that U.S. ventures in cooperative microelectronics research, such as the Semiconductor Research Corporation and Microelectronics and Computer Technology Corporation (MCC), are not subsidized is "somewhat superficial," says Oakley of Britain's DTI. "Look at the benefits offered by the state of Texas to attract MCC to Austin, or the tax benefits that have been granted by the Reagan Administration."

The new Munich center demonstrates how some companies are already building up a network of bilateral and multilateral research agreements independent of the EEC Commission's plans, in case a failure to resolve the general financial crisis within the Community means that ESPRIT has to be aborted.

In Brussels, there is a reluctance to talk about this possibility, not least because it would throw doubt on the importance of the political role of the Commission itself in the future organization of European research. "The program will get off the ground as planned, even if it takes longer than we had hoped and we have to work with less money than we would like in the early stages," one EEC official close to Davignon said last week.

Much will now depend on how France handles negotiations when it takes over the presidency of the Commission for 6 months on 1 January, the date on which ESPRIT officially comes into being. Publicly at least, the French government has become an enthusiastic promoter of European-level science in general, and ESPRIT in particular.

Furthermore, if it turns out to be successful, ESPRIT is likely to be used as a model for similar projects in other areas, in particular telecommunications and biotechnology. But, as shown by the failure of the Athens meeting on the one hand, and the controversy over the Siemens-ICL-Bull research center in Munich on the other, political and economic rivalries are not far beneath the surface and accord may have to come on broad issues before ESPRIT is fully backed.

Britain and West Germany just stated, for example, that they are not prepared to accept Davignon's suggestion that until the new money arrives, ESPRIT should be funded out of economies elsewhere in the research budget. "The lack of a decision on ESPRIT is not just a delay, but a missed opportunity," Davignon said after the meeting here; others point out, more philosophically, that it shows once again the difficulties of trying to short-circuit political realities in a continent that is still far from becoming the United States of Europe.

—DAVID DICKSON

Probe Wins Support the Hard Way

In what appears to be an effort to drum up scientific endorsements for a new satellite mission, deputy administrator Hans Mark of the National Aeronautics and Space Administration (NASA) has simply threatened to delete it from the agency's fiscal 1985 budget request. It is an unusual technique to say the least, but effective: the space science community is obliging him with protests, letters, and outraged statements of support for the mission.

Known as Gravity Probe B, the satellite would test the general theory of relativity—Einstein's theory of gravity—in a qualitatively new way. Previous tests have only measured the static effects of gravity, such as the deflection of starlight by the sun. Gravity Probe B would try to detect the gravitational analog of magnetism: namely, the precession of a gyroscope in the vicinity of a large rotating mass such as the earth.

The effect is extremely subtle, and the techniques required to measure it are just barely within the state of the art. Stanford University physicist C. W. Francis Everitt and his colleagues have already spent nearly 20 years developing the superconducting gyroscopes and detectors for Gravity Probe B, and launch is still not contemplated until the early 1990's. However, because general relativity is the foundation of modern cosmology and astrophysics, and because these "magnetic" effects are directly relevant to the physics of quasars and rotating black holes, the National Academy of Sciences's Space Science Board in 1981 named the experiment as its highest priority in gravitational physics research.

This year, after NASA's success with the cryogenically cooled IRAS satellite (*Science*, 25 November, p. 916), and after a major revision of Gravity Probe B had brought the estimated cost down from the $200- to $300-million range to some $120 million, the mission finally seemed ready to move from the planning phase to a more serious consideration of flight hardware. In budgetary terms, this would mean a boost in funding from $2 million a year to about $10 million in fiscal 1985.

Enter Hans Mark. In September he had the agency drop Gravity Probe B from its budget request. His rationale, apparently, was that the mission lay far outside the mainstream of space science and stood in dire risk of being eaten alive by scientists fearful that the money would come out of their own projects—*unless*, of course, the community came forward with such strong support that NASA could break loose new money.

Space Science Board chairman Thomas M. Donahue of the University of Michigan was outraged. In late November he got the board to issue a fresh and resounding endorsement of Gravity Probe B in general and the Stanford group in particular. The Stanford researchers, meanwhile, were out soliciting letters of support from six august physicists, of whom four are Nobel laureates. And at the White House, science adviser George A. Keyworth, II, has been professing *his* enthusiasm for the mission.

So Mark has gotten the kind of ground swell he wanted. But it does seem a strange way to proceed. In effect, scientists are being told that if they want to try very difficult experiments that strike off in bold new directions, and if they are willing to work very hard to get the costs under control—then they had better not trust NASA to go to bat for them.

Whatever happens to Gravity Probe B now, the episode seems certain to leave a residue of bitterness and suspicion toward Mark. But then, that has never bothered him before. In 1981 Mark was widely perceived as leading the effort to cancel all of NASA's planetary science (*Science*, 18 December 1981, p. 1322), an episode that spurred a thorough reexamination of the program by the planetary community and a renewed commitment by the agency—a commitment now happily endorsed by Mark.

In the case of Gravity Probe B he seems well pleased. "If we had just asked those Nobel prize winners for letters, we would have gotten one or two lines saying, 'Yeah, it's great,' " he says. "We wouldn't have gotten anything like the kind of support we have now." He thinks a compromise to get Gravity Probe B back on track can be worked out by early next year.

—M. MITCHELL WALDROP