hash out some sort of compromise. The revised research schedule "essentially gives control of the acoustic signals to the marine-mammal group for the first few months," Forbes said. (Originally, the marine-mammal study and the acoustic experiments were to be conducted in parallel.) In addition, the signal will only operate every fourth day—a 2% duty cycle rather than the original 8%. Although there are still some people who don't want ATOC to proceed in any form, Forbes told PHYSICS TODAY, "I don't think most people consider it an evil experiment any more."

Environmental impact statements on the two ATOC sites are now being drafted, according to Ann Terbush, chief of the NMFS permits division; she expects to see a draft statement for Hawaii in September and one for California in October. After a 45-day period for public comment, final statements will be prepared, followed by a "cooling off" period, when any additional comments can be made or litigation can be filed. Finally, based on all the evidence, the NMFS will decide one way or the other on the ATOC permits. That decision will come, Terbush says, "by the end of the calendar year at the very earliest."

Design and development work for the Pacific demonstration phase of ATOC began in the fall of 1992 and was to be followed by one year of data collection ending in May 1995, when funding from ARPA stops. But now the marine-mammal study will likely take up the first four to six months of data collection, so climate researchers might only be able to gather data for a few months, said Forbes. The program is seeking an extension to the original 30-month funding period, which will include continued marine-mammal monitoring. If the experiment's approach proves useful in measuring ocean temperatures—and if it does no harm to marine life—it may be expanded into a decade-long project including other oceans, possibly requiring one or two acoustic sources in each ocean basin and as many as 40 passive receivers in addition to the 13 being used in the Pacific for this phase of the program.

—JEAN KUMAGAI

WOMEN SEE GAINS IN US PHYSICS PROFESSORIAT

Within the last decade the predominantly male physics professoriat in the US has become somewhat less so. According to a recent survey of the physics academic work force, conducted by the American Institute of Physics, the number of women professors in PhD-granting departments rose from 100 in 1985 to 180 in 1994.

That's not as large an increase as it may seem, says Roman Czujko, head of the AIP education and employment statistics division. "There are an average of 200 openings per year in PhD departments, so of the 1800 openings over the last nine years, 80 were filled by women." For comparison's sake, women now earn about 11% of the physics PhDs in the US.

In 1985 women accounted for 1.5% of the full professors, 3% of the associate professors and 7% of the assistant professors in PhD-granting departments. Nine years later, they made up 2.5% of full professors, 7% of associate professors and 10% of assistant professors; typically, these positions are tenured or tenure-track. The proportion of women in other academic positions, such as postdocs and lecturers, remained unchanged at 7%.

The proportion of PhD-granting physics departments with no women faculty decreased from 55% to 36% between 1985 and 1994. Rutgers University now has the most women on its physics faculty: five. MIT, the department with the largest total faculty, has four women faculty members. Among the departments granting only bachelor's degrees, nearly three-quarters had no women faculty in 1994. Among the departments that grant master's degrees, about 60% had no women faculty.

Then and now

Ten years ago Oregon State University was one of those PhD departments with no women faculty. It now has 2 (out of 17 professors), and both women have tenure. "We've never hired someone simply because she's a woman," says Kenneth Krane, who became chair of the physics department at Oregon State in 1984. "We're a small department, and we can't afford to offer a position on the sole basis of gender. It's essential that every faculty member play a full role in the academic and intellectual life of the department." On the other hand, he says, "what we aim for when we create a short list for a position is to have as diverse a list as possible."

Luz Martinez-Miranda, the chair of the American Physical Society's Committee on the Status of Women in Physics, finds the gains made by women professors "encouraging," but she observes that many students never encounter a woman physicist while in undergraduate and graduate school. Martinez-Miranda is now a visiting professor at Kent State University, participating in an NSF program that seeks to expose more students to successful female scientists. A condensed matter experimenter who specializes in display and device physics, she is spending the 1994–95 year at Kent State's Liquid Crystal Institute in the physics department.

The AIP data only reflect faculty in physics departments; they do not cover those in related fields such as astrophysics and astronomy, except where those disciplines are within the same department as physics.

In notes accompanying the data, the study's author, Geneva Blake of the AIP statistics division, cautions that "while it is encouraging that these positions are increasingly being filled by women, historically women have languished at the lower levels, taking longer on average than men with the same amount of experience to move up in the ranks." (The final report of the physics academic work-force survey, which looks at employment trends at US colleges and universities, will be available later this fall.)

Women have also suffered disproportionately from unemployment. A separate AIP study found that even after statistical adjustment for age and years of experience, the unemployment rate for women PhD physicists rose from 1.4% in 1990 to 3.1% in 1992. During the same time period the rate for men rose only slightly, from 1.1% to 1.5%. While even a rate of 3% is still well below the national average, Czujko says, joblessness among recent degree recipients is much worse. "This is true for all PhDs, not just physicists," he says. "My colleagues in math, chemistry and the Earth sciences are all talking about double-digit unemployment for the 1993 PhDs."

