

Fermi news

FERMI NATIONAL ACCELERATOR LABORATORY

DOE Honors Students explore science

Sixty of the nation and world's most promising young students converged at Fermilab this past June 19 for the 1993 DOE Honors Students program.

For two weeks these students from all 50 states, Puerto Rico, British Columbia and several other foreign countries including Australia, Italy, Germany, Mexico and Japan got to see high-energy physics research from the scientist's point of view. Daily lectures and hands-on demonstrations, opportunities to build actual experimental equipment and writing detailed reports, and social interaction with a group of peers were all part of the experience.

Drasko Jovanovic (Physics Dept.) has been the driving force behind the program here at Fermilab since its inception in 1987. He believes that this program is developing the physicists of the future. "One of the most important aspects of the program is the close



Kristin Ciesemier



Bob Grimm



Drasko Jovanovic

school physics teacher on sabbatical and working with the Education Office this year. "Bob has pretty much organized the whole thing," said Drasko. "He's made my life a lot easier."

Bob's philosophy for the two-week program was one of providing excitement, information and not a dull moment. "The collection of this much 'grey matter' in one place and time is so rare, we don't want to waste an instant of it," said Bob. Keeping so many highly motivated and enthusiastic young people occupied proved to be a pleasant challenge for Bob.

In the mornings the students attended lectures on

particle physics and particle detection. These morning lectures are based on Fermilab's popular Saturday Morning Physics series, and are supplemented by informative "gee-whiz" demonstrations and lectures by area high school teachers. These 10 teachers also acted as advisors and supervisors for the students. "The increased number of dedicated, high-caliber teachers we had this year has really made a differ-

ence," said Program Leader **Kristin Ciesemier** (LS/Education).

The afternoons were filled with tours of various areas of Fermilab and with the students' hands-on projects for the program. Students constructed and tested photomultiplier bases and scintillators that will

Continued on page 8



The 1993 DOE Honors Students at Fermilab

contact with scientists throughout the two weeks and well after the program," he said. Drasko can easily back this up—he has written many recommendation letters to undergraduate and graduate schools for past students, and has already seen two receive their Ph.D.s.

A positive addition to the honors student program has been the outstanding work of **Bob Grimm**, a high

inside

Chuck Brown
Returns from NSF
page 2

Rocky Kolb Wins
Award
page 2

Special FESS
Cut-out Section
page 3-4

HEPnet
Management
Featured
page 5

Mike Gormley,
In Memoriam
page 6

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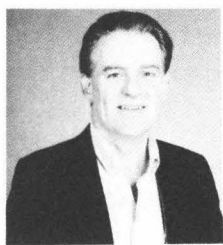
The deadline for the
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Wed., July 28.
Please send your article
submissions or ideas to
the Publications Office.

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Mr. Brown goes to Washington: to work for NSF

Seventeen months ago, **Chuck Brown** (Physics Dept.) left the quiet environment of our Fermilab community and headed for our nation's capitol. Unlike Jimmy Stewart, he didn't go there to make long, black-and-white-filmed speeches.



Chuck Brown

Chuck had been asked to become a guest program officer for the National Science Foundation's Physics Division. His job would be to review and recommend funding for proposals to the NSF elementary-particle-physics program. NSF funds account for about one-third of federal funding of university-based research in elementary particle (high-energy) physics. The remaining two-thirds is funded by the Department of Energy.

Now back at Fermilab, Chuck says the experience was an exceptional one for him. "It really gave me a chance to learn a lot of physics outside of what we do here at Fermilab," he said. "It was a true sabbatical in the sense that I was able to see and learn physics from a different perspective."

The NSF tries to keep about half of its 200 program officers as rotating, or guest, scientists. This ensures a continually fresh, up-to-date and scientifically experienced staff. Guest program officers usually come from educational institutions, national laboratories or private industry. Along with full-time staff, they solicit anonymous peer reviews and make recommendations on funding requests for research in most areas of science, engineering and science education.

Program officers are responsible for understanding and reviewing the proposals for research in a particular field (such as high-energy physics). They typically contact six other scientists with expertise relevant to the proposal to make anonymous reviews of the request. Recommendations for funding are made based on these reviews, on information obtained at laboratory research program committee meetings, on previous results presented at scientific conferences and on the funds appropriated to the individual

program. Program officers also play a key role in the yearly request to Congress for funds, outlining and justifying the funds requested for their respective programs.

