US engineering research

Six special centres founded

Washington

THE National Science Foundation (NSF) has now designated the first six of its engineering research centres, planned to operate in close association with university departments. They were proposed in 1983 by NSF's engineering directorate in response to widespread concern about the quality of engineering research in US universities. The six centres will be at: the University of California at Santa Barbara; Columbia University, New York; the University of Delaware, with Rutgers University; the University of Maryland, with Harvard University; Massachusetts Institute of Technology; and Purdue University.

are already being devised.

NSF's proposal to designate special engineering research centres was endorsed heartily last year by the National Academy of Engineering, which urged NSF to aim for no fewer than 25 centres. NSF's director, Erich Bloch, said last week that progress towards that goal would depend on the continuing support of Congress. The administration's budget proposal for fiscal year 1986 includes \$25 million for engineering centres, which should allow a further five or six centres to be designated next year.

The subject area to be covered at each centre was proposed by the host institution. NSF did not attempt to identify in

Location	Funds (over five years)	Subject
University of California, Santa Barbara	\$14 million	Robotic systems in microelectronics
Columbia University	\$20 million	Telecommunications
University of Delaware (with Rutgers University)	\$7.5 million	Composites manufacturing
University of Maryland, College Park (with Harvard University)	\$16 million	Systems research
Massachusetts Institute of Technology	\$20 million	Biotechnology process engineering
Purdue University	\$17 million	Intelligent manufacturing systems

The centres will together receive \$94.5 million from NSF over five years, but funds will also be contributed by the host institutions. NSF hopes that its contribution will be matched by state governments and industry. The emphasis is on fostering interdisciplinary research in such areas as robotics, materials science, telecommunications, biotechnology engineering and artificial intelligence; each centre will concentrate on a particular area. Extensive collaboration with industry is expected. The centres will also be used for training, both of graduates and undergraduates; new courses

advance the particular specializations it wanted to support, but merely sought to avoid duplication. The purpose of the centres, according to Bloch, is to "enhance the future competitiveness of US industry in international markets" by furnishing industry with a "solid knowledge base".

At least one US senator had lobbied NSF to locate an engineering research centre in his state, apparently successfully. But Bloch insists that siting decisions had been made exclusively on the basis of peer review of the 142 proposals from 106 institutions. **Tim Beardsley**

NASA budget freeze in prospect?

Washington

THE House of Representatives last week sent a message that it may be in no mood to go along with the Reagan Administration's programme of selective budget increases for science while other non-military portions of the budget are slashed. By a surprisingly large 369-36 vote, the House refused to approve the 5 per cent increase for the National Aeronautics and Space Administration (NASA) that the administration had requested for fiscal year 1986. Instead, if the House gets its way—the Senate has yet to act—NASA's overall budget will be frozen at its present level.

The House offered no prescription for allocating the cut among NASA's many programmes, except to say that \$45 million of the \$375 million reduction should come out of salaries and administrative costs.

The details could be worked out in a House-Senate conference or conceivably left to the NASA administrator.

The President's budget proposal for NASA—which had been approved largely unaltered by the House Science and Technology Committee—specified major increases for the space station (up to \$220 million from the current \$140 million) and for space applications and commercialization (up to \$580 million from \$440 million). The scientific research programmes were due for much more modest rises.

By a much closer margin, the House took a token step towards demanding that the shuttle should pay for itself. NASA had wanted to hold the maximum price for a full shuttle payload to \$71 million, rather than raising prices in 1988. The House ordered the maximum price to increase in 1988 to \$105 million.

Stephen Budiansky

Soviet research

Aleksandrov on self-reliance

SOVIET science must try harder to be self-sufficient, Dr Anatolii P. Aleksandrov, president of the Soviet Academy of Sciences, told the academy's general assembly last month. In some fields in which the Soviets had originally been in the lead, he said, projects had been held up for so long that, in the end, foreign equipment had to be purchased under licence and Soviet work in the field had been terminated. The very scale of Soviet industry seems to be a large part of the difficulty.

Aleksandrov is well known as an advocate of Soviet self-sufficiency. On many occasions, he has somewhat grudgingly referred to international cooperation as necessary in the interests of detente and the elimination of duplicated effort, while emphasizing that the Soviet Union needs no outside help.

Nevertheless, Aleksandrov's new criticisms of Soviet industrial performance are more than his habitual harping on self-sufficiency. His special targets have in common their concern with short-run production.

Thus, said Aleksandrov, the Soviet chemical industry, in spite of its "tremendous" scale, cannot produce the relatively small quantities of reagents needed for high-accuracy analysis. Similarly, in spite of the scale of the nuclear industry, which is capable in theory of supplying the economy with all necessary isotopes and isotope-labelled compounds, many institutes still have to purchase such products from abroad.

Similarly with precision research instruments, although the Soviet instrument-making industry produces a vast quantity of general-purpose equipment each year (to the value of some 30-40 million rubles, including 8 million rubles on systems for the automation of routine analysis), it is not geared to small runs where fewer than 50 items are needed at a time. Moreover, many of the instruments produced are, Aleksandrov said, "frankly speaking, completely useless".

Aleksandrov drew particular attention to the failure, so far, of the Ministry of the Radio Industry to produce the special radar sets needed to monitor soil moisture and salinity. These devices, originally a spin-off from the Venus programme, have an important role to play in the union-wide Food Programme, Leonid Brezhnev's final bequest in 1982 to the Soviet Union. In spite of the efforts of the academy's Institute of Radio Engineering and Electronics in adapting the Venus radars to agricultural use, Soviet industry, Aleksandrov said, has not yet managed to produce the devices so urgently needed. **Vera Rich**