chaired the ERC and heads the International Thermonuclear Experimental Reactor. "It can induce the wrong decisions and cost you a lot." CERN is also introducing a detailed accounting scheme whereby it will frequently check money spent against projected costs and incremental achievements.

These and similar measures—the ERC made some 20 recommendations—are intended to keep CERN tightly focused on successfully completing the LHC. The actual cost overruns will be covered through industry-related delays in the LHC's startup by two years, until 2007; by slashing non-LHC programs; and by drawing out payment of the LHC until 2010. For example, CERN's Super Proton Synchrotron and Proton Synchrotron will be used less, and will then be shut off for at least a year beginning in 2005. Some engineers and technicians from those accelerators will be transferred to work on the LHC.

The new measures, says Maiani, "are the realization of how the lab has to cope with the famous [budget] cuts made in 1996. I hope we will have a new common basis between the council, the CERN management, and CERN people. It was not easy to get there, but we are really aiming to go forward." (See PHYSICS TODAY, February 1997, page 58, and May 2002, page 30.)

Prioritize and sacrifice

"The real plus was that everyone agreed that this is what needed to be done," says Ian Halliday, who heads the UK's Particle Physics and Astronomy Research Council and is a delegate to the CERN council. "CERN is squirming, but they've accepted [the ERC's recommendations]. It's not a solution to the lateness. Not to the overruns. But at least we are beginning to get a clear picture. It's a first step."

CERN, adds Halliday, "[has] been told for six years now that the LHC is the priority. Cash is king—if other things are sacrificed, then so be it. Or raise money from elsewhere. Some [at the June council meeting] said it's a shame. Others said you have to prioritize. Both are true."

Indeed, what's changing at CERN is that the LHC is not only called the priority, it's now getting red-carpet treatment. The obvious and painful sacrifice is non-LHC research. One victim of the cuts is R&D for future particle physics facilities. Research on CLIC, a candidate for a next-generation linear collider, will continue, says Maiani, but at a minimal level. CERN hopes to fill this gap by working with other European high-energy physics labs.

As for other research, says CERN physicist Rolf Landua, "we realize that the LHC equals the future of CERN. We have to say, 'My interests may be different, but if we don't get the LHC going, then there is no future to discuss.' " For his own group, Landua says, "Let's try to get out of the crisis in the best possible way, and to do whatever we can to keep a tiny niche of antimatter research alive."

But many CERN staff members and users have reacted to the plan with "discouraged resignation," says CERN theorist Alvaro De Rújula. "Slashing both research and R&D may be suicidal. We may lose our scientific worth to a circumstantial policy, the way we lost much of our technical excellence to outsourcing requirements." Michel Spiro, who heads particle physics and astrophysics research at France's Atomic Energy Commission (CEA) and was just elected to CERN's scientific policy committee, adds, "I hope that some budget and human resources will be available to react and fertilize new ideas that come from the particle physics community. To see a big lab like CERN, which is very creative, focus on just one project until 2010 is a bit frightening." **TONI FEDER**

Synchrotron Partners Take Steps to Open SESAME

Even as violence escalates in the Middle East, plans for SESAME, a synchrotron light source intended to use science to promote peace in the region, are moving forward.

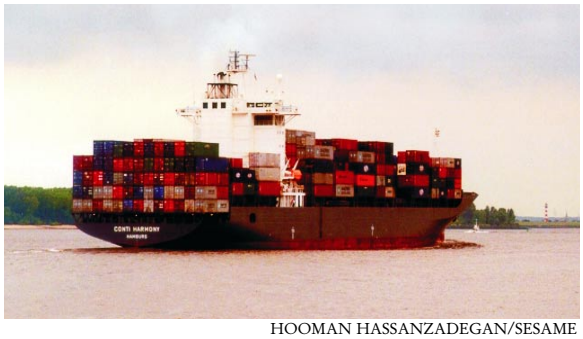
In May, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) officially took the project under its wing. This move is expected to grease political wheels and make it easier to raise the funds needed to realize SESAME (International Centre for Synchrotron Light for Experimental Science and Applications in the Middle East).

SESAME's host, Jordan, is footing the bill for a building to house the machine, and the project's members will pay the annual operating costs—about $4 million plus salaries. But money to upgrade BESSY I, a decommissioned synchrotron donated by Germany to form the core of SESAME, and to outfit the machine with beamlines is still being sought, largely from nonmembers.

To help decide whether to contribute to SESAME, the European Commission is assessing the project technically, financially, and politically to judge its chances of long-term success. Says Dieter Einfeld, who last fall became SESAME's technical director, "This evaluation is very important. If it's positive, I think the project will go ahead. If it's negative, the project could be dead." The assessment is supposed to be completed in the next month or so.

Assuming a positive report, the EC would next try to scrape together $6–8 million to upgrade the main machine. Also riding on the coattails of the EC report is the hope of a US contribution: "If Europe agrees to build the machine," says William Brinkman, president of the American Physical Society, who is chairing an ad hoc group that is promoting SESAME, "we would go to work at getting our government to consider building the first beamlines." That, he says, might cost $5–10 million. Brinkman and the APS got involved in SESAME earlier this year. In the wake of the terrorist attacks and the mounting unrest in the Middle East, says Brinkman, "we felt it was really important to put a bigger emphasis on connecting to physicists in the Muslim world."

