

MORE SIGNS OF TIGHT MARKET IN SURVEY OF 1991 GRADUATES

The latest survey of physics graduate students, a study produced annually by the education and employment statistics division of the American Institute of Physics under the supervision of Susanne D. Ellis, not surprisingly found many signs of a tighter job market. Among the changes identified in the class of 1990-91:

▷ Fewer foreign students earning doctoral degrees were offered potentially permanent initial employment in the US.

▷ First-year graduate students from abroad enrolled at master's institutions had to rely more than those the year before on personal funds.

▷ Experimenters were just as likely to take postdocs as theorists.

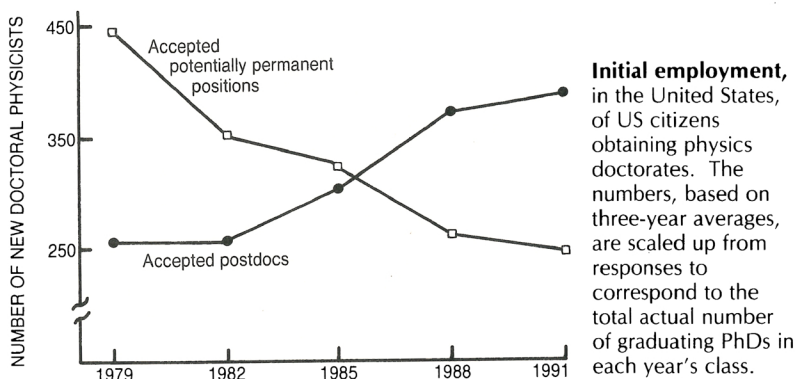
Perhaps the most dramatic trend highlighted in the survey is a long-term one (see figure at right): Whereas in 1979 about two-thirds of new doctorates who are US citizens took potentially permanent jobs and one-third took postdocs, the pattern is now largely reversed. The statistics confirm the general impression that taking a postdoc has come to be the expected next step after earning a doctorate and that obtaining a tenure-track university or college position immediately after graduate school has become quite exceptional.

Among the physics doctorates who did find potentially permanent jobs in 1990-91, industry was the single largest employer: The proportion, 39%, was essentially the same as the year before.

The proportion of PhDs who took jobs in R&D in the broad sense increased by seven percentage points from 1989-90 to 1990-91. "Another change worth noting," the report says, "was the decline in research positions at universities and a corresponding increase in teaching positions at colleges."

Among the US physicists who obtained doctorates in 1990-91, about 9% left the country to obtain positions, up from 4-5% in the immediately previous years. Roughly four-fifths of foreign-born recipients of doctoral degrees remained in the US to work, about the same as in previous years.

Other findings: Foreigners formed a majority in 1990-91 of women earning doctoral degrees in physics; attrition was significantly higher among graduate students at public institutions than among students at private schools; among physics sub-



fields, PhDs in elementary particles and astrophysics were the most likely to take postdocs; mathematical physicists were most likely to accept initial employment overseas.

A total of 1264 doctoral degrees and 674 terminal master's degrees were awarded in physics in 1990-91, and

there were 3278 first-year graduate students.

The complete 1990-91 Graduate Student Survey, by Ellis and Patrick J. Mulvey, is available from AIP, Education and Employment Statistics Division, 335 East 45 Street, New York NY 10017.

NEW MANAGER SOUGHT FOR SANDIA, FOLLOWING AT&T's WITHDRAWAL

The US Department of Energy has issued a request-for-proposal—RFP in government jargon—for a new manager for Sandia National Laboratories, the multipurpose facility based in New Mexico that has as its principal responsibilities development of the nonnuclear components of nuclear weapons and stewardship of the nation's nuclear weapons stockpile. Since the late 1940s, when President Harry S. Truman asked AT&T to manage the lab as a national service, AT&T has presided over the facility on a no-fee, no-cost, no-profit basis, regularly sending senior executives and researchers to Sandia for stints at the lab.

Although AT&T's role in managing Sandia may have seemed increasingly anomalous after the phone company was converted in 1984 from a regulated monopoly into a private corporation, the announcement by AT&T earlier this year that it would withdraw from management of the lab nonetheless caught most people completely by surprise. Venky Narayanamurti, who took early retirement and left the research vice presidency of Sandia to become dean of engineering at the University of California, Santa Barbara, just months before the announcement, told PHYSICS TODAY he had no inkling it even was under consideration.

Narayanamurti says he felt a sense of loss when he heard the news,

mainly because of the uncertainty it would cause employees of Sandia. But he also expressed confidence in the future of the lab, which has an annual budget of \$1.34 billion and 8500 employees. (Research accounts for \$200 million and 1100 employees.)

AT&T traditionally maintained an arms-length relationship with Sandia, taking care to avoid profiting from public service, and so researchers at the two institutions were not much intertwined. Still, the relationship was of some value to both institutions. Sandia benefited from having a top layer of managers from outside who brought perspective, detachment and objectivity. And AT&T benefited in various ways from having some of its top people acquaint themselves firsthand with the kind of research done at Sandia.

