WOMEN IN SCIENCE

# China Debates Big Drop in Women Physics Majors

**Women made up more than one-third of the physics majors at top Chinese universities in the 1970s. Now their numbers are far below those in the West. What happened?**

**BEIJING**—During much of the 1970s, more than one in three physics students at two of China's top universities was a woman. Today, the number has plummeted to fewer than one in 10. This shift toward male domination of the field—the opposite of the trend in the United States—is prompting concern among many academics. But to others, it simply reflects a return to a more normal gender balance in physics in the generation after China began to open up to the West.

The trend is striking. For several years in the 1970s, women represented an average of 42% of the undergraduate physics majors at Beijing University* and 37% at Nanjing University. By the 1990s, however, women's share of the total was a mere 9% and 8%, respectively. In contrast, the percentage of women U.S. physics majors stood at only 9% in 1978 but has climbed steadily and reached a record high of 21% in 1999.

"It's a backward movement that must be checked," says Wu Ling'an, a senior physicist with the Chinese Academy of Sciences (CAS), about the Chinese numbers. Women are needed for their skills as well as for the different perspectives that they may bring to a problem, says Wu, who is helping plan an international conference on women in physics next March in Paris.

But other Chinese physicists say that the earlier numbers were greatly inflated. The government needed to produce large numbers of technically trained workers, and it had the means to do so by dictating what students would be allowed to study. "Many students who scored the highest marks in entrance examinations were assigned to study physics even if they did not apply for it," recalls one Beijing University physics graduate who had originally planned to major in mathematics. Li Lin, a CAS academician who trained in the United Kingdom after World War II, believes that these factors merged with another force driving women into physics: the desire to assert their equality in China's new society by breaking into fields traditionally closed to them.

**Shifting gears.** Chinese physicist Wu Ling'an says decline in the number of women students (left, below) must be reversed.

But getting a degree didn't mean that women were given the same job opportunities as their male counterparts. Instead, traditional assumptions about gender roles meant that women often were assigned to low-level positions that wasted their talents, says Li Fanghua, one of the two women academicians at the Physics Institute of CAS. The late Xie Xide, a pioneering woman physicist and former president of Fudan University, pointed out this inequity in the 1960s, a decade before the presence of women physicists had reached its peak. But it was only after the country began to open up its economy to the West in the 1980s that the numbers dropped. Within a few years they were down to about 12%, and by the 1990s they had dipped into single digits. (At Qinghua University, another elite school, the share of women physics students has held steady at about 10% ever since the department was reinstated in the late 1970s after the Cultural Revolution.)

Wu deplores the sharp decline, blaming it in part on what she says is the media's current message to women: "It's better to choose a good husband and take care of the kids at home rather than working as a man's equal in the office or lab." The education and employment systems reinforce that message, she adds, by making it hard for women to return to the scientific workforce after having a child.

These messages are particularly powerful in steering women away from the physical sciences, say several female physics graduates, because they feed on existing stereotypes that paint an unflattering picture of physics as a career. "I loved physics in high school," says Gu Dongmei, who chose a career in administration after graduating from Beijing University in 1988 as a physics major. "But after 4 years at the university I realized that physics could be too much of a challenge for a lifetime career."

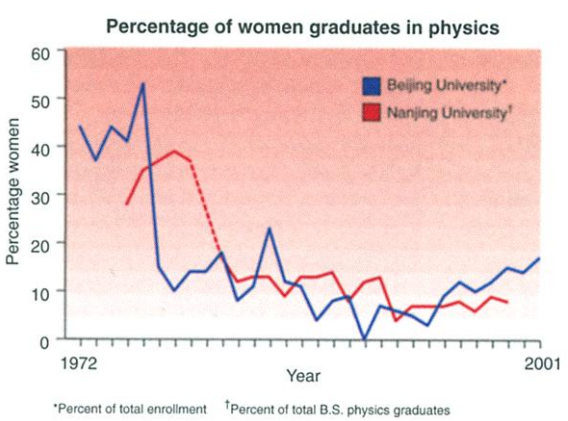
Even those who remain in the field often choose teaching over research, says Xie Yicheng, who gave up a research job at the CAS high-energy physics institute to become a professor in the applied physics department at Beijing Industrial University. Higher education, she notes, offers a more flexible academic schedule, regular vacations, and greater opportunities for interaction with colleagues and students.

Wu says that the rest of society could easily accommodate those needs "by providing more day-care centers and making it easier for women to go back to school after going on maternity leave." But Li Fanghua warns that even small changes could be difficult without a major rethinking of how society views working women. "It's not so much discrimination as it is a legacy of feudal stereotypes," Li says about performance reviews involving academic women. "It's something habitual and invisible." Those invisible obstacles, all too familiar to women scientists in Western countries, suggest that it may be a long time before China relives an era in which women poured into physics.

—YANG JIANXIANG

Yang Jianxiang writes for *China Features* in Beijing.

* This spelling of Beijing and Qinghua universities is consistent with the style used by the Chinese government and national media, although the universities themselves prefer Peking and Tsinghua.

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