What bothered the Temple group most was that some senior people at Aladdin seemed to have a faulty understanding of the upgrade concept. Thus, when key questions were asked, the committee got such responses as "I'll have to reinvestigate the question of stainless steel versus aluminum for the vacuum chamber." What appealed to the Temple committee and an overview NSF panel, led by Lyle H. Schwartz of the National Bureau of Standards, was that Yanglai Cho and four accelerator experts from Argonne had been able to improve the performamce of the machine to its present level during a brief stay early this year. Indeed, between last December and May, Aladdin's beam intensity was increased to 20 mA at 800 MeV, and since then it has reached nearly 30 mA. But, it wasn't Cho and his Argonne colleagues that made the difference, says a member of the upgrade study, Albert Hofmann of SLAC. "The improvements were made mainly by Rowe and Wisconsin people," he asserts. "Personally, I find it a pity that the machine is in bad repute. I believe the machine could be made useful without the need of an $18-million upgrade."

Another view of those most responsible for raising Aladdin's beam current comes from Robert Kustom, an Argonne accelerator physicist who served on the upgrade study team. "There's no question of Cho's contribution," Kustom says, "and it's clear the Wisconsin people haven't received adequate credit for improving the beam. Nor has Tat Khoe [an accelerator theorist at Argonne], who identified the ion trapping problem at the turn of the year and told us Aladdin wouldn't get much above 5 mA until something was done about it. He did some more calculations and wrote a Light Source Note last January identifying clearing electrodes as the way to deal with the problem." Rowe independently thought of the solution about the same time. Adds Kustom: "Quite honestly, I'm sorry that Ed Rowe is generally considered the scapegoat for Aladdin's problems. As principal investigator, he deserves some blame, of course. As PI, that's where the buck stops. But there's plenty of blame to go around." NSF's Nosanow agrees. "The agency must share blame because we weren't keeping a careful watch," he says.

So far, Wisconsin's political representatives in Congress have not come to Aladdin's help, preferring instead to sit it out. But Aladdin has not gone unnoticed in Washington. In its report on the DOE budget for fiscal 1986, the House Subcommittee on Energy Development and Applications, concerned about the cancellation of some research projects in the past few years, such as Brookhaven's Isabelle and the Clinch River Breeder, called on the agency to inform it by 1 August on how Aladdin's proposed upgrade might fulfill the Research Council's recommendation for a 1–2-GeV synchrotron radiation facility. The DOE report, now undergoing final revision, lists six options. These range from Wisconsin's current plan to attempt to improve the machine without major expenditures, to the proposed upgrade with the Swedish-built injector, on up to the most expensive option, which calls for starting anew. The new machine would require $41 million for the bare minimum of a storage ring, magnets, rf, and vacuum system, plus about $15 million for beam lines and other equipment, $10.5 million for buildings and $5 million for design and management costs.

Case in point. Ironically, just when Aladdin's future is in most doubt, the facility is operating better than ever. Two beam lines are functioning and a third was expected to be operational by the end of July. To the 70 users gathered on 22 July, the real issue is whether the machine will be stable and reliable. They are also concerned about moving to Brookhaven or Stanford—both of which have a shortage of beam time and a scarcity of floor space—should Aladdin prove unacceptable. At the end of the day, more than 40 users had signed a statement saying they were convinced that "Aladdin without modification is capable of providing stable usable beams of synchrotron radiation for world-class research," and urging NSF "in the light of new evidence" to fund the machine in its present configuration. Operating the machine routinely at about 30mA would require about $3 million per year of nonuniversity money, Huber calculates.

"From a national perspective, our case for operating Aladdin is persuasive," says Huber. He expects the users to help Wisconsin make that case before NSF, and failing to gain further support, Huber plans to mobilize the users to appeal for funds from DOE and possibly the Navy. He knows that Aladdin's ultimate survival will depend on users "making a big noise."—IG

Academies study high-tech export controls

The National Academies of Sciences and Engineering announced on 13 June the formation of a 21-member panel to weigh the costs and benefits of such national security laws as the recently amended Export Administration Act of 1979 and the Arms Export Control Act of 1976, which are meant to deprive potential adversaries of militarily useful data and technologies as well as advanced weapons systems. By enforcing such laws, sometimes arbitrarily and often aggressively, Washington at times has thwarted the nation's high-tech industries from engaging in the competitive international marketplace, only to see Warsaw Pact nations turn to other countries for dual-use strategic items (microelectronics in particular).

The panel will examine the effectiveness and the consequences of export restrictions and other controls that are intended to limit or eliminate the transfer of militarily sensitive technologies to possible adversaries. In addition, it will seek to establish priorities among alternative control measures. In effect, the study group is expected to do for US industry what an earlier panel did in its report on the effects of national security controls on the open exchange of scientific and technical data in academic research.

A 1982 report by the Academies on university research, *Scientific Communications and National Security* (PHYSICS TODAY, November 1982, page 69), was one of the opening shots fired in retaliation to what was then a guerrilla war by the Pentagon against the academic tradition of the wide dissemination of scientific work. More commonly known as the Corson Report, after Dale Corson, president emeritus of Cornell University and head of the study, it called on the Pentagon to establish appropriate guidelines and procedures to keep open the channels of scientific communication. The Corson panel preferred that the government "build tall fences around small fields of research" and concentrate not on the uncertain goal of "protecting what we have" but on advancing "[our] strategic lead time"—in other words, "security by accomplishment."

One of the panel's major issues was resolved on 27 June, when both houses of Congress, by voice vote, passed an amended Export Administration Act, which had expired last year but continued to operate under a presidential order. The act, signed into law by President Reagan on 12 July, leaves the operation of export control much as before. The act is intended to speed up the licensing of exports to US allies and hold down more rigorously the export of items the Pentagon considers militarily critical.

The panel is under the chairmanship of Lew Allen Jr, director of Caltech's Jet Propulsion Laboratory. A physicist with a PhD from the University of Illinois, Allen is a retired Air Force general who has served as chief-of-staff for the Air Force and director of the National Security Agency. —IG□