This is the first time that someone from Fermilab has taken a leave of absence to work for the NSF in this review process. Chuck says that, while additional paperwork was needed, he received great support from the Lab in breaking this new ground. "We had to invent a procedure," he said. "I was helped by the Benefits Office, by the Directorate, by URA. . .and it all worked out well."

The NSF review process is very stringent and relies almost entirely on the unbiased nature of peer review. A big concern for Chuck and the NSF was conflict of interest. "They worry a lot about conflict of interest [at NSF]," said Chuck. "They work very hard at reviewing in an honest and complete way." To minimize conflict, Chuck handled no

direct Fermilab proposals while at the NSF.

Although no Fermilab physicists had worked previously at NSF, several have had similar positions in the past for DOE in its review process. **Dick Carrigan** (Directorate) has recently taken a similar visiting high-energy-physics position at DOE in Washington D.C. Chuck feels that the importance of the peer review system should not be overlooked, and he and Dick would encourage other scientists to consider a sabbatical to help funding agencies like NSF and DOE.

Chuck is beginning to settle back into his work with the E886 fixed-target-experiment collaboration. He is continuing to tie up some loose ends from his work at NSF, largely because they have not yet found a replacement for him. Chuck very much enjoyed his work for the NSF and his time spent in Washington D.C. (which he thinks gets a "bad rap" and is really a wonderful city), but as he said about Fermilab, "It's good to be back."

This is the first time that someone from Fermilab has taken a leave of absence to work for the NSF in this review process.

Rocky Kolb recognized by University of Chicago undergrads

Edward (Rocky) Kolb, head of the Theoretical Astrophysics Department, was recently awarded the Llewellyn John and Harriet Manchester Quantrell Award for Excellence in Undergraduate Teaching from the University of Chicago.



Rocky Kolb

Rocky was one of five teachers given the Quantrell Award at the university's convocation on June 12, 1993. Rocky was nominated for the award by University of Chicago undergraduate students. The convocation program called Rocky a "distinguished astrophysicist and committed teacher with exuberant style, who has led his students on a wondrous journey through the universe from

its infancy to the present and beyond."

Rocky has been a professor in the Department of Astronomy and Astrophysics, the Enrico Fermi Institute, and the College at the University of Chicago for 10 years. For the last five years he has been leading the undergraduate class "Cosmology for Poets."

"This is a well-known award at the university," said Rocky. "I've put in a lot of work. It makes me feel good to get recognized."

Rocky began working at Fermilab in 1983. He became head of the Theoretical Astrophysics Department the following year.

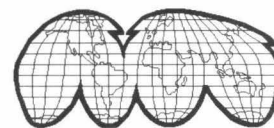
In addition to teaching at the University of Chicago as well as various Laboratory education programs, for the past 10 years Rocky has also been an instructor at the Fermilab Recreation Center, where he has taught **Gordie Gillespie** (RD) and **Brian LaVoy** (Physics Dept.) how to play basketball.

Ferminews

People & Events

special section. . .special section. . .special section. . .special section

F E S S ... U P



The confessions of a section seeking world class

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From the Section Head...

It is with great pleasure that I introduce David Nevin, who joins Fermilab as the deputy head of Facilities Engineering Services. David comes to us from Baxter Healthcare Corporation, where for 23 years he has held various management positions in site facilities engineering, manufacturing and specialized plant design, construction and start-up operations.

Many of his assignments have been overseas with extended periods of time spent in Latin America, Europe and Asia. He has worked in various construction-related disciplines including construction management, civil, structural and fire-protection engineering.

David has a wealth of experience in the current application of Total Quality Management and Customer Service, having implemented these programs in the facilities engineering and maintenance organization he led at Baxter's research and development campus in Round Lake, Illinois.

Please extend your assistance and cooperation to David in his new role at Fermilab.

— Wayne Nestander, head of Facilities Engineering Services.



David Nevin

On the drawing board...

A new two-story addition to IB2 will house first floor tech space and second floor offices. The new construction will total 7,200 square feet and will provide improved accessibility for individuals with disabilities.

Pulling cables to the Lederman Education Center will link this facility to the footprints area with telephone, FIRUS monitoring system, video computer and television communications.

