

for beam lines," says Ianniello of DOE. "But we don't have the money." Eventually, he hopes to see the ALS and the APS fully commissioned and outfitted with beam lines. "It just may take a little longer than we had hoped."

Adriaan de Graaf, deputy director of the NSF's materials research division, says that the current situation faced by synchrotron radiation users is "not more of a problem than that faced by any other group" trying to get funding. "We have funded beam-line construction in the past, and this will remain an important aspect of our support," de Graaf says, adding that a committee within NSF is now preparing guidelines to handle the "complex, multidisciplinary beam-line proposals" being submitted.

Another important issue, says Denis McWhan, chairman of the NSLS, is where the money to operate and maintain the synchrotron facilities will come from, once the ALS and APS are completed. At the NSLS users are responsible for operating and improving the beam lines, while DOE supports the operation and improvement of the uv and x-ray rings. "It would be unfortunate if we were unable to keep up our end of the bargain," says McWhan.

One idea that has been suggested by the Federal government to cover operating expenses is for users' fees to be paid on top of any investment users had already made in instrumentation. At present beam time at the national facilities is free, provided that research results are published in scientific and technical journals. (See the box on users' fees in *PHYSICS TODAY*, April, page 19).

Impact on current light sources

Some thought is also being given to what impact the ALS and APS will have on research programs at the synchrotron sources in operation. "The ALS and APS will certainly take some of our users," says Ednor Rowe, associate director for accelerator development at the SRC at Wisconsin. "But they're quite specialized. Our expectation is that new uses for synchrotron radiation will keep popping up." He points to the case of x-ray lithography. "Four years ago it was just a gleam in the eye of a few people here. Now roughly one-fourth of the floor is devoted to it."

Even now the existing light sources are being upgraded. At the SSRL, for example, a dedicated 3-GeV injector was completed in September, with normal operation scheduled to begin in February; prior to that it had relied on an electron beam from the 2-mile

linac shared with the Stanford Linear Collider, a situation that resulted in only two months of beam time per year for the SSRL. Similarly, the number of beam lines at CHESS was recently doubled, and a bio-containment facility was added.

Arthur Bienenstock, director of the SSRL, says he's "looking forward to [the ALS and APS] taking some of the load. There's a large portion of the community whose needs we've never been able to meet fully."

—JEAN KUMAGAI

OHIO STATE WITHDRAWS FROM MOUNT GRAHAM TELESCOPE PROJECT

To the dismay of the other participants in the Columbus Telescope Project, one of the three telescopes slated for the Mount Graham Observatory in Arizona, Ohio State University has withdrawn from the project, jeopardizing its future. Immediately upon receiving news of Ohio State's decision in early September, the Arcetri Astrophysical Observatory in Florence, Italy—a partner in the project with the University of Arizona—issued a press release expressing regret about the university's action.

Arcetri, a research organization of the Italian government, said the decision "has severe economic and scientific implications for the other partners and does not take into sufficient account the legal and moral commitments previously taken by Ohio State University and by its former president, Edward H. Jennings." Franco Pacini, the director of the Arcetri Observatory, said the decision was "detrimental to the prospects of collaboration in astronomy between European and American institutions and could result in a serious credibility gap for Ohio State in possible future international projects." The Arcetri astronomers were especially irritated that they learned of the decision from Arizona rather than Ohio State.

Ohio State officials have defended their action as financially necessary, given cuts in the university's budget imposed by the state legislature, and they have drawn a parallel between their withdrawal from Columbus and the University of Chicago's decision to pull out in November 1988. But Peter A. Strittmatter, the director of the University of Arizona's Steward Observatory, rejects the comparison. Strittmatter points out that Chicago made its decision and informed its partners in an orderly way and at a suitable time—not when the project was in an advanced phase and substantial investments already had been made. According to Strittmatter and Pacini, \$6–8 million have been spent on the project so far—about \$2 million by the Italian partner. The total cost of the project is estimated to

be \$60 million in 1989 dollars.

Neither Arizona nor Arcetri—nor the astronomers at Ohio State itself—had any warning that Ohio might withdraw from Columbus. Eugene R. Capriotti, head of Ohio's astronomy department, and C. William Kern, dean of the college of mathematical and physical sciences, have resigned their administrative positions in protest against the decision.

The Columbus telescope is a binocular instrument that is to be equipped with the first of the eight-meter honeycomb mirrors to be built by Roger Angel's team at the Steward Observatory; it will have an effective light-gathering area of 11.8 meters. (See the article by Buddy Martin, John M. Hill and Angel in *PHYSICS TODAY*, March 1991, page 22.) By comparison with the other two instruments being built for Mount Graham—a 1.8-m highly maneuverable optical telescope cosponsored by Arizona and the Vatican, and a 10-m submillimeter radiotelescope that is being built as a collaboration of Arizona and the Max Planck Institute for Radioastronomy—the Columbus project is at a relatively early stage. Nevertheless, Ohio State's withdrawal leaves Arizona and Arcetri in an awkward position, scrambling to find a new cosponsor when most major decisions concerning the project already have been made. Arizona is expected to claim that Ohio State owes the project several million dollars.

The frustration felt by Arizona astronomers is of course enormously heightened because of the long struggle they have been going through to get the Mount Graham Observatory built at all (see *PHYSICS TODAY*, November 1990, page 75). Faced with opposition from environmentalists and Native Americans, who have claimed that construction of the observatory would endanger the red squirrel and sacred Indian sites, the University of Arizona has prepared ground for the observatory in fits and starts, as complex litigation has worked its way through the courts.

—WILLIAM SWEET ■