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Will New Gender Policies Stop the Decrease of Women Physicists in Portugal?

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Abstract. The present context of women physicists in Portugal is discussed, updating our report for the 2002 IUPAP International Conference on Women in Physics, in which the 30 years prior to 2000 were analyzed.

Keywords: Portugal, women in physics

PACS: 01.75.+m, 01.78.+p

One of the United Nations' goals for this millennium is to promote gender equality and the empowerment of women. Following international guidelines and policies, several national programs devoted to women in society, citizenship, and gender issues have been implemented in Portugal. After decades when it was fairly easy for the best women students to follow a career in physics in Portugal, the study presented at the IUPAP International Conference on Women in Physics in 2002 [1] hinted that the trend was changing in Portugal: Nowadays, academic promotion implies a very active international career, and usually mobility, which has caused some difficulties for women seeking to reconcile a scientific career with family life.

Between 2000 and 2010 two important measures were introduced in Portugal that will likely affect women in physics: affirmative action in the social and political fields and new laws mandating maternity leave for both mothers and fathers. The parental leave laws will likely have the stronger effect on women in science, by leveraging opportunities for both mothers and fathers during childrearing [2]. As of 2010, however, any impact of these measures is not yet evident for women in physics departments at Portuguese universities. Figure 1 compares the ratios of women physicists in physics departments at Portuguese universities in 2002 and 2010. Although the total number of physicists increased by 10%, there was a decrease in women.

During the last two decades the Portuguese Science and Technology Foundation (FCT) has emphasized the development of scientific capabilities of universities and research institutes [3], investing in three main areas:

R&D funding—funding of research projects by the FCT grew sixfold from 2000 to 2008 across all scientific domains;

Programa Ciência—A program founded in 2007 to promote professional integration of postdoctoral researchers into the national science and technology system by awarding them five-year work contracts with national laboratories, universities, and research institutes;

PhD and postdoc funding.

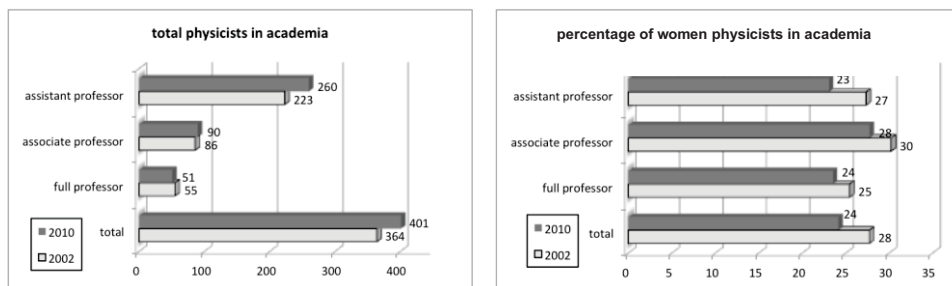


FIGURE 1. Changes from 2002 to 2010: (left) Total numbers of physicists at various levels in university physics departments; (right) Percentages of women at various levels in university physics departments.

The last two measures have had impact in worldwide mobility, attracting foreign researchers at the PhD and postdoctoral levels to Portugal. To our knowledge, the funding calls between 2000 and 2010 had no explicit recommendation on gender policy or affirmative action. The general growth in PhD grants awarded to women in the last decade has mostly been in the fields of engineering, medical sciences, humanities, and social sciences. Table 1 summarizes by gender the total numbers of active PhD grants awarded by FCT in 2005 and 2009. The distribution of principal investigators (PIs) by gender in 2000 and 2008 is shown in Table 2.

The last decade allowed not only the growth of funded projects, but also a refreshing of the scientific human potential, with a clear increase of female representation. In exact/pure sciences, the total number of PIs grew from about 70 to 300, with the women/men ratio keeping mostly constant at around 30%. But when we compare this ratio with other fields, the picture does change significantly.

TABLE 1. Evolution of the total number of active PhD grants by gender in all R&D fields

	2005	2009	Variation
Women	243	371	+52 %
Men	305	434	+42 %
% women	44%	46%	2%

TABLE 2. Total number of principal investigators in FCT projects by gender in all R&D fields

	2000	2008	Variation
Women	165	1,058	+641%
Men	415	1,764	+425%
% women	28%	37%	+9%

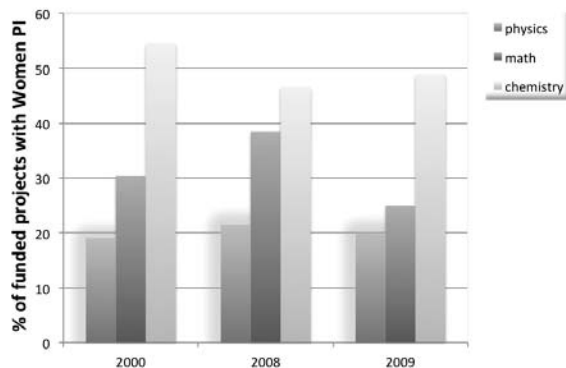


FIGURE 2. FCT-funded projects with women principal investigators by discipline and year.

The ratios of women versus total PI number in the fields of medicine/health, agriculture, and social studies are on the order of 50%. The less-participated-in scientific fields are engineering and technology (26%) and the pure sciences (31%). Pure sciences seems to have reached a plateau. The lists of FCT-funded projects in physics, math, and chemistry seem to confirm the stagnation in these fields, as hinted for exact sciences: 20% of projects in physics with women PIs in the last decade (Figure 2).

Medical physics is a well-represented field for women in physics in Portugal, and given the previously mentioned trends in health and medical sciences, this is not surprising. In 2010, 58% of members of the Medical Physics Division of the Portuguese Physical Society were women. This trend exists throughout Europe, except in Germany, where just 19% of the medical physicists in 2008 were women [4].

The most recent National Equality Program reinforces the notion of *equality of gender* as an important factor for national competitiveness and development, and acts (1) by reinforcing transverse gender representativeness in social and political environments, (2) through affirmative action in areas where women face the most discrimination, and (3) by introducing the perspective of gender in all areas of discrimination. For the first time, measures are proposed for the fields of Scientific Research and Society of Knowledge, as one of the 14 strategic fields of action.

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