Road E realignment will move the road crossing over the Main Ring berm approximately 200 feet south of CØ. Shielding will be upgraded to accommodate the ongoing accelerator upgrades. When completed, this crossing will remain closed to general traffic but available for use by emergency vehicles.



At your service...

The Roads and Grounds staff provides an important service to our customers as well as protecting the environment around Fermilab.

They remind you to call them at x3303 if you are experiencing problems with nuisance animals such as raccoons, woodchucks, dogs, cats, etc. The Roads and Grounds staff is able to trap and release these animals safely and humanely.

To request service or ask for more information call Bob Hall, manager Roads and Grounds, x3303 or page 0484.

In progress...

Wilson Hall 1 West Lecture Room has been completed. We will be returning to modify the tablet arms to more comfortably suit the users.

New siding for the few remaining concrete block service buildings around the Main Ring will begin soon. This work will also include the installation of roof hatches to facilitate installation of cryogenic equipment.

Main Injector Update...

The wetland mitigation project is complete. Approximately 10 acres of wetlands have been created by this process. Construction of the MI 60 enclosure is one-third complete and the work on utilities and roads for the new ring will begin in mid July.

FESS summer projects update

Fermilab Facility Facts

We are responsible for the maintenance of over 35 miles of roads.

A: July

The Village volleyball courts will be upgraded from a clay and sand base to an all sand base.

B: July and August

Construction of a new soccer field for URA.

C: July

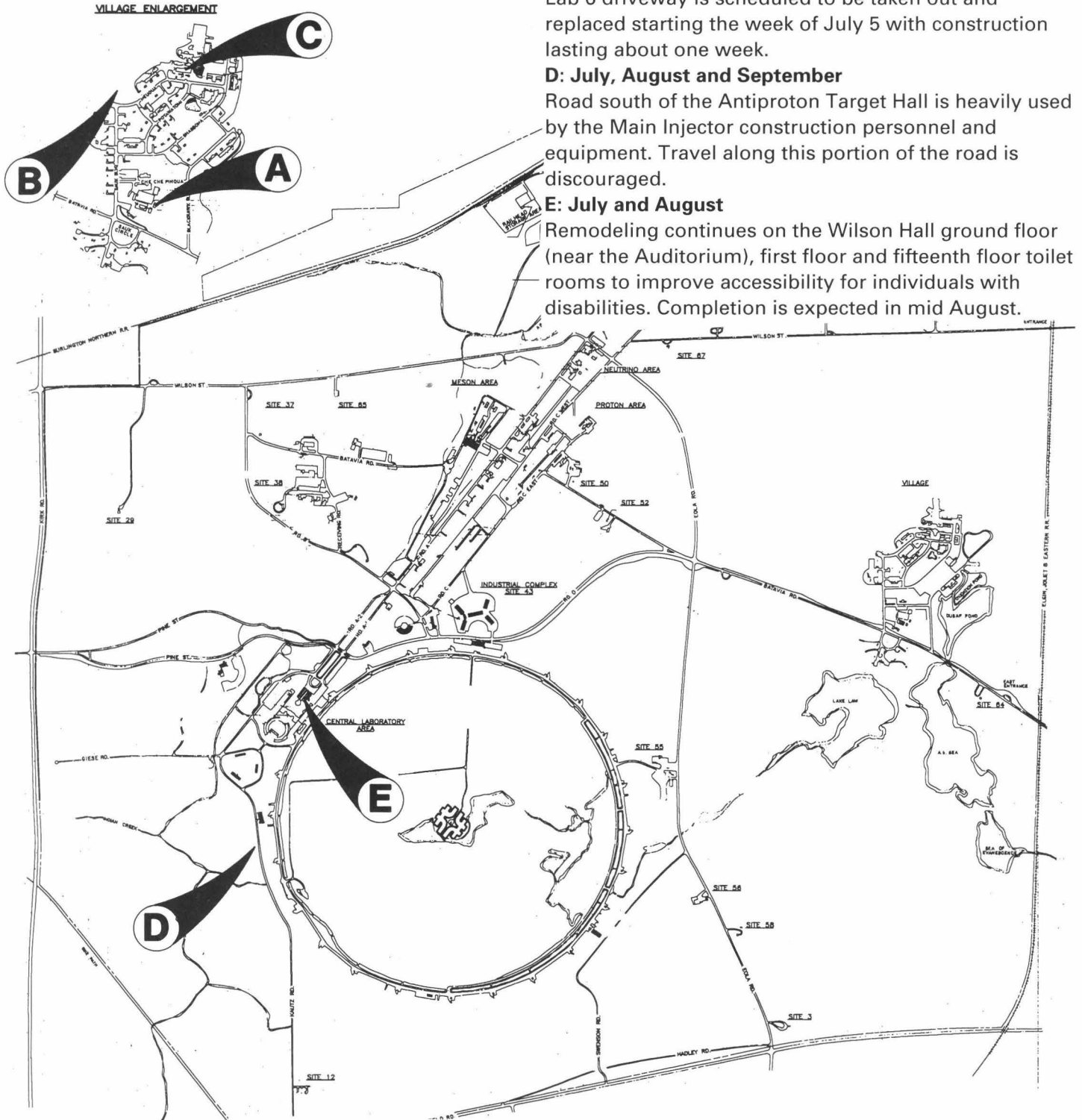
Lab 6 driveway is scheduled to be taken out and replaced starting the week of July 5 with construction lasting about one week.

