

of the three major parties.

But there are less sordid, albeit equally troubling, explanations for Germany's posture. Since 1969, when West Germany agreed to sign the Nonproliferation Treaty, it has been the unstated policy of every German government to acquire every sophisticated nuclear technology possible. The unstated assumption is that a country of Germany's weight must be in a position to acquire nuclear weapons quickly, should the need unexpectedly arise. Would Germany wish to know less about weapons-relevant technology than Argentina? Would

participation in sensitive projects overseas not assure Germany the knowledge and experience it wishes to have in reserve?

However such questions are answered, one way or another the depth of Germany's commitment to the NPT is at stake here. It is an issue that could turn out to play a role in next year's national election campaign, in which the Socialists and the Greens—invigorated by their newly formed local coalition governments in West Berlin and Frankfurt—can be expected to talk tough.

—WILLIAM SWEET

NAVY AND ARMY INITIATE ASAT PROGRAMS, WITH TEST BAN LIFTED

Because of the affinities between anti-satellite and missile defense technologies, forces opposing Star Wars have made it their business since the mid-1980s to block testing of ASAT systems. Specifically, from 1985 to 1988 a Congressional coalition barred testing in space of the Air Force's fighter-launched rocket interceptor (see *PHYSICS TODAY*, November 1984, page 99). Late last year, when the Air Force withdrew its request for further funding for the F-15 ASAT program, it seemed to be a significant victory for the coalition.

But apparently the cancellation of the F-15 program led to a certain complacency among ASAT opponents on the Capitol Hill, causing them to overplay their hand. Representative George Brown, the Democrat from California who has been a chief sponsor of legislation barring ASAT tests, tried at the end of last year to get the House to adopt a permanent ban on testing of the F-15 ASAT. This provided ASAT proponents an occasion to reopen the testing issue and swing votes; the result is that the test ban has been lifted. This shift in the balance of power to the forces favoring Star Wars represents a political sea change, and it clears the way for the Pentagon to start testing sensitive missile-defense elements as ASAT systems.

The Army has asked for \$100 million in the 1990-91 budget to spend on free-electron laser ASAT work; the Air force wants to spend \$62.8 million on excimer and oxygen-iodine ASAT lasers; and the Navy—causing eyebrows to rise—would like to have \$218.9 million to spend on rocket-launched ASAT interceptors based on the Exoatmospheric Reentry-Vehicle Interceptor Subsystem, or ERIS, de-

veloped by Lockheed Corp for the Strategic Defense Initiative.

"A lot of people might be wondering what interest the Navy, of all services, has in ASATs," observed David C. Morrison, national security correspondent for the *National Journal*, one of the two leading weeklies covering government in Washington. One explanation, Morrison wrote, is that the USSR has been putting its naval reconnaissance satellites into higher orbits, beyond the reach of the Air Force's F-15-launched ASAT. Another explanation, a writer pointed out in a recent issue of the *Bulletin of the Atomic Scientists*, is that the Navy is especially well placed to attack Soviet reconnaissance satellites, many of which are in elliptical polar orbits that bring them to their lowest points when they pass over the South Pacific. The broadest explanation, given to this magazine five years ago by Herbert York, has to do with the Navy's increasing reliance on satellites for the command and control of naval operations. Because of the military's ever-growing dependence on satellites for reconnaissance, command and control, York thought that trying to permanently ban ASATs might be "like trying to eliminate submarines."

The new ASAT programs requested by the services would not have been affected by the F-15 test ban, and the only ASAT test that is likely to occur in 1989 will involve using the Mid-Infrared Advanced Chemical Laser, or MIRACL at White Sands against a target in space. ASAT testing of ERIS—the system the Reagan administration wanted to deploy as the first tier of a missile defense system—is expected to begin next year.

—WILLIAM SWEET

PHYSICISTS PROTEST TREATMENT BY PRC OF FANG LIZHI

Two years ago, following student demonstrations calling for democratization of the People's Republic, the country's party leader was ousted, the leadership of the Chinese Academy of Sciences was replaced, and astrophysicist Fang Lizhi was dismissed as vice president of the University of Science and Technology in Hefei together with the university's president (see *PHYSICS TODAY*, June 1988, page 67). Fang, already a national hero among Chinese students inside and outside the PRC, increasingly is an internationally known figure as well.

Last December, when the Texas Symposium on Relativistic Astrophysics was held in Dallas, Fang was not permitted to attend, and he also had to decline five invitations to visit US universities. Fang had suggested holding the 1992 Texas Symposium in the PRC, promising he would be able to obtain visas for all participants; but given his inability to obtain a visa for himself for the Dallas meeting, his invitation had to be declined. Ivor Robinson of the University of Texas wrote a letter to China's ambassador protesting Fang's treatment. That letter went unanswered, as did a similar letter to Deng Xiaoping from Val Fitch, 1988 president of The American Physical Society. Fitch appealed to Deng's "well-known deep interest in science" and called Fang as "one of the world's leading authorities in high-energy astrophysics."

More recently, during President Bush's brief visit to China, Fang was excluded from another Texas event—a barbecue dinner that Bush hosted in Beijing. According to reports that appeared on the front pages of newspapers all over the world the next day, Fang tried for four hours to gain entry to the barbecue.

Not long before Bush's visit to China, Fang issued appeals on behalf of Wei Jingsheng, an electrician at the Beijing zoo who was arrested in 1979 and sentenced to 15 years in prison. Wei, adopted by Amnesty International as its principal prisoner of conscience in the PRC, was the author of a famous essay, "The Fifth Modernization," in which he advocated a radical democratization of China. Fang himself has retreated somewhat from demands for establishment of a multiparty system and is advocating, for the time being, respect for human rights and for freedom of thought, press and speech.

—WILLIAM SWEET ■