

ment on GATT (the General Agreement on Tariffs and Trade), US patent protection changed from a 17-year period after the granting of the patent to a 20-year period that begins with the application for the patent. Bill H.R. 359 would once again begin the US clock at the granting of the patent, not the filing. In addition to providing a scientific perspective, Morgan has been assisting in the political work of helping Rohrabacher garner support for the bill. He sees it as protecting the "small, independent inventor," and he said his background helps in "appreciating what these people go through."

Morgan formally began his fellowship in December last year, but he spent much of the first three months of the year in Annapolis as a state delegate to Maryland's general assembly. Comparing the two environments, he characterized the state assembly as having a much more "collegial" atmosphere than the Federal government. At the state level, he said, the debate is not as political, and when it is, the politics bear more of a relationship to the substance of the matter than they do at the Federal level. In spite of these concerns, he plans to attempt a large career change: He has been approached about running for a seat in Congress as a representative from Maryland, and he intends to accept the challenge.

As for improving the Congressional Fellows program, Applegate suggested building in an extension of up to three months, which Philips heartily endorses. And, as has been mentioned by one or two fellows in prior years, Philips also thought that the orientation period could be reduced, because so much of the needed training is "on the job." Morgan "most definitely" has high praise for the program, but wishes that more members of the House and Senate were aware of the program and better appreciated its potential.

### A mix of experience

The new physics fellows show a broad range of experience. Kelly Kirkpatrick has just completed her PhD in materials science and engineering at Northwestern University, in Evanston, Illinois. She obtained a BS in chemistry, with a business option, from the University of Richmond, in Virginia, in 1988. She did her doctoral research in an applied superconductivity research group at Argonne National Laboratory and became, she told *PHYSICS TODAY*, "very curious about the political, social and environmental impacts of technological changes." This curiosity, combined



CONGRESSIONAL STAFF, including AGU Fellow David Applegate, tour DOE's Waste Isolation Pilot Plant in New Mexico.

with her interest in what she calls "technology exchange" (rather than just technology transfer) led her to apply to the program. She sees her future career as being in science policy.

Since receiving his PhD in chemical engineering from the University of Illinois at Urbana-Champaign in 1976, Kevin Bieg has had a long career at Sandia National Laboratories, first as a polymer chemist and then as a project leader in lithium ion diode research and inertial confinement fusion target fabrication. He has already served as a scientific adviser to DOE, in the ICF office, and most recently has been a program manager in technology transfer and commercialization. In addition to his two 1972 bachelor's degrees in chemical engineering and mechanical engineering from Iowa State University of Science and Technology, Bieg has an MBA, earned at George Washington University in 1993. In recent years his interest in science and technology has turned toward more near-term, applied work, and he entered the Congressional Fellows program because, he said, "I'd like to be able to show my kids something on a grocery-store shelf that I had an influence on."

Timothy Cohn has been at the USGS since receiving his PhD in water resources and systems engineering from Cornell University in 1986. He also has a master's in the same subject, obtained in 1984, but his

1979 BA from Swarthmore College is in mathematics. Cohn applied to the program to "understand better the interconnections between science and public policy," but now from the legislative side. As a hydrologist, he has been called upon before to provide scientific information with policy implications. Sometimes, he told us, the information was used responsibly to inform policy, but other times it was not.

Kevin Aylesworth is known to many in the scientific community as one of the founders of the Young Scientists Network (see *PHYSICS TODAY*, May 1993, page 57). In 1983 he obtained his BS in physics and chemistry from the University of Wisconsin-Stevens Point. Doing research on materials characterization and production, he received his MS in physics in 1986 and his PhD in physics in 1989 from the University of Nebraska. Aylesworth said that he joined the program because he would like to learn firsthand how Congress works. He expects to pursue his interest in issues of basic research funding and jobs, but he also wants to broaden his expertise by possibly getting involved in energy and security issues. As for his career, he considers it now two-pronged, and although this fellowship points toward science policy again, he can also see continuing the computer consulting business that has supported him for the last couple of years.

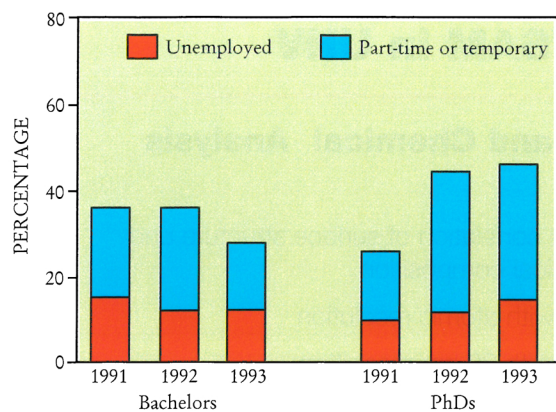
DENIS F. CIOFFI

## Latest AIP Survey Confirms Physicists' Job Fears

At July's Congressional hearing on the National Academy of Sciences' report on graduate education, Representative Sherwood Boehlert (R-N.Y.) expressed amazement at employment concerns in light of the supposed 1.6-percent unemployment rate for PhDs.

