Natural science in Belarus: Part 1 – Status of women physicists

Cite as: AIP Conference Proceedings **2109**, 050007 (2019); https://doi.org/10.1063/1.5110081
Published Online: 03 June 2019

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Abstract. The status of women physicists and their progress in the last three years is considered in this paper. Statistics indicate that although more women are studying for PhD and D.Sc. degrees and they account for more than 50% of researchers in the natural sciences, the number of women physicists occupying leadership roles in science and scientific management is negligibly small. Some reasons for the evident underrepresentation of women in the decision-making structures are analyzed.

INTRODUCTION

Gender equality, particularly in science, is now actively discussed in the media in Belarus. It is well-established that Belarus traditionally is highly ranked in the world statistics of gender equality, with a gender equality index as high as 32 in 2016 [1]. It is also well-established that in modern Belarus the level of education of women as a whole is higher than that of their male counterparts. Among employed women, about 55% possess high school and secondary education, while for men it is only about 37%. Statistics show that about 60% of students in higher education institutions and 54% in secondary schools are women. Moreover, recently Belarus approved a national action plan on gender equality for 2017–2020. Although this issue is of particular interest to the state and the media, there are still many challenging tasks in this field facing Belarus.

CURRENT SITUATION

All these aspects are well reflected in the status of women in physics in the country. Statistics show that the number of women who choose physics as a specialty has remained at the same level (30%) for the last seven years. As for doctoral studies, statistics for the period 2010–2015 show that the percentage of young women (with respect to young men) just starting doctoral studies (about 40%) remains the same. However, the relationship for those who successfully finished doctoral studies for the same period is not so optimistic, because the quantity of young women who finally obtained doctorates falls by as much as 30% [1, 2]. The contribution of women finalizing their habilitation papers (D.Sc. degree) in physics is even more modest as it reaches only 15% with respect to men. Comparison of the percentage of employed women researchers and women possessing PhD and D.Sc. degrees in the natural sciences in Belarus with some neighboring countries are presented in Fig. 1 [2–5].

Nevertheless, the data confirm that the interest in research activity in physics among young women is very high. However, it is obvious that at some point, mainly during their doctoral studies, the scientific careers of women physicists slow down. In general, this happens because of the new additional duties of women related mainly to caring children, which traditionally is considered women's business. For that reason, many young women with high professional potential inevitably lag behind their male counterparts. In addition, the problem of the so-called "maternal wall"—the expectation that a woman's job performance will be affected by her taking a leave of absence to have children [3]—has still not been eradicated. That is why employers do not consider them as real candidates for leading positions in science, as well as in scientific management.

As a result, the number of women physicists occupying leadership roles such as top-level management of institutes, departments in the universities, and the like is negligibly small. Noticeably, there are just a few women

Women in Physics
AIP Conf. Proc. 2109, 050007-1–050007-3; https://doi.org/10.1063/1.5110081
Published by AIP Publishing. 978-0-7354-1841-7/$30.00

professors specializing in physics in the entire country. In other words, women are definitely underrepresented in decision-making structures. Consequently, young women choosing physics as the field of further scientific activity face a lack of perfect examples of successful women in top scientific positions as “role models” for their own professional and personal growth. Such a disproportion is particularly apparent when taking into consideration that according to gender statistics from a UNESCO science report [3], female researchers in the natural sciences in Belarus constitute at least 50% (Fig. 3).

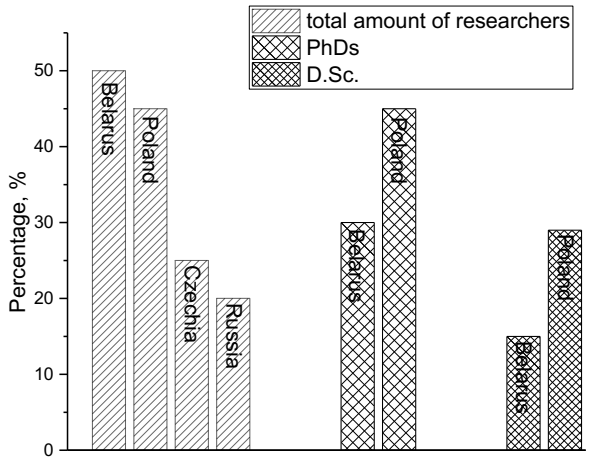

FIGURE 1. Comparison of the medium percentage of employed women researchers and women possessing PhD and D.Sc. degrees in the natural sciences for Belarus and some neighboring countries. Data from Ref. 3.

Nevertheless, in studying the change in the status of women physicists in Belarus, it should be noted that gender dynamics for last few years have been quite positive. For example, women physicists in Belarus now actively participate as key managers and leading scientists in large international and European projects in such programs as Horizon 2020, the European Union (EU) Framework Program for Research and Innovation; the Graphene Flagship, the EU’s Future and Emerging Technology Flagship; the Erasmus Program, an EU student exchange program; Trans-European Mobility Programme for University Studies (TEMPUS), European Cooperation in Science and Technology (COST), and so on. The participation of Belarus in such programs allows women physicists to find fulfillment and realize their professional ambitions. It is important that because of such programs, salaries for women physicists are gradually becoming the same as those for their male counterparts, a situation that was not like that even a few years ago.

An important and landmark event in 2016 was that a woman professor in physics, Natalia Strekal from Grodno State University, was named Woman of the Year in Belarus by the For Women in Science Program of UNESCO and the L’Oreal Corporate Foundation.

The evident success of Belarusian women physicists in scientific leadership is the best indicator of their excellent potential, which should be used for the good of the country. However, some additional efforts are needed for the realization of such potential. On one hand, Belarusian women physicists themselves should promote their professional achievements and enhance cooperation inside the group. Along the way, the experience of women physicists from other countries should be studied to enhance international cooperation with national groups and to achieve step-by-step change in corporate culture, thus breaking existing discriminatory stereotypes and cultural restrictions.

On the other hand, the Belarusian scientific community should support and follow some of the basic commitments of the Women in Science Manifesto [6], breaking down the barriers that prevent women scientists from pursuing long-term careers in research. Two of these commitments are particularly important for women physicists, namely, (1) prioritizing women's access to senior and leadership positions in science in Belarus and (2) promoting gender equality through participation and leadership in symposiums and scientific commissions such as conferences, committees, and board meetings. The scientific community together with Belarusian industry should also take the initiative of specifically targeting financial support for women conducting research in physics. These steps will certainly provide the justified hope for the improvement of gender equality in the physics community in the country.

NOTE

As a result of several circumstances, two papers on Belarus were submitted separately. With the consent of both authors, the editors have elected to present both papers.

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