APS and Academy members polled on SDI; physicists mobilize

Physicists, as people who prize intellectual prowess, tend to be suspicious of mass public-opinion polls. Despite that or maybe because of it, they continue to sign petitions for or against the SDI program in great numbers, and when polled on the subject, they show a willingness to express their opinions at considerable length.

The Cornell–Illinois anti-SDI petition continues to gather signatures on university campuses (see PHYSICS TODAY, November, page 95). As of 13 May, when a press conference was held in Washington to publicize the latest results, 3700 faculty members and 2800 graduate students had pledged not to engage in SDI research. Majorities in 59 physics "research departments," as defined by petition organizers, had taken the pledge, according to David Wright of the University of Pennsylvania.

Signatories of the Cornell–Illinois petition include a large number of prominent physicists, ranging from Philip W. Anderson and Subrahmanyan Chandrasekhar to Carlo Rubbia and Steven Weinberg.

A new anti-SDI petition circulating at industrial and national laboratories is sponsored by about a dozen scientists, including physicists Anderson, Owen Chamberlain, Ernest D. Courant, Albert Crewe, Gerhart Friedlander, Pierre C. Hohenberg, J. Carson Mark, Edwin M. McMillan and Robert W. Wilson and computer scientists John Backus and Kenneth L. Thompson. It reads in part:

> We, the undersigned scientists and engineers currently or formerly at government and industrial laboratories, wish to express our serious concerns about the Strategic Defense Initiative, commonly known as "Star Wars." Recent statements from the Administration give the erroneous impression that there is virtually unanimous support for this initiative from the scientific and technical community. In fact the SDI has grown into a major program without the technical and policy scrutiny appropriate to an undertaking of this magnitude. . . .
>
> The stated goal of the SDI is developing the means to render nuclear weapons "impotent and obsolete." We believe that realization of this dream is not feasible in the foreseeable future. The more limited goal of developing partial defenses against ballistic missiles does not fundamentally alter the current policy of deterrence, yet it represents a significant escalation of the arms race and runs the serious risk of jeopardizing existing arms-control treaties and future negotiations. . . .
>
> We urge the Congress to heed these concerns and to limit the SDI to a scale appropriate to exploratory research, while assessing . . . the program in comparison with alternative strategies for strengthening the overall security of the nation.

SHURCLIFF

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The aim of the final paragraph, says Hohenberg, a physicist at AT&T Bell Labs, is to "hold SDI to what the Administration says it is—a research program."

The laboratory letter, unlike the petition written at Cornell and the University of Illinois, is not a pledge to reject funding from SDI. Laboratory personnel typically have little control over where their money comes from and in some cases taking a pledge might be tantamount to promising to resign.

Hohenberg says that "the letter is an attempt to redress the view propounded by some SDI officials that opponents to SDI are not in the mainstream of the scientific community" (see PHYSICS TODAY, January, page 79). The letter is a direct appeal to Congress, Hohenberg says, and its message is that "doubts are very much in order." The plan is to gather signatures for a few months and then send the letter directly to every member of Congress.

UCS poll. Because individual physicists might have many reasons not to sign statements on the Strategic Defense Initiative, petitions are open to the objection that they may not reflect the full range of opinion in the community. To correct for that possibility, the Union of Concerned Scientists hired Peter D. Hart Research Associates Inc to do a scientific survey. Hart Research conducted telephone interviews of roughly 25 minutes each with 549 physicists selected at random from the 1985 American Physical Society membership directory. UCS released the results in March.

The survey revealed that physicists oppose SDI by a ratio of nearly two to

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one, though many physicists saw merits in some aspects of SDI. By a margin of 54% to 29%, the physicists viewed SDI as a step in the wrong direction—even though pluralities approved of other weapons systems such as the Trident submarine, the cruise missile and the Stealth bomber. Opposition to SDI was strongest among those who said they knew the most about it. (Only 9% said they knew little or hardly anything about SDI.)

The physicists sampled opposed deployment of SDI systems by 62% to 23% and testing of SDI systems by 49% to 43%, but they favored basic laboratory research on SDI by 77% to 21%.

Two-thirds of them considered it improbable that SDI could provide a defense for the population of the country as a whole, but a plurality considered it likely that a missile-defense system could provide an effective point defense for hardened military targets such as missile silos.

The physicists agreed by a margin of 83% to 11% that "even if we develop a system that works against today's weapons, the Russians can develop effective countermeasures." They believed by a narrow margin that SDI might have some utility as a bargaining chip, but by a larger margin they considered that SDI would more likely escalate the arms race. "When asked to select the most important of four approaches the United States might pursue to reduce the threat of nuclear war, 61% chose 'negotiate new arms control agreements with the Soviet Union.' Arms control ranked substantially ahead of any other item," Hart reported to the Union of Concerned Scientists in March.

The attitude of American physicists toward arms control and SDI cannot be attributed to some kind of blind hostility to President Reagan. Only 28% of those polled described themselves as Republicans, but 47% approved of Reagan's general performance, while 50% disapproved.