D: July, August and September

Road south of the Antiproton Target Hall is heavily used by the Main Injector construction personnel and equipment. Travel along this portion of the road is discouraged.

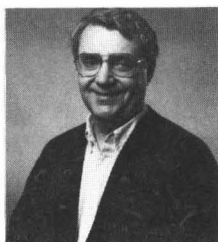
E: July and August

Remodeling continues on the Wilson Hall ground floor (near the Auditorium), first floor and fifteenth floor toilet rooms to improve accessibility for individuals with disabilities. Completion is expected in mid August.



HEPnet management works for better interaction

National HEPnet Management was formed almost three years ago by DOE to ensure high-energy and nuclear physicists access to world-class networking, conferencing and distributed computing technology.



Bill Lidinsky

The project began as something of an experiment, but has become an influential force in networking technology.

Bill Lidinsky, (CD) who has been the head of the five-person NHM staff since its inception, has a great deal of enthusiasm for the collaborative nature of the group's networking efforts. Bill, along with **David Martin**, **Jeff Dingbaum**, **Kipp Kippenhan** and **Gary Roediger**, are working with other networking groups and high-energy physicists from across the country.

The group is dedicated to creating a better computer network for all DOE- and NSF-funded high-energy physics researchers. This improvement is being accomplished with a four-pronged focus:

- interacting with researchers to understand their needs and help them understand the available technology
- working with computing staffs at HEP and NP research facilities to allow them to leverage off of others work
- investigating and prototyping new technologies
- interacting with service providers such as ESnet and NSFnet to make sure they provide for the unique needs of the HEP and NP researchers

Bill considers the role of NHM as one of support, communication and innovation. He says, "We look at new technology, establish pilot projects, and if they are successful [both technologically and in their use to physicists], we transition them to an organization that is designed to support them."

A concrete example of this process is newly-developed video tele-conferencing. Fermilab was at the forefront of this technology, which actually pre-dates NHM by a few months. However, the project was cultivated by NHM. Weekly video conferences with

other national laboratories on video conferencing topics was one of the first major uses of the system.

The technology is now gaining wide acceptance and has moved past the "pilot" stage. Major collaborations at Fermilab and elsewhere are using video conferencing on a weekly basis. The support of video conferencing at Fermilab has been transferred to Visual Media Services. This is in keeping with NHM's goals of technological transfer.

In their efforts to develop communication between researchers and themselves, NHM has recently begun issuing a newsletter, *HEPnet News*. The newsletter, which Bill hopes will come out three or four times a year, will inform physicists and other HEPnet users of new developments and give them important information on how to access utilities and services. It is also becoming a source of positive feedback for Bill and his colleagues.

"We've been getting feedback on the newsletter from the physics community since our first issue came out in May," said Bill. "One of the critiques of the first newsletter was that it focused too heavily on 'networking for a network person' and not enough on 'networking for the physicist.' These kind of concerns are what we want to address and adjust in our future newsletters."

Information access is an important concern for NHM. They have established a HEPnet Network Information Center for researchers. The system is an information repository as well as a platform to communicate between systems that use different networking protocols. It includes such diverse

information as CERN, SSCL and HEPnet newsletters, minutes from HEPix meetings and news archives like *infofax* and *lanworks*.

