadvantaged.

"Socially disadvantaged individuals" are persons who have been subjected to

racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their qualities as individuals.

"Economically disadvantaged individuals" are socially disadvantaged individuals whose abilities to compete in the free enterprise system is impaired due to diminished opportunities to obtain capital and credit as compared to others in the same line of business who are not socially disadvantaged. This category includes those who are members of the following groups: Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans and Subcontinent-Asian Americans.

What is a small business

A small business is a little more difficult to define because its definition depends upon the goods or services being offered by the company. According to **Rich Farritor**, BS/contract administrator, a business which offers a product that it does not manufacture is considered a small business if it employs less than 500 people. Companies that offer a service are categorized by annual gross receipts. For example, a specialty contractor such as a plumbing business is considered small if it does \$7 million or less in business annually, but a general construction contractor is considered small if its gross receipts do not exceed \$17 million annually.

URA scholarship applications due

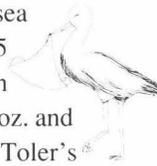
Candidates for Universities Research Association (URA) scholarships are reminded that applications are due March 1. Applications are available from and should be returned to Personnel Services, MS 113, x4367.

Scholarships are awarded on the basis of S.A.T. (Scholastic Aptitude Test) scores.

URA awards a number of scholarships to regular, full-time Fermilab and SSC employees' children who are currently high school seniors and who will begin a four-year college degree program next fall. The maximum amount of the scholarship is \$3,000 for tuition and fees, and is renewable for four years if the student progresses in good academic standing. Applicants will be notified regarding the scholarships in early April.

Congratulations to

Jeff and **Shawn Toler** (LS/Daycare) on the birth of their daughter Chelsea Ann. Chelsea was born November 3, 1992 at 11:45 p.m. at Central DuPage Hospital in Winfield, IL. She weighed 9 lbs. 1/2 oz. and was 21 inches long. Chelsea is the Toler's first child.



Patrice and **Dale Sulek** (FES/O&M) are the proud parents of Alexander James. Alexander was born December 9, 1992 at 3:04 p.m. at Elmhurst Hospital. He weighed 7 lbs. 10 ounces and was 19 3/4 inches long. Alexander is the Sulek's third and (according to Dale) last child.

Wellness Works: Lunch-time seminars

Unbelievable turnout! In November, the Wellness Works Committee sent each Fermilab employee a list of ideas for lunch-time programs. Four hundred fifty-three of Fermilab's employees returned the survey! People around here seem pretty interested in keeping healthy. Next month they'll probably be serving tofu and carrot juice at the Director's Coffee! The Wellness Works Committee will be scheduling monthly, noon-hour presentations based on the survey results. The schedule of activities is as follows:

January: For all those with the usual New Year's resolution: a motivational speaker on weight loss/nutrition/physical fitness.

February: More nutrition/meal planning/fat and

Nalrec news

The employee Christmas Party at the Village Barn is Wednesday, December 23 from 5:15 p.m. to 9:30 p.m. It promises to be a grand time for all. We'll be listening and dancing to Cruzin the Loop, eating Bar-B-Q and winning prizes (like gift certificates, turkeys, ducks and other specialties.) We'll make this one the year-end bash.

Need a last minute gift? Purchase the first Fermilab/Nalrec Cookbook for only \$5. No tax, but, starting January 1, 1993, all items sold will be taxed in the state of Illinois. Maybe a sweatshirt or coffee mug will be on your list, too.

All Nalrec members would like to wish each and every one of you the merriest holiday season and a happy New Year.—*Charlotte Smith*

Did you lose something?

The Communications Center would like to remind employees to periodically check the Lost and Found for items they may have misplaced. According to the Communications Center, the Lost and Found is becoming overcrowded with glasses, car keys and various other items and they would like to see these items returned to their owners.

Film Society seeks members

Looking for a few good members... If you are interested in joining the Film Society and helping plan the new schedule, contact Mary Anne Cummings at FNAL::MACC or x2817.

cholesterol, etc., (just to see how you're doing).

March: Stress management (who gets stressed out around here?) There will also be a stress reduction presentation on Monday evening, January 19 from 7 p.m. to 8:30 p.m. given by Fox Hill Counseling Services staff in Ramsey Auditorium—it's free!

April: Improving communications skills (maybe I should attend?)

May: Skin cancer/sun screen protection (yes, there is a sun, maybe it'll be out by then)

June: (Pool opens again) Child and water safety.

We will be publishing times and locations when available.—*Audrey Hopper*

Coming attractions

The first two productions in Fermilab's 1993 Art and Lectures Series have been scheduled. The first show of the season will be held on January 30 featuring a concert by Recorder Virtuoso Michala Petri. She will be performing with Lars Hannibal, guitarist. Michala is fast becoming a superstar. She is the foremost recorder player today, and regularly performs with the best orchestras in the world, including the Chicago Symphony, the Academy of St. Martin in the Fields and I Solisti Veneti. She has made numerous recordings, most notably of the Vivaldi Concerti and the Handel Concerti. She recently recorded the Handel Sonatas with Keith Jarrett, usually known for his jazz piano performances.