General public. The physicists polled by Hart obviously tend to think that they are specially qualified to have opinions about SDI and specially well informed. Do their views about SDI differ materially from the views held by the general public?

According to a roundup of SDI surveys in the August–September issue of *Public Opinion* magazine, polls tend to indicate that a slight majority of the American public considers Star Wars a good idea and would like to see the United States develop a space-based defense against nuclear missiles. *Public Opinion* is published by the American Enterprise Institute in Washington and is often classified as a neoconservative publication.

"When an issue is complicated and the public not well informed," the editors of *Public Opinion* observe, "responses bounce all over, depending on which nerve the pollsters touch." *Public Opinion* found just one survey that asked Americans, without making any complicated explanations that might bias the results, whether they thought a Star Wars system could work: the CBS News/*New York Times* survey. When the survey asked this question in January 1985, 62% answered yes and 23% no. When the question was asked again in November 1985, 58% said yes and 27% no.

It seems apparent that physicists are in fact better informed about SDI than the general public, significantly more likely to consider the initiative undesirable and considerably more likely to see it as unrealistic.

Academy poll. The margins between informed or elite opinion and general opinion may be even bigger when it comes to members of the National Academy of Sciences. These individuals were polled this spring by William A. Shurcliff, a retired Harvard physicist living in Cambridge, Massachusetts. An optics specialist, Shurcliff was senior editor of the Smyth report on the Manhattan Project, senior author of the report on the first atomic-bomb tests at Bikini and a leader from 1967 to 1972 of the forces that persuaded Congress to ditch the civilian supersonic transport.

Between 16 March and 17 April, Shurcliff polled all 1505 US residents listed in the 1985 NAS directory. He received 530 replies (36%).

"By majorities of more than 20:1," Shurcliff reports, "the responding members declared that the proposed Star Wars program would not provide an effective shield, would not defeat a high-altitude attack, would not prevent delivery of A-bombs by other methods (for example, low-altitude delivery or smuggling) and would not protect our European allies. In overall attitude toward the Star Wars program, 20 members were for it and 461 against it."

Shurcliff made it clear in the opening sentence of his survey letter that he considered SDI "doomed to failure" and that he intended to use the results of the poll to persuade Congress to curtail the program, as he used a similar survey 17 years ago to rally opposition to the supersonic airliner. These facts, together with the self-selecting response mechanism, would seem to disqualify the poll from being considered scientific.

"We would never run something like that in the magazine," comments Victoria Sackett, deputy managing editor of *Public Opinion*, "because there are three things there [the known bias of the pollster, his intended use of the poll and the self-selecting sample] that color the response, though it is hard to say in what direction. If the results turned out to be similar to a carefully drawn probability sample, it would be by chance."

SDIO reaction. Considering the latest poll and survey results, it is scarcely surprising that some physicists thought they detected a certain estrangement between the SDI Organization and the physics community when APS met in Washington at the end of April. Lieutenant Colonel Simon (Pete) Worden, special assistant to SDI chief Lieutenant General James Abrahamson, showed up for a morning meeting on 30 April to describe SDI architecture, but he came late and left early because he was scheduled to give a talk at the War College. The SDI Organization went completely unrepresented in two press conferences on SDI held that afternoon. In the evening of the same day, Richard D. Bleach of the SDI Organization was to give a talk about technical-personnel requirements at the session on SDI and the physics community, but he canceled in the morning, and James Ionson did not show up to speak about progress in SDI-related physics.

Ionson, who is director for innovative science and technology with SDIO, says that he decided not to attend on his own initiative, for a combination of professional and personal reasons. He says that his office canceled his talk with APS, but APS has no record of the cancellation and the message did not get through to the session organizers. The external-affairs office of SDIO, Ionson says, had nothing to do with his decision and did not even know about the invitation. Ionson observes that it is not his job to do public relations for SDIO.

Bleach is reported to have been ordered by SDIO external affairs not to speak at the APS session. Denying reports that SDI officials were ordered not to show up for the APS sessions, Worden claims that the officials decided among themselves not to participate. The evening session "did not look like an opportunity to discuss the technical issues," Worden says. "It looked like an occasion to beat up on SDI."

Worden adds that the SDI Organization has taken note of the many physicists who have signed anti-SDI petitions and their "strong feelings," but he believes that only a small percentage of the people in the technical and engineering communities have signed. Very little SDI research is basic research, Worden notes.

Finally, Worden says that SDI officials are upset about the persistent "misconception" among physicists that the aim of SDI is a "perfect defense."

"We are looking for a better way to deter war and do arms control," Worden says.

A new pro-SDI group, the Science and Engineering Committee for a Secure World, has been formed. Its acting chairman is Frederick Seitz of Rockefeller University, and Martin I. Hoffert, who is chairman of the applied-science department at New York University, serves as spokesman for the group.

