

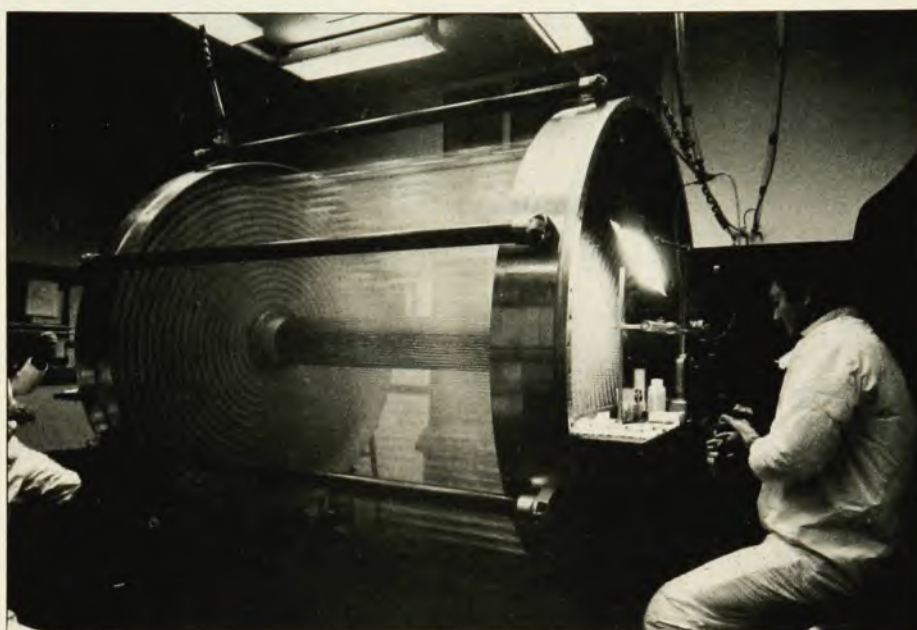
state & society

Budget boosts basic research; NSF gets smaller share

President Jimmy Carter has promised continued government support for basic research in Fiscal Year 1980, despite widespread cutbacks in many other areas of his 1980 budget. Outlays for basic research in 1980 are expected by the Administration to exceed \$4.3 billion, or a 12% increase over FY 1979.

According to Frank Press, director of the Office of Science and Technology Policy and the President's Science and Technology Adviser, total Federal R & D outlays to universities in constant 1972 dollars in the 1980 budget are the highest they have ever been in the period 1970-1980. According to Press, the President recognizes that basic research is a "national investment" and acknowledges Federal responsibility for funding basic research. The government's role in development, he said, should be restricted to those high-risk, advanced-technology development projects in which the private sector, which funds about half of the development in the US, cannot participate. Press also stressed the need to make the research money that is budgeted go farther by simplifying grant application forms, speeding up the processing of grant applications and reexamining costly regulations.

The Department of Energy's obligations for basic research will increase



RUSS HAMILTON, CORNELL

CLEO magnetic detector under construction at Cornell for CESR electron-positron storage ring, scheduled to operate this May with 5 GeV in each beam. The technicians are installing wires in the drift chamber, to be inserted inside a solenoid. The chamber has about 20 000 wires.

17.3%, to \$551 million in FY 1980. The Department of Defense will spend \$436 million on basic research, a 16.7% increase, and NASA's budget calls for \$630 million for basic research, an 18.8% in-

crease.

According to James Krumhansl, Assistant Director for Mathematical and Physical Sciences and Engineering at the

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Kohn to head new theory institute at Santa Barbara

After five years of effort, the National Science Foundation is finally going ahead with its Institute for Theoretical Physics after receiving approval from the National Science Board on 19 January. The Institute, which will start operating this September, is to be at the University of California at Santa Barbara. Its director will be Walter Kohn, now professor of physics at the University of California at San Diego.

NSF has committed itself to support the Institute as an experiment for five years, providing roughly \$1 million per year (in 1979 dollars) for the support of visiting physicists and for operating expenses.

NSF support for the rest of theoretical

physics will not be substantially reduced by the new Institute, according to Marcel Bardon, director of the NSF Physics Division, because it is expected that the funding will be shared among all the programs of the Physics Division and by the condensed-matter sciences section of the Division of Materials Research.

A primary purpose of the Institute, according to Boris Kayser, program director for theoretical physics at NSF, will be to foster research that crosses traditional physics subfield lines. It is hoped that the Institute, by bringing together people with a variety of backgrounds to interact over extended periods of time, will prove especially effective in such work. About 30 physicists, ranging from postdocs to

the full-professor level, will be present at any one time. The University of California, Santa Barbara has committed itself to providing three permanent faculty positions (at any level) for long-term Institute members in addition to that of the director.

Kohn is taking a two-year leave from La Jolla to serve as director. He is best known for his work in solid-state theory and has won both the Buckley and Davison-Germer prizes. In addition, he has also made notable contributions to nuclear and particle theory.

By September 1979 about 20 physicists are expected to be at the Institute, and the full complement of theorists is anticipated by the end of the first academic year.

In any given year, three different working groups are expected to be functioning. In the period October 1979 to October 1980 they will be:

► A field-theory group, led by Roger Dashen (Institute for Advanced Study) and Douglas Scalapino (Santa Barbara). The group will study physical systems in condensed-matter physics and related systems in high-energy physics.

