

"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 op-

pose 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 Kistia-kowsky of MIT gave the first talk, in which she argued that SDI is not good for science and the universities. Kistia-kowsky 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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professional societies and the public."

Senate report. Frequently mentioned during the SDI sessions and press conferences at the APS meeting on 30 April was a congressional staff report prepared by aides to Democratic Senators William Proxmire of Wisconsin, J. Bennett Johnston of Louisiana and Lawton Chiles of Florida. The central finding of the report, which was based on extensive interviews with more than 75 people involved in SDI work, was that there was nothing to justify claims by SDIO officials that progress had been "incredible" or "amazing" or that there had been "genuine breakthroughs."

The report attributed changes in the SDI program to technological failures, not budget cuts (see *PHYSICS TODAY*, January, page 53), and argued that the SDI program is *not* strictly a research program in the normal sense of the term.

At the APS meeting on 30 April, there was much talk about what participants called a "more balanced" research program in the morning session, which featured experts from the Office of Technology Assessment, MIT and Stanford, as well as an SDI official. The discussions were mostly calm and sober, though there were frequent questions from representatives of Lyndon LaRouche's National Democratic Policy Committee, who seemed intent on provoking confrontations. The same was true at the evening session, which ended with a talk by Charles Schwartz of the University of California

at Berkeley.

Schwartz was worried mainly about how students would find jobs outside the growing military-research sector. In a speech he predicted many would find offensive, Schwartz characterized physicists supporting SDI as "the American counterparts of Lysenko—political ideologues and hucksters in science, acting under the patronage of a powerful chief of state."

Schwartz made two proposals: one for a worldwide "strike" by physicists, that is, a "collective and gradual withdrawal of our services in all ways that contribute to the arms race"; the other a call for development of hard data about military and nonmilitary job prospects for graduating physicists. It probably would be fair to say that Schwartz's second proposal aroused some interest, especially among the students in attendance, and that his proposal for a strike was greeted with more-or-less friendly tolerance.

Brecher, however, reacted sharply to it. She thought it would be ridiculous to stop teaching physics just because physics is subject to abuse. When she was challenged by a Canadian member of the audience, who described the idea of "value-free science" as a "naive" notion found almost exclusively among US citizens, Brecher retorted that she had lived in Rumania, Israel and the United States and had found physics to be the same science everywhere. What varied, she indicated, was the amount of political "rubbish."

—WILLIAM SWEET

Education

AIP reports on enrollments and degrees

The latest AIP education surveys—the 1984–85 bachelor's survey and the survey of enrollments and degrees—reveal few new trends or patterns at the graduate level but some interesting developments in the undergraduate population.

The number of bachelor's degrees in physics last year exceeded 5000 for the first time since 1972. Half the bachelor's recipients were going on to do graduate work, three out of five of them in physics. Most of the other half were seeking employment in the civilian sector and already had at least one job offer at the time they were surveyed.

The average starting salary for the bachelor's recipients who responded to the survey had increased 6% over last year's, to a record high of \$1990 per month. The highest average salaries were offered in manufacturing industries, as usual, and the lowest in high-school teaching.

The number of responding bachelors who went into high-school teaching

increased to just over 20, and the average starting salary offered teachers increased from \$1100 in 1983–84 to \$1270 in 1984–85 but remained far lower than what was paid to average physics bachelors in other occupations.

Military issue. In most respects the distribution of the responding bachelors among employment sectors remained essentially unchanged. The military attracted 23% of the employed bachelors in 1984–85, compared with 24% the year before. These statistics do not shed any light on the proportion of bachelor's recipients whose work in the civilian sector was funded by the military, a matter of growing concern among some physicists.

At the recent APS meeting in Washington (see preceding story), Charles Schwartz of the University of California at Berkeley complained about the absence of data on how many graduating physicists are taking work funded by the military and suggested that the Committee on Opportunities initiate or

lobby for a special study. At an evening meeting on SDI and the physics community Schwartz said, with some confirmation from his fellow panelists, that graduate students increasingly claim they are unable to find work that is not funded by the military.

Susanne D. Ellis, the education-studies analyst for AIP, says that she is hearing the same complaint from bachelors. It used to be the case, she says, that graduating bachelors hardly ever wrote anything in the part of the questionnaire reserved for comments. But in the last two years, she reports, respondents mention increasingly frequently that they are unhappy with the job prospects outside the defense sector: A typical comment is "The reason I have had such trouble finding a job is that I do not want to do defense-related work."

Enrollments and degrees. A bright spot in the latest survey results is the 4% increase in the number of first-year physics graduate students in 1985–86, though the increase is entirely attributable to growing enrollments of foreign students. The number of US citizens among the entering graduate students dropped to 1721 from 1747. The proportion of foreign students continued to rise, reaching a record level of 42.1%.

Just 7.6% of the students awarded doctorates were women, though the situation may be gradually improving: The bachelor's survey indicated that 14% of the students starting graduate study in physics were women.

Eight blacks earned physics PhDs in 1985–86, down from 15 in 1984–85 and 17 in 1983–84. The number of blacks earning bachelor's degrees in physics, however, increased to 141 in 1985–86 from 124 in 1984–85.

The 1984–85 *Survey of Physics and Astronomy Bachelor's Degree Recipients* and the 1986 edition of *Enrollments and Degrees* are available from Susanne D. Ellis, Manpower Statistics Division, American Institute of Physics, 335 East 45th Street, New York NY 10017.

Triangle education coalition picks up members and support

The Triangle Coalition for Science and Technology Education, a partnership of business and labor associations, science and engineering organizations and education groups, was founded in late 1984 to promote the formation of local "alliances" in support of pre-college science and engineering education (*PHYSICS TODAY*, March 1985, page 111). This year, at age 1½, it is on its feet and walking.

Thanks largely to the dogged efforts of John M. Fowler, who heads the coalition's small staff at the National Science Teachers Association in Wash-