

# Women and Physics Research in Italy

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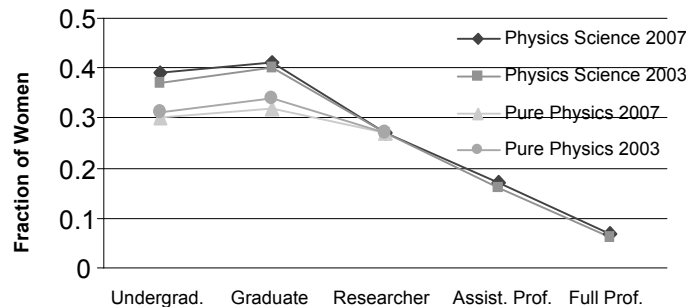
**Abstract.** Physics research in Italy is mostly carried out within several government-funded public research institutions, in close collaboration with the academic world. A picture of gender issues in physics research and teaching in Italy is presented.

**Keywords:** science and society, women in physics research, careers and gender in physics and science, Italy

**PACS:** 01.75.+m, 01.85.+f

Physics research in Italy is mostly carried out within government-funded public research institutions, in close collaboration with the academic world. During the last few decades, women have been the majority of the graduate population in Italy (58% in 2007), with the highest percentages in the humanities, arts, law, and health, according to annual statistics from the Italian Ministry of Education, Universities, and Research (MIUR; <http://statistica.miur.it/>). Data from MIUR show also that, in 2007, 41% of the degrees in physics science (i.e. pure and applied physics, history and didactics of physics) and 32% of the degrees in pure physics were awarded to women (they were 40% and 34%, respectively, in 2003).

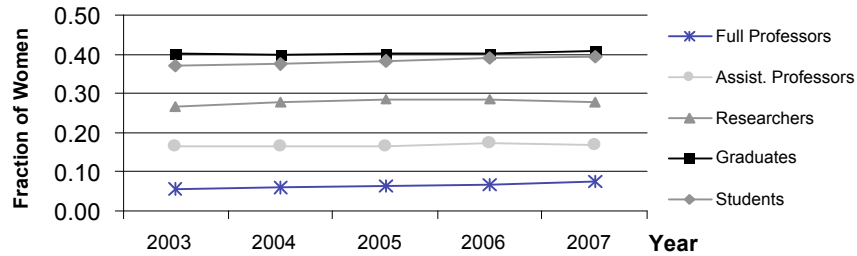
In spite of being as successful as their male colleagues in their studies, young female physicists have fewer chances of being hired in physics research and university teaching positions. Even worse, their career development is significantly more difficult, as shown by the decreasing number of female employees found at the upper levels of the hierarchy. Figure 1 shows the fraction of women among undergraduate and graduate students in physics science and in pure physics in 2003 and 2007, compared with researchers, associate professors, and full professors in physics science. The graph of career development in universities shows the typical gender behavior, with women occupying a greater percentage of the lower levels. No remarkable difference is observed between 2003 and 2007.



**FIGURE 1.** Fraction of women among undergraduate and graduate students in physics science and pure physics, compared with researchers and professors, in 2007 and 2003.

Among the university professors and lecturers with permanent positions in the Italian faculties in 2007–2008, the percentage of women was 33% (16% full professors, 34% associate professors, 46% researchers), lower than the European average. In the same years, the percentage of women with permanent positions in physics science faculties was 17% (7% full professors, 18% associate professors, and 28% researches).

Figure 2 shows no significant difference in the female presence among undergraduate and graduate students, researchers, and professors in physics science in Italy, each year from 2003 to 2007. Women physicist statistics for major research institutes follows very similar trends, although with slightly higher percentages.



**FIGURE 2.** Fraction of women among undergraduate and graduate students, researchers, and professors in physics science in the Italian universities over time, 2003–2007.

In 1997 the European Union promoted an explicit Equal Opportunity policy, based on “gender mainstreaming,” with the ultimate goal of achieving gender equality. Public debate on gender disparities in research positions began recently in Italy, mostly thanks to the concurrent publication at the European and international levels of official statistics, and the naming of Equal Opportunity Advisory Committees (Comitati per le Pari Opportunità, CPO) in public research institutions. CPO must exist by law in government-funded organizations in Italy, among which universities and public research institutions are included.

Actions should be taken to improve working conditions and to remove or reduce possible obstacles to a true equal opportunities practice. Italian law requires Affirmative Action Plans to be approved and deployed by public organizations. The plans define the strategy adopted by each institution to promote the systematic integration of gender equality into all policies and programs, using gender mainstreaming. The plans address the areas of cultural awareness, statistical analysis of gender data, equity in administration and managing processes, quality of the work environment, and harmonization of work and private life. An important part of an organization’s CPO activity is devoted to propose the contents of its Affirmative Action Plan and to monitoring its fulfillment, which is the most critical aspect, since no obligation of accomplishment is prescribed by law.

Nevertheless, the situation of women in research positions in every area of physics has not improved significantly in Italy in the last few years: many cultural and organizational actions are still needed to eliminate difficulties in career development and disproportionate gender distribution in leading administrative and research positions, and to encourage young women to undertake and pursue scientific and technical professions.

Gender equality in physics research positions is still an area of concern, as is the general decrease in the interest of students, both male and female, enrolled in hard science studies. The ever-increasing difficulties to access research positions must be included in any analysis of the declining interest shown by students to approach physics and a scientific career.