► A quantum-gravity group led by Bryce De Witt (University of Texas, Austin). The program, which will begin in January, will include study of particle production in the early universe and related phenomena that occur in strong gravitational fields.

► A group on nuclear astrophysics, led by Gerald Brown (State University of New York at Stony Brook and Niels Bohr Institute, Copenhagen). The emphasis of this group will be on the equation of state for hot nuclear matter and neutrino trapping in supernova cores. This group will be at maximum strength during February and March 1980.

Another part of the Institute's program will be short-term visits by experimenters.

Although much of the first-year program of the Institute was planned during the period in which the proposal was under review, there are still some positions to be filled for the first year, with the possibility of some financial support. Most of the Institute's senior members will be on leave from their home university, typically for half a year to two years. Junior members will be appointed for periods from 2-5 years. Persons desiring information about the application procedure should write immediately to Walter Kohn, Director, Institute for Theoretical Physics, University of California, Santa Barbara, Calif. 93106.

The University is providing the Institute with the top floor of Ellison Hall, which has 9000 square feet of space for offices and conference rooms. The site is near the science library, the computer center and the physics building and overlooks the Pacific Ocean.

The Santa Barbara proposal was submitted by Scalapino, James B. Hartle, Raymond F. Sawyer and Robert L. Sugar, who became known in the NSF as the "Gang of Four."

The Institute will have an advisory board, whose executive committee will assist the director in setting the scientific direction for the Institute and help to attract leading physicists to it. In the list of names of board members given below, those with asterisks are on the executive committee:

Gordon Baym (University of Illinois, Urbana)

George Bertsch (Michigan State University)

* Richard Blankenbecler (SLAC)

* S. Chandrasekhar (University of Chicago)



KOHN

John Michael Cornwall (UCLA)

* Roger Dashen (Institute for Advanced Study)

Douglas Eardley (Yale University)

Herman Feshbach (MIT)

Murray Gell-Mann (Caltech)

* James Hartle (Santa Barbara)

Leo P. Kadanoff (University of Chicago)

Paul Martin (Harvard University)

Michael Nauenberg (University of California, Santa Cruz)

David Pines (University of Illinois)

Malvin Ruderman (Columbia University)

* J. Robert Schrieffer (University of Pennsylvania)

Kip Thorne (Caltech)

Background. After discussions in the NSF physics advisory committee during 1974 and 1975, NSF publicly announced its concept of a theory institute in 1976 (PHYSICS TODAY, September 1976, page 80), and later asked for formal proposals. After considerable maneuvering in the academic community, 15 proposals were submitted. Although many physicists initially greeted the concept of the Institute with enthusiasm, some were enthusiastically opposed, as were some members of the National Science Board. But since then, many of the opponents have endorsed the Institute wholeheartedly.

Early last year the top choice of the panel of reviewers was Santa Barbara from among the five finalists. In May, when the question of the directorship for the Institute was still unresolved, the Science Board deferred action. Once Kohn agreed to serve as director, the Board gave its approval.

Those who served on the NSF review panel were Stephen Adler (Institute for Advanced Study), John Bahcall (Institute for Advanced Study), Eugene Commins (University of California, Berkeley), Robert Dicke (Princeton University),

Martin Einhorn (University of Michigan), Joseph Macek (University of Nebraska), John Negele (MIT), Raymond Orbach (UCLA), Eugene Parker (University of Chicago), Martin Rees (Institute for Theoretical Astronomy, University of Cambridge), James Vary (Iowa State University), Chia-Wei Woo (Northwestern University) and Chen-Ning Yang (Stony Brook). —GBL

Budget boosts basic research

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National Science Foundation, the increases proposed for basic research in the "mission agencies, such as DOD and DOE, are "substantially larger" than that proposed for NSF. He told PHYSICS TODAY that this reflected a Presidential desire to reestablish the mission agencies as supporters of basic research. "The mission agencies have, over the past decade, backed away from the support of basic research," Krumhansl said. "There is an overt effort to reestablish and to support, at much more than the cost-of-living increase, areas of basic research that are important to those agencies." Krumhansl explained what this means for physics in FY 1980 at the NSF: "NSF is going to have to play the role of being very selective in construction commitments and concentrate mainly on the support, particularly in particle and nuclear physics, of user-group experiments... on gravitational physics, on theoretical physics, and those areas of physics which fall between the cracks of the mission agencies." A description of the FY 1980 budgets of the DOE, DOD, and NASA will appear in subsequent issues of PHYSICS TODAY.

The NSF total budget request for FY 1980 is \$1.006 billion—the first time the NSF budget has exceeded one billion dollars. NSF obligations for R&D will increase from \$819 million in 1979 to \$910 million in 1980, an increase of 11%. In addition, \$24 million will be obligated for research facilities in 1980. Funding for basic research programs will increase from \$741 million to \$828 million, or about 12%. When this figure is compared with the Foundation's overall increase of 8.4%, it is clear, Krumhansl told us, that applied research is not emphasized in the 1980 budget to the degree that basic studies are.

Although the total budget for Krumhansl's directorate is increasing by 10.5% (see table), physics will receive relatively little of that increase. Whereas the budgets for chemistry and engineering are to increase by 17.1% and 14.2%, respectively, the budget for physics will increase by only 3.2%.

Krumhansl said that the large increase in engineering reflects a new microstructure initiative, and that the chemistry increase reflects an increased emphasis on