You can access the NIC through FTP by typing FTP NIC.HEP.NET and giving ANONYMOUS as the username. Then use your personal e-mail address as a password (e.g. KIPPENHAN@FNDCD.FNAL.GOV).

One of the most important groups to NHM are those users on the fringe of HEPnet or without access to it. National HEPnet Management has the responsibility to promote access, not just at Fermilab or other national laboratories, but also to researchers and physicists at associated universities and facilities. Some of these places have poor or nonexistent networking capabilities. One of

NHM's goals is to reach these researchers and include them in the "free flow of ideas and information."

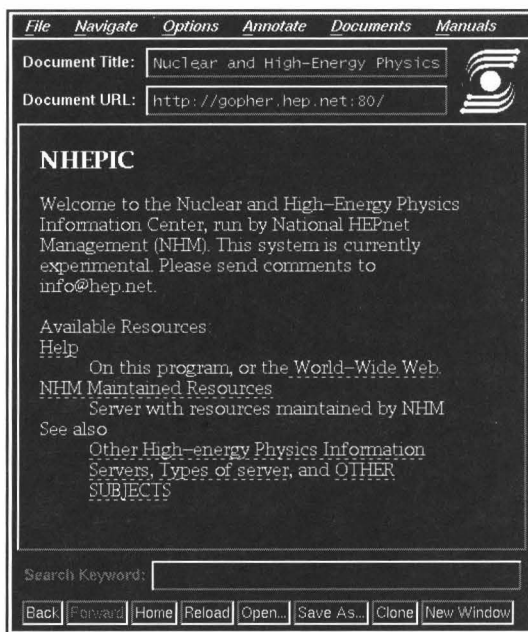
All high-energy and nuclear physicists throughout the discipline will continue to benefit from the efforts of the National HEPnet Management staff. They are currently in the process of developing a pilot project for very fast remote access. This project will use newly-perfected technology to significantly

increase remote access speeds.

For more information on NHM or HEPnet services, contact Bill Lidinsky, lidinsky@hep.net or x8067. If you would like to access *HEPnet News* electronically, you can get it via AFS, anonymous FTP, Decnet COPY, gopher, or World-Wide Web.

For more information or to receive a paper copy of the newsletter, e-mail your name, address and preferred e-mail address to hepnetnews@hep.net.

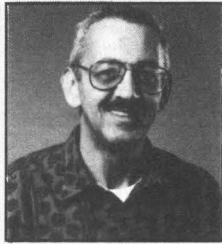
NHM encourages the use of electronic files to conserve natural resources.



A screen shot of a typical Network Information Center interface

In memoriam

Mike Gormley passed away Thursday, July 1 at his home. Mike had been an employee of Fermilab since 1977 and was a member of the Accelerator Division. He had served as acting head of the Pbar Source Department from 1991 until February 1993.



Mike received his Ph.D. in physics from Columbia University, New York, New York. During his tenure at the Lab, Mike collaborated on three photoproduction experiments in Proton East—E87, E400 and E401 and held several administrative positions. As head of Accelerator Controls, the group under his leadership redesigned the control system at the same time the Tevatron was being built. Later he joined the Antiproton Source Department and worked on targeting for anti-proton production and devices for collecting the antiprotons. As head of the Pbar Source, Mike and his group worked to improve anti-

proton production and collection. Two of the improvements made were the debuncher stochastic power upgrade and the stack tail kicker upgrade. In a past *Ferminews* interview, Mike stated that he hoped these improvements would “help to raise the luminosity for the collider.” This hope was achieved with record luminosities for the 1992-93 collider run.

“I have valued Mike as a colleague and as an experimental collaborator for more than 15 years. He was a great guy to work with. He cared about people and his contributions to the Laboratory in general and the accelerator complex in particular were enormous. Both I personally and his many friends within the division and the rest of Fermilab will sorely miss him,” said Steve Holmes, head of the Accelerator Division.

Mike is survived by his sister, Kathleen O’Brien of Ann Arbor, Michigan and his brother,* Thomas Gormley of New York, New York. Memorial contributions may be made to the American Heart Association.