An analysis of the job market for recent degree recipients confirms a weakening correlation between a degree in physics and satisfying employment.





**EMPLOYMENT STATUS** of physics bachelors and PhDs (excluding those with postdocs) who had not secured potentially permanent jobs as of the winter following the year of graduation.

"Hell, that's not unemployment," he said, "that's full employment." But the 1994 *Initial Employment Follow-Up of 1993 Physics Degree Recipients*, a new report from the education and employment statistics division of the American Institute of Physics, shows that about 6% of new physics PhDs remain unemployed in the winter following their graduation, more than six months after receiving their degree.

Equally important, by reformulating the survey instrument, authors Michael Neuschatz and Patrick Mulvey have been able to pinpoint for the first time the proportion of PhD recipients who enter the job market with nonpostdoctoral temporary positions. When Neuschatz and Mulvey exclude the 70% with postdocs, they find that about half of the remaining 30% of the new PhD recipients either take part-time or temporary jobs or remain unemployed (see graph above). But, as Neuschatz told *PHYSICS TODAY*, a temporary nonpostdoctoral position does not always represent an undesirable position.

With the number of postdocs (about 3000) now more than double the number of new PhDs produced each year, Neuschatz suspects that the number of PhDs who enter or reenter the nonpostdoctoral job market with a year or more of seasoning exceeds the number who enter fresh from graduate school. The scientists comprising this reservoir of talent also compete with even more experienced PhDs who are exiting from both industry and the Federal government as funding for basic and applied research is cut.

The AIP survey also examined the connection between career expectations and employment outcomes. When questioned about career goals, one-quarter of the new PhD recipients said they were looking for non-academic positions, another quarter said they would be flexible and the re-

maining half expressed a desire for positions in academe. Among those taking postdocs, more than half want academic positions. The authors note that other AIP data suggest "that the fraction of new physics PhDs who will finally get permanent academic positions in the US is closer to one-fifth than one-half." Congressman Boehlert noted back in July that advanced-degree holders are not alone in experiencing career disappointment. "Join the rest of us," he said.

The AIP survey detects evidence of unemployment and underutilization for bachelor's and master's degree recipients too. From the order in which jobs are taken, the authors infer that individuals with BS degrees begin by looking for work that will enable them to make maximum use of their schooling, but then, unable to find such jobs, they broaden their search. In the end, 57% said they had accepted a position "where they would use little or none of their physics background."

This report may be obtained from AIP, Education and Employment Statistics Division, One Physics Ellipse, College Park MD 20740-3843. Single copies are free, and multiple copies may be ordered.

**DENIS F. CIOFFI**

## Physics at James Madison University Gets a New Life

"There were probably about a 100 better ways to have gotten to this point," said H. Kent Moore, the retired chairman of the physics department at James Madison University, in Harrisonburg, Virginia, "but now we see this as an opportunity to strengthen the department." On 21 July the JMU administration reversed a major part of its January decision and de-

cided not to send letters of termination to the physics faculty (see *PHYSICS TODAY*, March, page 81).

The reprieve came in the form of a prepared statement by Norman Garrison, the interim dean of the college of science and mathematics. Garrison said that he had told JMU administrators of the physics department's "good faith effort to increase teaching productivity" by having some physics faculty teach in other departments and by designing new courses "to meet specific needs."

An internal committee composed of Moore and three other physics professors proposed a redefinition of the major. A five-member external review team that was headed by A. Jerry Benson, the dean of the college of education, and included Judy Franz, the executive officer of the American Physical Society, reviewed the department's plans. The exact status of the major has not been decided as of this writing, but strong consideration is being given to a multitrack system.

The first track would be the traditional preparation for graduate school. Another track may combine physics and engineering and would be undertaken with the assistance of the engineering school of the University of Virginia (JMU and UVA are both part of the state university system). More speculative is a "liberal arts" track, which would be designed for those who want to combine studies of, say, physics and business, or physics and law. Thus, JMU appears to be one of several US universities and colleges now expanding opportunities for undergraduates who want to study physics but do not necessarily wish to pursue an advanced degree (see, for example, *PHYSICS TODAY*, June, page 47).

In addition to restructuring its physics major, JMU has reduced its physics faculty for the 1995-96 academic year from 10 to 7.5 members: Moore retired at the end of August, Raymond Serway is away on a previously planned educational leave and another faculty member is teaching half-time at JMU's College of Integrated Science and Technology.

Meanwhile, a legal suit against the university continues. Filed by non-physics faculty, the suit concerns the process by which the administration attempted to remove the major and the faculty. This dispute about authority and regulations is also being played out elsewhere. As funding for higher education falls (and outside scrutiny rises), faculty layoffs are being considered at other universities in the US and Canada.

**DENIS F. CIOFFI ■**