In a statement read by Hoffert to a Senate subcommittee on 9 May, the group said: "We are confident that there are thousands of scientists and engineers across America and elsewhere who agree with us that it is unscientific and unwise to hastily oppose the promising Strategic Defense Initiative at this early stage of its research and development, and who believe that the concept of developing a defensive system to protect our people from a nuclear attack makes good common and good moral sense."

Around 90 scientists—about half of them physicists—have signed on to the Science and Engineering Committee for a Secure World. Signatories include physicists Hans Mark (chancellor of the University of Texas), John A. Wheeler (University of Texas), Harold Agnew (former director of Los Alamos National Laboratory) and William Nierenberg (Scripps Institution for Oceanography).

—WILLIAM SWEET

APS groups discuss SDI impact on physics

Even as more and more physicists sign petitions opposing the Strategic Defense Initiative, a larger and larger proportion of physics research is funded by the SDI Organization or—more broadly—the Pentagon. It is scarcely surprising, therefore, that sessions on SDI were well attended at the meeting of The American Physical Society in Washington, DC, on 30 April. This was true of both the morning session on technology and policy and the evening session on the impact of SDI on the physics community.

The evening session attracted 300–400 people, many of whom appeared to be graduate students or postdocs in physics. The session was organized by Aviva Brecher of Boston University, a former APS Congressional Fellow who is currently an executive committee member of the Forum on Physics and Society, and Barry M. Casper of Carleton College, a member of the Committee on Opportunities in Physics. Brecher and Casper had submitted virtually identical proposals to their committees for a session on SDI and the physics community.

The SDI Organization officials who were to have opened the evening session did not show up (see previous story). One of them canceled, and the other one says that he canceled, but such a message did not get through to the conference organizers. As a result, the organizers of the evening session delayed starting it for 15 or 20 minutes in the expectation that a representative of SDIO was still going to show up.

Instead of an SDI official, Vera Kistiakowsky of MIT gave the first talk, in which she argued that SDI is not good for science and the universities. Kistiakowsky drew on the UCS poll described in the previous story to show that physicists are divided on SDI, criticized efforts by SDI officials to equate participation in SDI research with support for SDI, pointed out that the program will lead to restrictions on university research and forecast "a major distortion of national research priorities."

Robert L. Park, director of public affairs for The American Physical Society in Washington, argued that SDI is not good for the economy. "Today the nation finds itself confronted by an unprecedented economic challenge from abroad and the prospect of severe budgetary restraint at home," Park said, "but it is not these crises to which scientists have been called." Park noted that the Pentagon now controls 73% of all Federal R&D and claimed that "things stand to get worse."

Park pointed to a statement by Donald Hicks, undersecretary of defense, that the Pentagon should give research money only to those who support its goals: "I am not particularly interested in seeing department money going someplace where an individual is outspoken in his rejection of department aims, even for basic research," Hicks told the Senate Armed Services Committee during his confirmation hearing on 25 July.

SDI and labs. In complementary speeches about the implications of SDI for non-weapons national laboratories, Alex DeVolpi talked about Argonne and Peter J. Gollon about Brookhaven. Drawing on an article that *The Bulletin of the Atomic Scientists* published last January, Gollon argued that the establishment of military restrictions at non-weapons labs will distort their character, compromise their independence and integrity and impede the free flow of information. Gollon described two SDI projects that have been started at Brookhaven, a $4 million radiation-effects facility and an $11.5 million neutron-beam test facility.

Gollon focused attention on a memorandum, dated 23 January 1986, by DOE Undersecretary Joseph Salgado saying it was now Department of Energy policy that major research facilities would have to make provision for classified research if and when there were compelling reasons for such research to be done at a facility. This ruling could have important implications for labs such as SLAC, Lawrence Berkeley and Fermilab.

Taking a concerned but more sanguine view, DeVolpi observed that funding has increased at Argonne for both SDI and arms-control-related projects such as work on verification techniques, while support for energy and environmental programs has been on the decline. DeVolpi argued that a "constructive synergism has arisen [at Argonne] between coexisting programs, as typified by the SDI and arms control programs. Such accommodation requires sophisticated discrimination between professional and public responsibilities, which must be recognized by the staff, the laboratory management, the funding agencies, the

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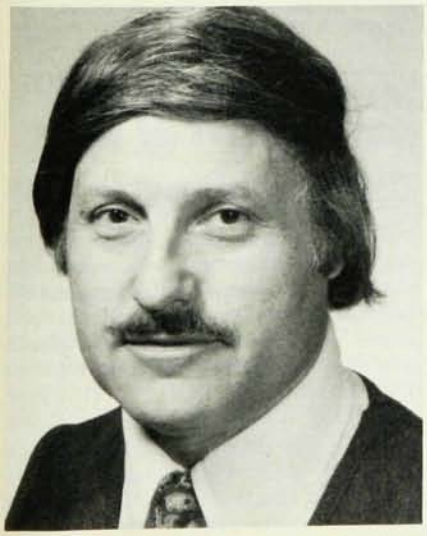

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