

FERMILAB NEWS

 Fermi National Accelerator Laboratory

Operated by Universities Research Association Inc.
Under Contract with the United States Department of Energy

Vol. 3, No. 26

June 26, 1980

U.S. AND P.R.C. SIGN COLLABORATION EXTENSION AT FERMILAB

An agreement that extends the work program of the collaboration between the United States and the Peoples Republic of China in the area of high energy physics was signed on June 19, 1980 at Fermilab.

The document was signed by Dr. James Leiss, Associate Director for High Energy and Nuclear Physics, Department of Energy, and Professor Zhang Wen-yu, Director of the Institute for High Energy Physics in Beijing.

The agreement continues the exchange of information that began January 1, 1979 when Chinese scientists began to travel abroad to learn how to build a particle accelerator. Their interest stemmed from their nation's announced objective of wanting to become equal with advanced nations by the end of the century. To achieve this goal they will construct a 50 BeV accelerator near Beijing. In the ambitious plans of the PRC, the next stage of development could be an accelerator of several trillion electron volts.

Fermilab is headquarters for the cooperating efforts between the three U.S. national laboratories assisting the Chinese.

Attending the signing were members of the US-PRC Committee for Collaboration in High Energy Physics. The committee consists of James Leiss, co-chairman; Tom Fields, Argonne National Laboratory; Walter Hartsough, Lawrence Berkeley Laboratory; Leon Lederman, Fermi National Accelerator Laboratory; T. D. Lee, Columbia University; W.K.H. Panofsky, Stanford Linear Accelerator Center; R. Rau, Brookhaven National Laboratory.

From the PRC:

Zhang Wen-yu, Co-Chairman of the Joint Committee and Director of the Institute of High Energy Physics of China; Lin Zong-tang, Chief Engineer of Beijing Proton Synchrotron; Zhu Hong-yuan, Professor of Elementary Physics and Vice Director of the Institute of High Energy Physics of China; Xie Jia-lin, Chief Designer of Beijing Proton Synchrotron;



James Leiss, Zhang Wen-yu sign historic agreement.

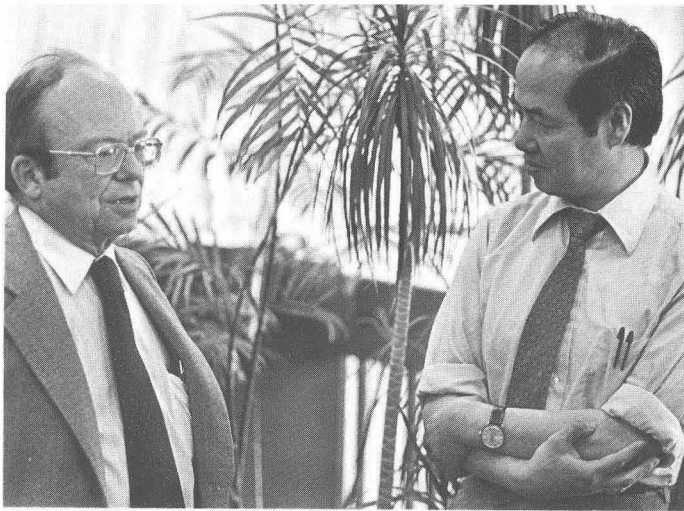


US-PRC cooperation symbolized by toast following signing.

Xiao Jian, Professor and Head of Experimental Physics Division of the Institute of High Energy Physics of China; Hu Ning, Professor of Elementary Physics of Beijing University; Zhang Hou-ying, Vice Chief of Second Bureau of Academia Sinica of China.

Two copies of the extension agreement were signed. One was typewritten in English, and the other was hand drawn in Chinese characters.

Commenting on the historic agreement,
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Committee members W.K.H. Panofsky (L) and T.D. Lee chat at reception following ceremony.

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Dr. Leiss said, "This agreement will improve relations between the two countries for their mutual benefit. It is appropriate that the first area for cooperative agreement between the two countries is in high energy physics.

