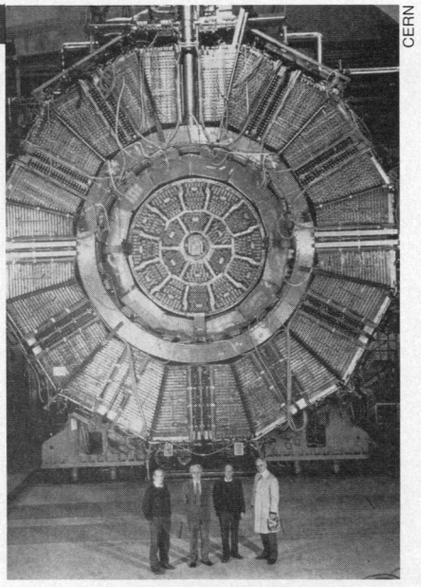
Mysterious Z^0 Decay at CERN

■ In an extremely controversial result, physicists at CERN's Large Electron Positron (LEP) collider have discovered an unexpected anomaly in the decay of Z^0 particles. If the findings can be confirmed, they would represent a breakdown in the "standard model" of physics, a widely accepted bestiary of elementary particles. In the words of one senior Stanford physicist: "It would be the discovery of the decade." Most physicists, however, remain dubious.

The anomaly was first noticed by Sau Lan Wu, an experimentalist investigating the decay of Z^0 particles into taus (particles similar to electrons, but 3000 times heavier) in LEP's ALEPH detector. On 15 occasions, she found a mysterious second pair of particles in addition to the taus, although theory predicts that she should have found this pattern only 3 times. The paper, scheduled to be published next July in the European journal *Physics Letters B*, estimates the probability of such events occurring by chance to be 1% or less.

Skeptics point out that the tremendous amount of background radiation produced by a tau decay makes it difficult to tell if the effect is real. They argue that the excess probably stems from a large but meaningless "statistical fluctuation" of the background radiation which will disappear upon closer examination. "If you look at the data in 1000 different ways, you're bound to find something that's statistically aberrant on the level of 1/1000," says Yale physicist Bob Adair. Thus, he says, someone intent on repeatedly sifting through data to make a major discovery can easily deceive himself.



CERN

CERN's ALEPH detector.

Such concerns are prevalent at CERN, where many of Wu's colleagues at first were reluctant to publish. Sources close to the ALEPH collaboration also report that many senior physicists, afraid of attracting attention to a discovery that may turn out to be a chimera, have pressured Wu and her students not to promote the findings. While Wu declined to answer questions about the paper, one ALEPH physicist admits: "Quite a few people [here] are excited."

Physicists will soon have an answer: Within 6 months, ALEPH should see about 200,000 Z^0s—enough to settle the controversy one way or the other.

International Partners Threaten to Split ITER Design Effort

■ In an attempt to break a 6-month deadlock in the selection of a site for designing the International Thermonuclear Experimental Reactor (ITER), European, Japanese, Soviet, and U.S. participants are considering the relatively drastic option of splitting the design effort into two or more sites.

While everyone involved with the project agrees that it is best to work at one location—as was done during its first phase—the Europeans, the Japanese, and the Americans have each insisted on hosting it, cognizant of the benefits the $1-billion design activity could bring to the local economy of the host city.

Distributing the design effort over several countries would present new problems, however. Unwieldy to begin with, a complex project such as this becomes far more difficult to manage when pieces of the enterprise are located at distant sites. And without strong central management, politics and personal rivalry have a greater chance of causing trouble.

So far, the Bush Administration has shown no enthusiasm for split management. But time is running short. The four partners are to meet in Washington in early July to decide the project's future. Says Stephen O. Dean, president of Fusion Power Associates: "I don't think these countries can afford to have the project fall apart."

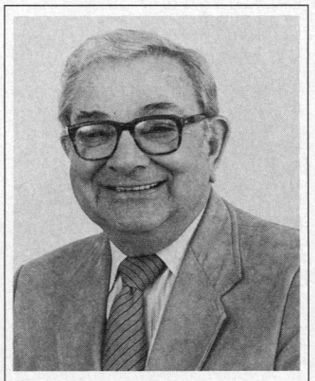
■ U.S. restrictions on foreign visitors and immigrants with the AIDS virus could once again endanger next May's Eighth International AIDS Congress. Last year, Harvard said it would decline to host the conference if the HIV restrictions weren't removed, leading Congress to amend immigration law and health officials to propose withdrawing AIDS from the list of barred diseases. Now news reports that the restrictions may remain in place after all have thrown planning for the conference into turmoil. "We're still very much disturbed by the intrusion of political concerns into what should be a public health decision," says conference director Alan Fein.

Congressional Clout

■ Taking his cue from a massive Office of Technology Assessment (OTA) report that identified deficiencies in science policymaking, Representative George Brown (D–CA) has created a task force intended to give his House Science, Space, and Technology Committee something it hasn't had in many years: a coherent, unified strategy for setting policy priorities across federal research agencies.

Although the details have yet to be worked out, the task force—which consists of at least one staff member from every science subcommittee—will examine many of the issues identified by OTA: the tradeoffs between big and small science, how to make research agencies set and meet specific goals, how to limit congressional "earmarking" of funds for research facilities, and how to decide which agencies will absorb the inevitable budget cuts.

Brown hopes these efforts will gain the respect of the House Appropriations Committee, which has nibbled away at the science committee's power in recent years. "The more we can [link] authorization to national goals and a rational system of evaluation, the more political leverage we will have," says one task force member. But don't expect a major shift overnight: The appropriations committee isn't going to welcome a poacher on what it regards as its own turf.



Rep. George Brown Jr.

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