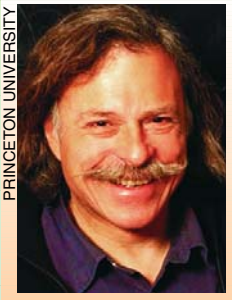
Hard Push for Soft-Matter Research at NYU

The creation of an interdisciplinary and international Center for Soft Matter Research makes physics the first field to get a boost from New York University's $2.5 billion expansion plans. By hiring people in clusters rather than individually, according to NYU's dean of arts and sciences Richard Foley, "the university can achieve what is often very difficult: rapidly and effectively building academic strength in several fields in the arts and sciences."

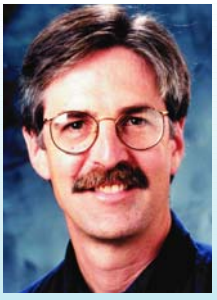
The new center is intended as a counterpart to the Kavli Institute of Theoretical Physics at the University of California, Santa Barbara, says David Pine, who joined NYU from UCSB. "You have this model that's worked well for theoretical physicists. But not much has been attempted to make centers of this sort for experimenters," he says. Pine, along with Paul Chaikin, who is moving from Princeton University, and David Grier, who came from the University of Chicago, is guiding the formation of the center. NYU is providing an undisclosed sum for an initial eight full-time faculty positions, including two theorists, plus two positions for visiting scientists. The center will have to raise money for workshops and other activities.

"We are interested in broadening the theory, models, and techniques for studying complex systems," says Chaikin. "We are going to make [the center] a great place to do science, where people come from all over and attack problems together. New York is a great place to do this." Adds Grier, "Instead of a warren of labs, we are building a very large open space. That makes it easier to integrate visitors."



Chaikin

Grier


Pine

NYU physics has previously benefited by focusing on select subfields, says Allen Mincer, the department chair. After hiring several people in astrophysics and cosmology a few years ago, Mincer says, "I can already see the effects on the caliber of faculty, postdocs, and students we are attracting."

The university plans to devote $200 million over the next few years to expanding the arts and sciences faculty by 20%. That, in turn, is part of a plan to raise $2.5 billion for scholarships, new academic initiatives, and the enhancement of university facilities.

Toni Feder

would not provide $9 million for "advanced concepts research on new weapons designs." They also said that "no funds have been provided for the Robust Nuclear Earth Penetrator," better known as the bunker buster nuclear weapon. Funding was also denied for selection of a site to build a new pit facility to increase the speed with which new nuclear pits can be manufactured. And no money was included to reduce the time it would take to prepare the Nevada Test Site for a resumption of nuclear testing.

In November 2003, the Office of Science unveiled an ambitious, 20-year priority list for developing 28 major research facilities, a plan that would require a 60% increase in the office's budget over the next five years (see PHYSICS TODAY, January 2004, page 23). While that is unlikely given the severe budget constraints, support on Capitol Hill for maintaining and upgrading existing facilities appears strong. The congressional conferees, in their budget report, encouraged DOE to "request sufficient funds for the Office of Science in FY 2006 to operate user facilities for as much time as possible, to enhance user support, and to upgrade essential equipment."

NASA. The space agency did well, receiving a 4.5% boost in its overall budget to $16.1 billion. Most of the increase is for returning the space shuttle to flight and for resuming construction of the *International Space Station*. Congress authorized up to $428 million to begin development of a crew exploration vehicle, a proposed spacecraft that would take humans beyond low-Earth orbit and is part of the administration's Moon/ Mars initiative.

The price for those efforts is paid for in part by a reduction in the exploration, science, and aeronautics (ESA) account, which funds much of NASA's research. The ESA budget is down 1.9% to $7.7 billion. While NASA has a unique ability to shift money between programs, making it difficult to know specifically how funds will be spent, AAAS estimates that NASA support of research could fall 5.5% to $5.3 billion.

Department of Defense. The military R&D budget breaks all records at $70.3 billion, a $4.6 billion, or 7.1%, increase. Missile defense continues to be one of the big-ticket items, receiving $8.8 billion as deployment of the system begins.

Basic research (6.1) and applied research (6.2) both increase, but primarily because of earmarks for research projects from Congress. Basic research will increase $85 million to $1.5 billion. Applied research will jump 9.5% to $4.8 billion. The Pentagon had requested cuts in both research categories.

The Defense Advanced Research Projects Agency receives a 4.9% increase in its R&D budget to $3 billion. That is slightly less than the $3.1 billion DARPA requested. The biggest increase—23% to $171 million—goes to DARPA's basic research program in Defense Research Sciences.

Department of Commerce. The administration asked for a sharp cut in the department's R&D budget, but Congress instead increased the budget by $52 million, or 4.6%. The two major research agencies within the department, NIST and the National Oceanic and Atmospheric Administration (NOAA), ended up with significantly more than the administration requested.

NIST R&D drops by 0.5% to $468 million, but that is better than the nearly 10% cut proposed by the administration. The drop in funding is a bit misleading because most of it can be attributed to the annual fight over the future of the Advanced Technology Program. The administration proposed for the third year in a row to eliminate the program, and the House agreed. The Senate won the fight, however, and provided $136 million for ATP. That is a 24% cut, but enough

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