He explained that the desire to know the origin of man is common to all nations, that the quest for basic knowledge rather than commercial knowledge is a good starting point for cooperation, and that with the best minds in each country working in high energy physics, new technology results.

"The Chinese are catching up in this field, and we are helping them," said Dr. Leiss.

Making a 6700-mile journey to cement the relations between the U.S. and the P.R.C. Prof. Zhang Wen-yu commented, "For us this is a great occasion. The agreement is a symbol of long term cooperation not only in high energy physics, but in science in general."

Prof. Zhang calls the U.S. "his second home." "I have many friends in the U.S. and our cooperation really began in the 40s and 50s when we worked together."

The number of Chinese who have worked at Fermilab since the agreement became effective in February 1979 totals 99 men and 11 women. For the country as a whole, the overall figure is nearly 200 as of March 28, 1980.

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NUCLEAR PHYSICISTS LOOK OPTIMISTICALLY TO FUTURE

Higher energy accelerators are helping nuclear physicists observe the nucleus with improved understanding, Dr. Isaac Halpern, professor at the University of Washington, Seattle, told an audience at Fermilab.

Speaking at a Fermilab Physics Colloquium about the increased perception of nuclear behavior that is emerging, he said nuclear physicists are extremely optimistic about what the newer accelerators with their higher energies and other capabilities will provide because "we have so few other tools." Nuclear physicists treat the nucleus as a whole, compared to particle physicists, who search for the most elementary components of the nucleus. Halpern was the guest of the Fermilab Physics Colloquium Committee.

The higher energies of the newer accelerators can provide more precise information about special quantum numbers, special kinematic features as well as opportunities for coincidence studies. Nuclear physicists need higher energies to help them "attack our problems in a decent way," said Halpern.

Some of the current problems that are holding the interest of nuclear physicists include higher angular momentum states, states in hypernuclei, quasi-nuclear states, shape oscillations and other giant resonances, quasi-deuteron configuration and cluster states. Not all of these problems are new; some have been around for a long time, Halpern said. But nuclear physicists have not always had the tools they needed to get at the answers they wanted, he added. Now physicists are getting a new look at old problems, he noted.

Overall, Halpern told his audience, nuclear physicists are setting their priorities, and although some of the aspects of their approach may be "menopausal," what is emerging is nonetheless wholesome, ambitious and encouraging.

In the latter part of his lecture, he focused his attention on the structure and behavior of nuclei, what he called "the biology of the nuclear species." He also described it as the "heart of nuclear physics."

In the audience was Dr. Leon Lederman, Fermilab director, who was a classmate of Halpern at Columbia University.

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FERMILAB'S REMARKABLE WORD PROCESSING SYSTEM

"It works like a miracle," said Elaine Moore, administrative assistant with Theoretical Physics.

"I learn something new every day on this system," said Pat Oleck, secretary in Theoretical Physics.

They were enthusiastically describing the next step beyond the time-honored typewriter. It's called a word processing system, and it does things with words that surely would have to be described as imaginative and time saving.

The system being used in Theoretical Physics and in the Computing Department consists of three major parts; a cathode ray terminal, Fermilab's main computer and a printer that types out the finished product at 300 words per minute.

Al Brenner, head of the Computing Department, said the word processing system in his department and Theoretical Physics is being evaluated for reliability, ease of use, cost, versatility and a number of other factors. The Laboratory has not committed itself to a standard system at this time, he said.

However, several more printers have been ordered. One will be set up for the Accelerator Division and another one will be made available to users. This printer will be located on the crosswalk, seventh floor, Central Laboratory.

One advantage of the Fermilab approach--CRT terminal, computer, printer--is the low cost relative to word processors that do not have the computer link-up but are self-contained units, explained John Ingebretsen of the Computing Department. The core of the Fermilab computer program for the system is based on a University of Illinois program, said Ingebretsen. He has developed software to enhance that core program considerably, and, quite frankly, there is practically no limit to what word processing systems can do with words.