The way we were

From *Ferminews*: July 7, 1983

The superconducting accelerator, then called the “Energy Saver,” had its first successful acceleration to 500 GeV on Sunday, July 3, 1983. The start-up was not without difficulty, however. Thornton Murphy writes:

Difficulties in achieving coasting beam at 150 GeV, reported in Doubler Developments two weeks ago, were finally tracked to a misdesigned flange in the CØ straight section and a Kimwipe left in the bore tube in AØ. After the Kimwipe was removed on June 25, coasting beam was rapidly achieved.

The person who left that Kimwipe behind asked us to make a request of his/her colleagues—please cut out the ribbing, it was over ten years ago!!!



Movie schedule announced

The Fermilab International Film Society presents movies from all over the world. Movies are shown at 8 p.m. Fridays in Ramsey Auditorium. All foreign films have English subtitles. Admission is \$3 for adults, \$.50 for children 12 and under. Coffee and cookies will be served on the second floor mezzanine following each film.

July 23: *Ramblin’ Rose*, A 13-year-old boy in a well-to-do Southern family during the Depression falls in love with a charmingly promiscuous housemaid (Laura Dern). Martha Coolidge, director, U.S., 1991, 112 minutes.

August 13: *Homicide*, A homicide detective is assigned to investigate the murder of a Zionist gun-runner. A stunning, bleak police thriller of ideological awakening and betrayal. David Mamet, director, U.S., 1990, 102 minutes.

Turn in TLDs

July 1 marks the beginning of the third quarter and the time for the quarterly exchange of TLD badges. Please exchange your TLD badge this week. The TLD badges themselves are the same color (black for permanent; red for temporary badges) for every wear period. However, the colored band on the barcoding label changes each quarter. The second quarter’s band is green; the third quarter’s band is gray. When the racks are distributed, exchange your green-banded badge for a gray-banded one. If the second quarter’s badges are collected from your area before you have turned yours in, send or bring your badge to ES&H Radiation Physics in Wilson Hall 7E (MS 119) or deposit them in the cylinders in the Wilson Hall Atrium. Do not put the badge back on the rack. The badges will not be collected again for three more months.

Beginning this quarter, temporary badges will be distributed differently than in the past. The badges will be available at a number of distribution stations at various locations around the Lab. At each station a custodian of the badges will be assigned by the division/section ES&H group. The custodian will ensure that the information card is filled out and returned to the ES&H Section when issuing a temporary badge. The number and location of distribution stations are such that there should be no undue inconvenience to the wearers of temporary badges. The following is a list of locations where temporary badges can be obtained:

- Research Division Operations Center
- CDF Control Room
- DØ Control Room
- ES&H Section, Wilson Hall 7E
- User’s Office, Wilson Hall Atrium
- Accelerator Main Control Room
- Technical Support Safety Office, Industrial Area
- Fire Department (Site 38)
- FESS ES&H Office (Site 38)
- Time and Material (Site 50)
- Security (Site 52)
- Warehouse #2 Annex
- Neutron Therapy Facility

If you have any questions regarding the badges, contact Radiation Physics, x4646.

—David Boehnlein

Eat, tour, be merry

Family Day 1993 will give you and your family a superb insiders' view of the Laboratory. Be sure to bring everyone to the festivities on Friday, August 6. Tours will be available from 4 to 7 p.m. with picnic food starting at 5 p.m.

See some of the essential physics of Fermilab as you visit the Wide Band Lab and the detector fabrication labs in the Village. Sputter machines, winding machines and Thermwood machines will be doing their thing for curious visitors! Come to the Fire Station to explore an ambulance and a squad car. With its interactive teaching stations and intriguing activities, a visit to the new Lederman Science Center is a must!

Several of the tour sites will be distributing souvenirs and the Argonne Credit Union will once again be giving away balloons in the Village.

In addition to delicious food, rides and family games, the Village will also be the site of a model airplane display and demonstration. Local deejay Michael Angelo will provide lively music for dancing and more games. And the ever-popular Dunk Tanks will return! Here's a chance to soak some of your favorite folk!

Please note: The Users Center will be closed Friday, August 6.

Nalrec news

The July Social Hour is tonight, July 16 from 5:15 to 9:30 p.m. Ribs on the grill will be served. The Orbitals, a rock n' roll blues band, will provide musical accompaniment. Come join the fun and food!

Mark your calendars for August 6, 1993—it's Family Day.

