

## IUPAP Women In Physics Working Group

June 6-7, 2000

College Park, Maryland, USA

Formed by a resolution of the Atlanta General Assembly, the Working Group on Women in Physics held its first meeting on June 6-7, 2000, at the American Center for Physics in College Park, Maryland. Nine of the eleven members were present: Marcia Barbosa (Brazil), Chair; Yosr Gamal (Egypt); Katharine Gebbie (USA), Beverly Hartline (USA), Elisa Molinari (Italy), Barbara Sandow (Germany), Herwig Schopper (Switzerland), Nandini Trivedi (India), Ling-An Wu (China). Two members were unable to attend: Hidetoshi Fukuyama (Japan), Heh Jeong Moh (Korea). Judy Franz, Executive Officer of the American Physical Society, provided valuable support as IUPAP Liaison.

The Working Group was pleased that IUPAP President, Burton Richter, was able to attend much of the meeting and offer guidance on IUPAP's expectations. The Group also appreciated the time and good counsel of Roman Czujko and Rachel Ivie of the American Institute of Physics Statistical Research Center. Jacqueline Beamon-Kiene is to be thanked for her excellent organization of the meeting.

In keeping with its mandate to survey the situation for women in physics and suggest ways to improve it, the Working Group reported on the status of women in physics in 19 countries. These reports highlighted the complexity of the problem and the difficulty in obtaining comparable data from countries with quite different cultures and different terminologies.

For several countries, such as [Hungary](#) and the [Slovak Republic](#), it was difficult to get any information; for others, such as [Israel](#) and [Switzerland](#), exact statistics were not available, but the situation was clearly deplorable.

In most countries, the percentage of women in physics decreases markedly with each step up the academic ladder and with each promotion into higher level positions.

Even in countries like [Poland](#), where close to 50% of the work force is female, the number of women in high level positions in industry, education, and national committees is very low. In Germany and Italy, as throughout the European Union, there remain remarkably few women in top jobs despite their increasing participation in doctoral and postdoctoral studies.

In China, about 9% of the full professors are women, as is true for almost all the sciences. Salary levels are the same for men and women, and women are viewed as equal to men in the cities, although not in the rural areas. An issue of particular concern is that the number of women taking physics courses and receiving degrees is decreasing, possibly due to competition from higher paying jobs in other fields in industry.

The situation in Bulgaria and the Czech Republic is changing rapidly with apparent increasing percentages of women.

Despite cultural differences, the overall situation for women in physics in [India](#), [Egypt](#), [Brazil](#), [Latin America](#), [Uruguay](#), [Bolivia](#) and [Argentina](#) is much the same. Fewer women than men are receiving degrees in physics, and the percentage of women in physics decreases in higher level positions.

The most complete data are for the [United States](#), as presented in the AIP Publication Number R-430. According to this report, the percentage of physics bachelor's degrees awarded to women has more than doubled in the past 25 years, and the percentage of physics Ph.D.s awarded to women has increased more than fourfold. Although this sounds remarkable, the percentages are still very low: In 1998, just 10% of physics bachelor's degrees, 20% of physics master's degrees and 13% of physics Ph.D.s were awarded to women as compared with 15% of Ph.D.s in mathematics, 30% in chemistry, and 45% in the life sciences. There is no convincing explanation of why the rate of change in physics is so much lower than in other fields. The percentage of women faculty members at each rank is at least as high as the percentage of women earning PhDs at relevant times in the past. Salaries for men and women are much the same, except in industry where they are slightly higher for men. The situation is much the same in [Canada](#).

Suggested barriers to women's participation in physics include subtle discrimination, blatant preferential treatment of men, lack of role models and mentors, higher paying jobs in other fields, uninspired teaching, the perception of scientists as antisocial nerds, and financial constraints that favor the status quo.

To highlight the underrepresentation of women in physics and to recommend strategies for removing the barriers they face, the Working Group decided to sponsor an International Conference on Women in Physics in March of 2002. Strategies were developed for obtaining comparable data from 10 countries on relative numbers of women awarded first and higher level degrees and on the ratio of men to women in upper management positions in the top research institutes and funding agencies.

The Working Group is scheduled to hold its second meeting on 9-10 February 2001 in Geneva.