Even so, once the question was raised in the inner circles of AT&T's leaders of whether AT&T should continue to serve as Sandia manager, the case for withdrawing quickly came to seem compelling. According to William Brinkman, who currently is head of physics research at Bell Labs and who previously served as vice president for research at Sandia, there was no talk of seeking to renegotiate the Sandia contract with DOE once AT&T's leaders began to focus on the disadvantages of the relationship.

Among the reasons mentioned by

various AT&T executives for the withdrawal are the following:

- ▷ the undesirability of being associated with the nuclear weapons complex, from a public relations perspective, now that AT&T is in a competitive market where it has to attract customers and shareholders and now that the Cold War is over
- ▷ the omnipresent risk of a weapons-related accident
- ▷ possible liability for environmental cleanup costs, with the issue looming ever larger in the public eye
- ▷ the possible appearance of conflicts of interest in dealings between the private telecommunications company and the publicly funded laboratory.

But according to Solomon Buchsbaum, senior vice president for technology systems at AT&T, those reasons are mostly beside the point. The main things, he says, were changes in Sandia's mission to de-emphasize nuclear weapons, so that AT&T's expertise in high-reliability engineering no longer was so relevant, and the need for AT&T—now that it no longer is a regulated monopoly—to focus all its energies on the imperatives of the global telecommunications market.

At the time AT&T announced its withdrawal, the company had been in prolonged negotiations with DOE about a proposed cooperative research and development agreement with Sandia involving soft x-ray projection lithography. After its withdrawal, the negotiations were quickly brought to a successful conclusion. While AT&T executives express skepticism about whether there was any direct link between the two events, there is a perception within Bell Labs that the withdrawal from management of Sandia may have helped with the CRADA.

—WILLIAM SWEET

NATH IS 1993 PRESIDENT-ELECT OF AAPM

The American Association of Physicians in Medicine has chosen a new president-elect, Ravinder K. Nath of Yale University. Nath, who succeeds Richard L. Morin, begins his one-year term on 1 January. He will become president in 1994.

A native of India, Nath earned a BS in 1963 and MS in 1965 at the University of Delhi. He did his doctoral work at Yale, obtaining a PhD in physics in 1971. Nath then joined the Yale faculty, and he is currently a professor of therapeutic radiology and chief of the radiological physics divi-



Ravinder K. Nath

sion in the medical school there. His research deals with the physics of radiation oncology, particularly brachytherapy, a treatment for cancer involving the implanting of radioactive sources in tumors.

Nath would like to see AAPM do more to assist younger investigators who are trying to establish research careers. He also feels that the society should lead the way in setting higher standards for the clinical training of medical physicists "to ensure the highest possible level of care in hospitals."

ASTROPHYSICAL JOURNAL DISTRIBUTES VIDEOTAPES

This year's 10 July issue of *The Astrophysical Journal* included for the first time a videotape containing motion picture illustrations for some of the papers in that particular issue. According to Helmut A. Abt of Kitt Peak National Observatory, the editor of *The Astrophysical Journal*, the reception has been good so far.

The tape, playable on an ordinary VCR, was provided to all 3000 subscribers of the journal at no extra charge. US subscribers got it in the standard VHS format, European subscribers in PAL or SECAM, the current European television standards.

Abt says he got the idea of providing tapes from recent general meetings of the American Astronomical Society, where usually a dozen or so presentations have included video material. Often such material contains information that is not readily discernible in still photographs. "Examples are hydrodynamic calcula-

tions (for example jets moving through a medium), n -body simulations (for example interacting galaxies, clustering and galaxy formation) and lapse-time photography (for example solar activity and sequences of spectra of an evolving or orbiting object)," Abt explained in an introduction to the issue.

Abt told PHYSICS TODAY that it cost \$6-7 to produce each cassette and that each author's institution was asked to contribute \$1000; the balance of the total cost, which was about \$20 000, came out of the journal's general budget (of which the balance represents one-half of a percent).

Abt said the journal's budget anticipates that videocassette supplements will be provided twice a year from now on, and CD-ROMs containing computer-readable data sets also will be distributed starting next year for the first time. He points out that astronomers rely heavily on catalogues of fixed celestial objects, and that CD-ROMs are an especially handy way of keeping such catalogues at one's fingertips. Also, he said, authors often have a lot more data than can be presented in a printed journal article.

APS CREATES NEW AWARD FOR THESIS RESEARCH

The American Physical Society has established a new award to recognize "doctoral thesis research of outstanding quality and achievement in atomic, molecular or optical physics." The annual award consists of \$1000 and is sponsored by the APS division of atomic, molecular and optical physics.

The award is open to doctoral students at any university in the US or abroad who defended their theses successfully less than two years before the nomination deadline. Finalists for the award will give invited talks at the division's meeting. The first thesis award will be presented at the division's next meeting, to be held in Reno in May 1993.

IN BRIEF

The American Geophysical Union has published a pamphlet describing notable developments in geophysics during the past year. For copies of *Geophysics News: 1991*, contact AGU, 2000 Florida Avenue NW, Washington DC 20009. ■