—JEAN KUMAGAI

US STUDENTS PLACE THIRD AT PHYSICS OLYMPIAD

Five of the top high school physics students in the United States accumulated the third-highest team score at the XXV International Physics Olympiad, held this July in Beijing, China. It was the best overall finish ever for a US team. Competing

against students from 46 other countries, Andrew Frey, Daniel Schepler and Andrew Neitzke each won a bronze medal for overall performance, and Geoffrey Park was given an honorable mention. Charlene Ahn, the fifth team member, ranked 82nd among the 229 participants.

The team from the People's Republic of China finished first, dominating the competition by winning four of the six gold medals and one of the five silver medals. Germany's team was second, with one gold and three silvers; the remaining gold went to a student from Great Britain.

Physics and other activities

The international competition brought students to China for a week in mid-July, and the extended visit allowed cultural experiences to mix with the testing. The students toured the Great Wall, the Summer Palace, the Imperial Palace, the Forbidden City, Tiananmen Square, the People's Hall and the Ming Tombs, and one evening they were entertained by acrobats, jugglers and magicians.

The competition consists of an exam held over two days, one for testing experimental skills and the other for theory; the tests are created and graded by representatives from the host country. (See the article by Anthony P. French in PHYSICS TODAY, November 1993, page 44.) Only 14% of the 229 competitors received medals for their combined scores. By comparison, at last year's competition, in Williamsburg, Virginia, 32% of the 201 students received medals. (See the article by Barbara Goss Levi in PHYSICS TODAY, September 1993, page 40.) The academic director of the US team, Larry Kirkpatrick, a professor of physics at Montana State University in Bozeman, said that the US students' outstanding performances merit special praise because the stringent Chinese graders rarely give partial credit.

This year the Chinese also awarded special medals to those who performed exceptionally well on either of the two tests. Frey and Schepler won special golds for theory, and Neitzke won a special gold for experiment. Park and Ahn each won a special bronze for theory.

The American students had all won math and science awards before the olympiad. They also had significant nonphysics achievements. Frey, whose 15th-place individual finish in Beijing was the highest on the US team, considers winning the Virgil Honor, a Boy Scout service award, his greatest accomplishment. Frey graduated from the North Carolina School of Science and Mathematics, in Durham, and is now attending Wake Forest University. Schepler, who participated last year too, came in right behind Frey, in 16th place. Schepler graduated from Beavercreek High School in Beavercreek, Ohio, as covaledictorian of his class and is now attending Washington University in Saint Louis.

Neitzke graduated from Harriton High School in Rosemont, Pennsylvania, where he was co-editor in chief of the school paper. He is now a student at Princeton University. Park was captain of the cross-country team at Tenafly High School in Tenafly, New Jersey, and is now a freshman at Swarthmore College, majoring in physics and minoring in vocal music. Ahn, a classmate of Frey's at the North Carolina School of Science and Mathematics, has won awards for her violin playing and was the school's concertmaster. She is now enrolled at Harvard University.

US participation in the International Physics Olympiad is organized by the American Association of Physics Teachers and the American Institute of Physics. Bernard Khoury, the executive officer of AAPT, serves as director of the US team for the olympiad. Theodore Vittitoe, a physics teacher at Libertyville High School in Libertyville, Illinois, was the senior coach. The physics olympiad was first held in 1967 in Eastern Europe; US students started competing in 1986.

Next year the competition will be held in Australia. Maria Elena Khoury of AAPT is handling the applications. —DENIS F. CIOFFI

Math and Chemistry Too

American students also made their mark this year in two other olympiads. US students achieved spectacular results at the 35th International Mathematical Olympiad, in Hong Kong, which was held at about the same time as the physics olympiad. In competition against teams from 69 countries, the US team of six—Jeremy Bem (Ithaca, New York), Jacob Lurie (Silver Spring, Maryland), Aleksandr Khazanov (New York, New York), Noam Shazeer (Swampscott, Massachusetts), Stephen Wang (Aurora, Illinois) and Jonathan Weinstein (Lexington, Massachusetts)—finished first with six perfect scores. Each team member obtained the maximum number of points on the nine-hour test, and each received a gold medal. Such perfection had never been seen in the 35-year history of the competition.

At the 26th International Chemistry Olympiad, in Oslo, Norway—also held in mid-July—the US team finished third, with the four students winning two gold medals, one silver and a bronze. As at the physics olympiad, the team from the People's Republic of China placed first; students from the United Kingdom were second. The US students were Jessen Yu (Alexandria, Virginia), Justin McCarty (Amherst, New York), Nicholas Loehr (Midlothian, Virginia) and James Grimmelman (Maplewood, New Jersey).

ALBERT EINSTEIN WAS ALWAYS ENVIOUS OF HIS YOUNGER BROTHER LUDWIG, WHO COULD MAKE A GREAT WIENER SCHNITZEL, BOWL IN THE HIGH 170S AND YODEL