Coming up on February 20 is a performance by the Bill Evans Dance Company. This group combines classical dance with traditional American dance forms such as the jitterbug, ballroom dance and swing. The company will perform Jukebox Saturday Night, set to the music of Glenn Miller and his orchestra and Mixin' It Up, set to music of jazz artist Bill Evans and his Trio.

Movie schedule

The Fermilab International Film Society presents movies from all over the world. Movies are shown at 8 p.m. Fridays in Ramsey Auditorium.

December 18: *The Unbelievable Truth*, mild-mannered Josh is the nicest mass murderer you've ever met in a sunny black comedy directed by Hal Hartley, U.S., 1990, 90 minutes.

January 8: *Vincent: The Life and Death of Vincent van Gogh*, images from the artist's life-landscapes he loved, canvasses he painted. John Hurt narrates from van Gogh's letters, Paul Box, director, Australia, 1987, 99 minutes.

January 22: *The Cook, the Thief, His Wife & Her Lover*, a shocking, savage fable about corruption and cruelty, power and perversion in the modern world. Peter Greenaway, director, France-Holland, 1989, 126 minutes.

Harper's Index

Number of visitors each year to the Museum of Questionable Medical Devices, in Minneapolis: 6,000.

Price of a box of pina colada-flavored candy canes from the Spangler Candy Company of Bryan, Ohio: \$1.89.

Preprint titles available on Library database

Preprint titles and authors are now being entered into the Library's online catalog on a weekly basis. To connect to the Library's catalog do either:

SET HOST FNLIB or
TELNET FNLIB.FNAL.GOV

Username = LIBRARY
Choose S for Search mode

To search for preprints cataloged in December 1992:

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AND DEC 1992

To display:
DISPLAY or DI

To search for new books:
FI CATALOGED AND DEC 1992 NOT
PREPRINT

For more information or assistance call the Library at x3401 or FNAL::LIBRARY.

Travel closed during holidays

The Travel Office will be closed all day Christmas Eve, December 24 and all day New Years Eve, December 31—so make those travel plans early.

UEC continued

that we must get out of the mess, acknowledge this is a critical year for the Main Injector, embrace what an amazing place Fermilab is, and look at physics as a whole, not just collider or fixed-target programs."

To do this, Chip suggests that the users start talking. "Our opportunity is this year and exciting physics should be our focus. Polish off your original romantic notions of science...and use them!"

Since physicists have no professional lobbyist, the UEC is counting on its membership to take the message to Washington. Some of the experimenters, however, showed concern about this new role stating that some of them wouldn't talk to Congress very well. To help prepare experi-

menters to talk on behalf of the importance of the Fermilab experimental program, the UEC provided interested users with information packets that highlight not only the physics programs but also the education programs and environmental and community programs at the Laboratory.

In closing the meeting, Dave Cutts asked for volunteers. "We need someone in every state to coordinate our efforts and we need many users in each state to participate." The UEC is asking volunteers to contact members of Congress locally to talk to them about the significance of Fermilab as a national laboratory. UEC hopes to get across the message that the high energy-physics program is disciplined, has strong ties with

university programs and drives the development of many new technologies.

"Now is the 50th anniversary of nuclear power," Dave said. "The high-energy physics program has thrived under that umbrella and grown complacent. We need to make a new case with the public and the Congress about the importance of basic research and the importance of high-energy physics and the Fermilab program."

Dave said he is the contact for anyone interested in assisting with the UEC effort. He can be reached at Brown University, Department of Physics, Providence, Rhode Island, 02912 or phone 401-863-1463, telefax 401-863-2024, DECNET BRHEP1::CUTTS.

Accelerator Division Reaches Run Luminosity Goal!

Last week the Accelerator Division reached a record luminosity goal when the Tevatron was able to deliver one inverse picobarn of protons and antiprotons to the CDF and Dzero experiments. This new record is the weekly rate required to reach a run goal of 25 inverse picobarns of integrated luminosity in the current collider run—the estimated luminosity thought necessary by physicists to make significant process finding the top quark.

According to **Gerry Jackson** (Accelerator Division, Main Accelerator Department) this achievement was due to the hard work and dedication of many people in the Accelerator Division. “Improvements in the antiproton source have allowed us to produce more antiprotons at a faster rate.” Also, Gerry credits an improved efficiency for the entire accelerator complex. “Fewer antiprotons are being lost during the acceleration process, so this means a higher percentage of antiprotons are being delivered to the experiments.” Thirdly, failures in the Tevatron are rare now. “We only lose one or two stores per week due to unanticipated failures,” said Gerry.