Congratulations to



Lauri Loebel (CD) and Don Carpenter (RD), who recently announced their engagement. An April 1994 wedding is planned.

Ostroushko, Magraw and Schmidt take stage tomorrow

Three former *Prairie Home Companion* favorites will bring their special brand of musicmaking to Fermilab's Ramsey Auditorium tomorrow evening beginning at 8 p.m. Seats are still available, so plan to be in the audience as Peter Ostrousko, Dean Magraw and Claudia Schmidt perform a variety of solo and group efforts in their July 17 appearance.



New in the Library

The Fermilab Meeting, DPF 92 : 7th Meeting of the American Physical Society Division of Particles and Fields: November 10-14, 1992, Fermilab. Singapore: World Scientific, c1993. QC793 .A47 1992 v1-2, annex, locked cases.

Proceedings of the XXVI International Conference on High Energy Physics: August 6-12, 1992, Dallas, Texas. New York: AIP, c1993. QC770 .IN83 1992 v1-2, locked cases.

Feynman, Remembered. Editors: Laurie Brown, John Rigden. New York: AIP, c1993. QC16.F49 A3 1993, locked cases.

Exploring the Internet: a technical travelogue. Carl Malamud. Englewood Cliffs, N.J.: PTR Prentice Hall, c1993. TK5105.875.I57 M36 1993, locked cases.

Transparencies

TESLA Electron Gun Workshop, March 8-9, 1993, Fermilab. TESLA Collaboration Meeting and Design Workshop, March 10-12, 1993, Fermilab. Transparencies Reference.

E-mailing search results.

The PRINT command in "Search Mode" now allows you to e-mail your search results to your e-mail Internet address. From within Search Mode, FIND your desired material, issue the PRINT command and follow the directions on the screen.

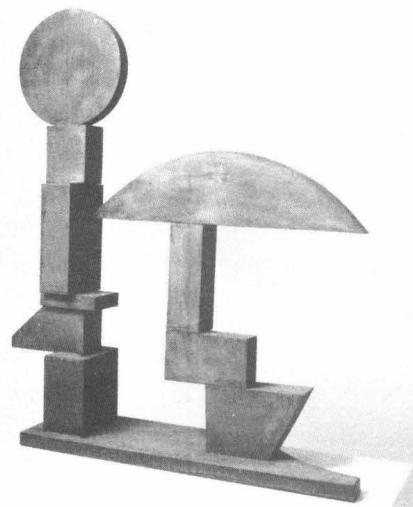
Preprints

To get a list of the most recent preprints, use the catalog's "Search Mode." Search by the latest Tuesday, e.g.: FINDPREPRINT AND CATALOGED 6-JUL-1993

Reserve your tickets today by calling xARTS from 9 a.m. and 4 p.m.

Upcoming events—On August 21 at 8 p.m. the Fermilab Art Series will present the Fairfield Four and the Gospel Harmonettes. They will perform traditional gospel music in a performance you won't want to miss.

New exhibit on 2nd Floor



Dehner's sculpture Couple

The 2nd Floor Gallery has just opened a new exhibit of sculpture and drawings by Dorothy Dehner. Born in 1901, Dehner has been painting and sculpting for nearly 70 years. She studied drawing early with Kimon Nicolaides and painting with Jan Matulka. Her experimentation with sculpture began in the 1950s when she began making pieces in the lost wax method. In her long career Dehner has worked with such varied materials as oils, watercolor, wax, wood, steel and aluminum.

The Dorothy Dehner exhibit will be on display through August 31. Gallery hours are daily 9 a.m. to 5 p.m.

Harper's Index

Chances that an Ivy League college student cannot name both of his or her U.S. Senators: 1 in 2.

Ferminews
Announcements

Honors continued

eventually be used in real research here at the Lab. "That's one of the best experiences they can have," said teacher Jim Hicks of Barrington High School. "They not only get a sense of ownership, but they also realize that they're actually contributing to high-energy-physics research."

Outside of this daily routine, the young scientists did some real interactive research, "studying" the physics of amusement parks at Six Flags Great America, and the physics of wave pools at Magic Waters. Don't be fooled—they were all there *strictly* for scientific purposes. The students also visited downtown Chicago one day.

The 60 honors students were housed in dorms at nearby Wheaton College. They ate morning and evening meals there, while lunches came from the Lab cafeteria. One passing student gave the Fermilab Food Service kudos, saying "Lunches here are a lot better than the dorm food!"