Meanwhile, the design for SESAME



HOOMAN HASSANZADEGAN/SESAME

BOUND FOR JORDAN: BESSY I, the decommissioned synchrotron light source that will form the core of SESAME, sailed from Germany in June. It will seek a new life in Allaan, about 30 km from Jordan's capital city of Amman.

has been revised, with the energy scaled up from 1 GeV to 2 GeV. The reason, says Einfeld, is that "the users of the Middle East region are asking for hard x-ray photons—it will go up to 20 keV." Because of modifications to the design, the higher energy does not translate into a higher price, he adds.

And Herman Winick, who came up with the idea for SESAME in the first place, has hit on the idea of scrounging parts from other synchrotron sources. He's starting at home, where next year Stanford University's SPEAR ring will be dismantled in preparation for a major upgrade. "All equipment upgrades generate bone yards," says Winick. "I'm making some progress in convincing people not to cannibalize." The next step is for the SESAME council to send engineers and technicians to pack up the parts. The people for the job, says Winick, would be some of the roughly 20 young scientists from the Middle East who have been training in Europe to build and operate synchrotrons. "For about $30 000 in expenses, they might get $1 million in equipment. In many cases, the stuff is not so bad. And with SESAME, we have a lot of labor and not as much money. It also has symbolic value when we give to this peace project."

Within the past year, Bharain, Pakistan, and the United Arab Emirates joined SESAME. The project's other members are Cyprus, Egypt, Greece, Iran, Israel, Jordan, Morocco, Oman, the Palestinian Authority, and Turkey. Armenia, the runner-up to host SESAME, has downgraded its participation to observer status so it can focus on a more recent domestic synchrotron initiative, CANDLE (see PHYSICS TODAY, June 2000, page 51, and June 2001, page 32). With those changes, SESAME now has 13 members. But membership will be revisited now that SESAME is under UNESCO's auspices: For the project to gain legal status, six partners must ratify its new statutes and pay membership dues. **TONI FEDER**

Lo to Lead NRAO

Fred Lo has been tapped for the top job at the National Radio Astronomy Observatory, according to a 20 June announcement by Associated Universities Inc, which runs NRAO for NSF. He will replace Paul Vanden Bout, who was director for more than 17 years and left on 1 June to oversee, on an interim basis, construction of the Atacama Large Millimeter Array (ALMA) in Chile. Lo comes on board on 1 September; until then, W. Miller Goss is serving as acting director of NRAO.

Lo moves to NRAO from Taipei, Taiwan, where, since 1997, he has been director of the Academia Sinica's Institute of Astronomy and Astrophysics (ASIAA). Among the projects he's been involved with while there are the Sub-Millimeter Array (SMA), a collaboration on Mauna Kea, Hawaii, with the Smithsonian Institution, and the Array for Microwave Background Anisotropy, an interferometric array slated to be completed in 2004 that will measure the polarization of the cosmic microwave background. Before going to Taiwan, Lo spent more than a decade at the University of Illinois at Urbana-Champaign. His research interests include star formation, starbursts in near and distant galaxies, megamasers, and the determination of the structure of Sagittarius A*, a compact radio source at the center of the Milky Way.


NRAO

LO

As NRAO director, Lo will oversee the Very Large Array in Socorro, New Mexico, the Robert C. Byrd Green Bank Telescope in West Virginia, the far-flung Very Long Baseline Array, and North American participation in ALMA. "It's a tremendous challenge and responsibility that I couldn't refuse," says Lo. "It's also important that NRAO works with the university community to make sure that radio astronomy stays strong and attracts more students."

SMA project scientist Paul Ho, of the Harvard–Smithsonian Center for Astrophysics in Cambridge, Massachusetts, will replace Lo as director of the ASIAA. **TONI FEDER**

Totsuka Tapped as KEK Chief

Yoji Totsuka will take the reins for a three-year term as director general of the High Energy Accelerator Research Organization (KEK) in Japan. On 1 April 2003, he will replace Hirotaka Sugawara, who plans to return to the University of Hawaii.

Totsuka received his PhD in physics from the University of Tokyo in 1972. Currently the director of the Kamioka Observatory, which hosts Super-Kamiokande, the world's largest neutrino detector, Totsuka has worked closely with KEK for years. Totsuka says that he accepted the position to help the next generation of physicists reach their potential. "I am honored to be chosen," he says, "but not particularly pleased, because the job will be a tough one, and I will find little or no time to enjoy physics any more."


KAMIOKA OBSERVATORY

TOTSUKA

KEK, originally established in 1971, was reorganized in 1997 to promote cooperation among researchers in fields related to accelerator physics. One of the two institutes that emerged from that reorganization, the Institute of Particle and Nuclear Study, is known for the Belle B-factory electron–positron experiment and K2K, a joint investigation into neutrino behavior with the Kamioka Observatory. K2K is picking up the pieces after an accident late last year in which its detectors at Super-Kamiokande imploded (see PHYSICS TODAY, January 2002, page 22). The second KEK research facility, the Institute of Materials Structure Science, specializes in chemical, biological, and physical research with synchrotron light sources. KEK is currently working with the Japan Atomic Energy Research Institute to build a $1.3 billion high-intensity proton accelerator facility at Tokai, 130 km northeast of Tokyo.

PAUL GUINNESSY

NEWS NOTES

General Gordon to White House. Two years after he became the first administrator of the National Nuclear Security Administration, retired US Air Force General John Gordon has moved to the White House as a deputy assistant to President Bush to coordinate the federal government's counteroffensive against terrorism. Gordon is replacing retired US Army General Wayne Downing, a hawk in the war on terrorism who reportedly became frustrated by his lack of influence in the administration. Gordon's new title is national director and deputy national security adviser for combating terrorism.

"I am, of course, honored that the president has selected me for this