Luminosity is important because the rate at which an experiment produces events is proportional to the integrated luminosity. “Experimenters want high luminosity for as long as possible in order to increase the number of events detected,” said Gerry.

Luminosity is determined by two main parameters: the density of the beams and their ability to collide. A beam is made denser by packing larger amounts of protons or antiprotons into a smaller diameter beam. These beams must then be tightly focused to cause them to collide. So for a successful collider run, the accelerators must be able to deliver lots of protons and lots of antiprotons in very small beam sizes to the Tevatron, store them for several

hours and cause them to collide.

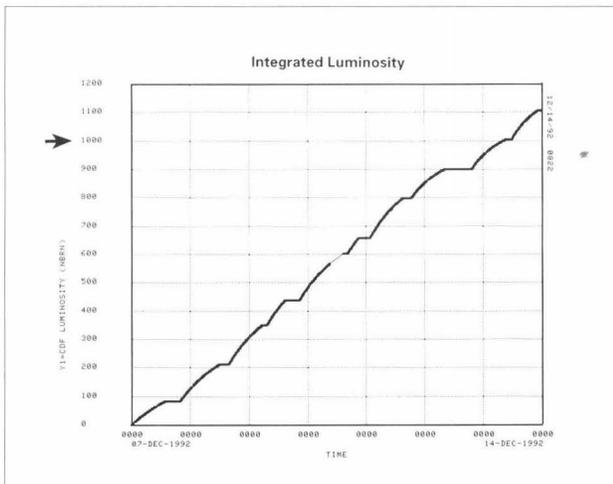
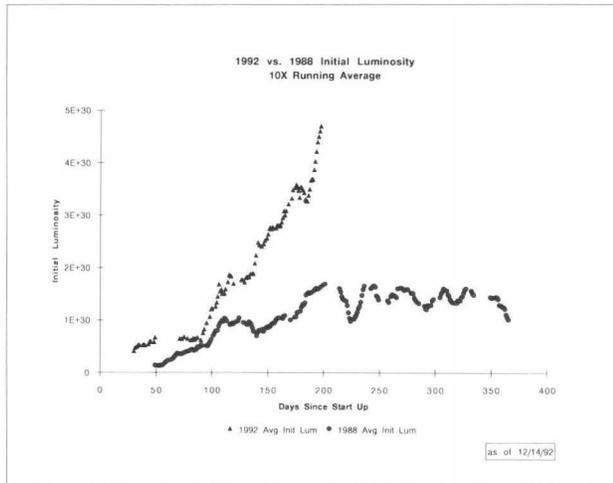
All factors are important, said Gerry. “Even if a beam has a high number of protons or antiprotons and is squeezed into a very narrow beam, if they don’t collide, there is no luminosity.”

The improved accelerator performance and the consequent increased luminosity of the beam is paramount to the detection of the top quark. The higher the luminosity the greater the probability of detecting the elusive quark that would complete the Standard Model.

Prior to the beginning of the 1992-1993 Collider Run, it was estimated that 25 inverse picobarns of integrated luminosity (luminosity for the entire run) was the level necessary to generate

a sufficient sample to verify the top.

To reach this goal, the overall reliability of the accelerator complex was improved. The complex is now able to produce tighter, denser beams at a higher initial goal luminosity of $5 \times 10^{30} \text{cm}^{-2} \text{sec}^{-1}$. This record luminosity rate is significantly higher than the machine was able to deliver during the 1988 collider run.



The graph depicts the Tevatron performance during the week of December 7-14. During this time the Tevatron accelerated to 900GeV 10 stores at an integrated luminosity of one inverse picobarn, setting a new Laboratory record.

Classified ads

1989 Dodge Daytona ES Turbo. Fully loaded, 49k miles, \$7,000. Call x4420 or 708-879-8252 evenings.

1986 Skyhawk, blue, 4-door, 4 cylinders, PB/auto trans., man. steering, AM/FM radio, new tires, 78k miles, \$1,600 o.b.o. Call Reehal at x4191.

1949 Chevy pickup, restored, good mech. cond., \$3,500 o.b.o. Call 708-406-8342.

For sale: Zenith **21" console color TV** with remote control, \$50; mahogany **drop-leaf table** with 2 leaves and pads. Seats 10 to 12 people, \$50; **studio couch**, light-green stripes with maple arms, \$25 o.b.o. Call Sue at x3762.

For sale: Bernina 830 **sewing machine**, former top-of-the-line model, excel. cond., \$300; faux **racoon coat**, size med., worn twice, \$150; **cross-country ski boots**, men's 11, \$20, women's 8 1/2, \$25, all good cond. Call Eve at x2309 or 708-985-1419.

Men's brown leather jacket by Members Only, size 46, worn only twice, \$300. Call Shelley at x3324.

Apartment to sublet in SW Lombard. Large 1 BR with washer & dryer in apt. Tennis courts, swimming pool and clubhouse. Close to tollways, \$669/mo. Call x3493 or 708-627-9413.