But what did the students have to say about their two weeks of "food for thought?"

"It's been a great experience," said New Jersey native Owen Faris. "I like being able to talk with the scientists and ask questions."

"Drasko is really great," said Kimi Ishibashi, a student from Nevada. "He usually comes around every day and asks us how the lectures were, how things went or if we have any other questions."

The young people filled in their time off with card games, a volleyball tournament, movies and a lot of conversation (some heavily intellectual, some typically teenage). "It's really nice," Kimi said, "because a lot of my friends back home don't know what I'm talking about when I start a discussion. . . . here everybody is kind of up to the same level."

Armondo Torres, a student from Delaware, felt an appreciation for the variety of personalities. "The thing that made a big impact is that you get to see what kinds of people are interested in physics." Many students expressed surprise at having the stereotype of the scientist (with pocket-protector and taped glasses) dispelled.

That may be the most important lesson of all for these students. As Bob said, "They realize that all these people [Fermilab research-

Ferminews

Special Interests

Classified ads

Miscellaneous

Macintosh plus computer. 4MB memory, 20MB separate hard disk. Apple backpack carrying case. Good cond. Asking \$400. Call Joe at x4103.

5HP Troybilt **Rototiller**, used very little. \$1,200 when new, asking only \$700. Amana **21 cu. ft. side by side**, \$200. Hotpoint **Elect. Stove**, double ovens, like new \$250. Call Gregg at x4893 or 708-416-1903.

Full-size **Futon & frame**, 2 yrs. old, good cond., \$100. **Telephone stand**, H: 32" x D: 11 3/4" x W: 16 1/8", like new, \$10. Call between 5:30-9:30 p.m. 708-978-0481.

All brass & glass: **bookcase-style shelf** (\$125), 2 **end tables** and 1 **coffee table** (\$35), 2 **plant stands**, 2 shelves (\$25), small round **plant stand** (\$10). Will sell whole set for \$175. Call Katie at 708-897-0348.

2' x3' double **pedestal table**, \$50. Twin-size **bookcase headboard & footboard**, \$35. Call Sharon at 708-393-1860.

Mt. bike tires, two Michelin 27"x1-3/8", brand new in box, \$10 for both. Call Mark, x4776.

Woman's **diamond and ruby ring**, size 6, appraised at \$3,000, asking \$1,500. Call Richard at x3740.

Vehicles

1982 Ford Escort Station Wagon 109K miles, 4-speed, reliable, asking \$700. Send

ers] at one time or another have put together photomultiplier bases or crawled into spaces not designed to be crawled into. That's how science is done—it isn't all glory or theory. It is hard, sometimes menial work, but you struggle and suffer and eventually it works."

message to FNALDO::PANG, or call x4062, or leave message at 708-898-9238.

1984 Buick Century Custom, 4dr. 110K miles. \$2400 or best offer. Contact Chris at x2943/4234.

1989 Pontiac Grand Prix LE, loaded w/ 74K miles. AM-FM cassette, air, tilt/cruise, luggage rack, very good cond. \$7,000 o.b.o. Contact Pat evenings at 708-879-1678.

1990 Volvo 240 sedan, like new. Automatic, air, power locks, premium stereo, 33K miles, \$13,000. Call 708-445-8022 or e-mail FNALV::KAPLAN.

1991 Ford Ranger XLT Supercab, 4.0 v-6, AT, PS, PB, AC, matching cab, low mileage, transferable service policy. Ex. cond., \$10,750. Call Gus at x3742 or 708-584-4368.

Real Estate

Condo for sale in Warrenville. 2 bedroom, finished basement, appliances, garage. Very close to Lab. \$75,000. **House for rent** in Batavia, \$1,500/mo. plus utilities. Close to Lab and town. Call Linda at 708-879-2309.

Wanted

Want to buy—**tandem bicycle**. Call Ron at x3381, 708-513-1337 or FNALV::FAST.

Roommate wanted to share 2 bedroom apartment. Female preferred, nonsmoker required. Call Tracy at 708-864-4147 or e-mail FNAL::TTAYLOR.

Coming next issue...

- *A report from the Users Executive Committee*
- *A special Family Day insert*
- *Places to visit on a scenic Fermilab walk*