Mary B. Hill and Lois Psonak, both in the Computing Department, also use the system. They along with Moore and Oleck are unanimous in their praise. It's easy to understand why.

Consider merging, for example. An



Using word processing system are (L-R) Lois Psonak, Pat Oleck, Mary Hill and Elaine Moore. Cathode ray terminal is at left, printer in foreground. This particular system is in Theoretical Physics.

office needs to send a letter to many individuals. The list is long. By using a software program that Ingebretsen developed, the computer merges the letter and the list of names. The printer then types each letter with the appropriate salutation--and it even inserts changes in the body of the letter if that's needed.

Complex mathematical formulas using Greek and scientific symbols have long been a bane of secretaries. But no longer when the system is called on. It types these formulas quickly and neatly, inserting the appropriate symbols where they belong. And it will put superscripts and subscripts in the needed places.

Furthermore, this remarkable word processing system will justify margins--that is, line up the right margin so that it's as straight up and down as the left margin.

And if in a numbered sequence of pages (or paragraphs, or chapters) one is removed during future editing, the system simply and automatically rennumbers the remaining pages. It also does a tidy job of typing envelopes automatically.

Word processing systems apparently are catching on. Moore, Oleck and Psonak have demonstrated the versatility of the system to groups within and outside the Lab.

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ANNUAL FAMILY PICNIC COMING NEXT MONTH

Fermilab's annual family picnic will be held July 20. The popular event will run from 11 a.m. to 6 p.m. at the Village Barn recreation area. Features will include an exhibition of radio-controlled models organized by the Fermilab Barnstormers; a live band playing in TeenTown; and a concert by the Joliet American Legion Band, a group that has won state and national honors.

Participants can purchase food and beverages as well as try their luck and skill at a variety of game booths. And youngsters can climb aboard a number of carnival rides.

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NALREC PLANS FOOTBALL TRIP

NALREC is planning a trip to one of the Chicago Bears football games sometime this September or October.

However, the organization would like to know how many people would be interested in going. The total cost would run somewhere between \$15 and \$20, depending on the number of participants, and would include the price of the ticket, transportation to and from the game and refreshments on the bus.

Interested football fans should contact Kim Chans, Ext. 3954, Sharon Koteles, Ext. 3598, or Ed Justice, Ext. 4553 or 4284.

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BEHIND THE WHEEL CONSERVATION TECHNIQUES

Knowing how to drive for maximum fuel efficiency makes it possible for the average driver to reduce fuel use by as much as 20 percent. Examples of helpful behind-the-wheel information include:

Only 30 seconds of idling time after start-up is needed for warm-up. More warm-up time wastes gas. Moving parts only begin warming up after the vehicle is moving.

Accelerating from a stop either too gently or too hard wastes gas. The most fuel-efficient way to accelerate is briskly and steadily.

Proper use of the vehicle's momentum--particularly in city traffic--saves gas.

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STATEMENT ABOUT BICYCLE PATHS

Fermilab cyclists will have noticed the new signs which require the use of the bicycle paths between the Village and the Central Laboratory. This is in conformity with Illinois State Law that requires bicycle paths to be used when they are available.

Serious obstruction of traffic, accidents and near accidents have stimulated our more rigid enforcement of this requirement. Clearly we would like to encourage the use of bicycles as much as possible. Thus, we would appreciate suggestions from cyclists as to how to improve the cycle paths. These would be implemented as soon as funds are available.

Leon Lederman
Fermilab Director

CHEZ LEON TO CLOSE FOR SHORT TIME

The Chez Leon will be closed the week of June 30. However, on July 10, it will hold a "Surf 'n Turf" dinner.

The cost of the dinner will be \$10 for each person. For reservations, call the restaurant at Ext. 3646.

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TENNIS COMPETITORS SOUGHT

The 1980 Fermilab tennis tournament will begin the week of July 7. Competitors have been asked to register with Helen McCulloch, Ext. 3126, recreation coordinator.

Tennis buffs who want to compete in the Fermilab tennis challenge ladder should sign up with McCulloch or Adrian Ballom, Ext. 3082.

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