

Women in physics in Slovenia

Remškar Maja¹, Jurečič Vida¹, Tkalec Uroš^{1,2}, Šetina Barbara³, Conradi Marjetka³

¹Solid State Physics Department, Jožef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia.

²Institute of Biophysics, Faculty of Medicine, University of Ljubljana, Vrazov trg 2, 1000 Ljubljana, Slovenia.

³Institute of Metals and Technology, Lepi pot 11, 1000 Ljubljana, Slovenia.

Independence declared
in 1991



Population of Republic Slovenia (June 2023): 2,119,701
Male/Female ratio: 0.95

Gender related changes in the society:



The 1st female president of
Republic Slovenia (2022):
Dr. Nataša Pirc Musar



The 1st female president of
Slovenian Parliament (2022):
Urška Klakovčar Zupančič, MSc.

The research in Slovenia is mainly financed and regulated through the public **Research Agency of Republic Slovenia (ARRS)**.



Dr. Špela Stres, a new vice-president of Slovenian Research Agency is physicist.

The Ministry of Higher Education, Science and Innovation is responsible for implementation of the *Research and innovation strategy of Slovenia (RISS) 2011-2020*, as well as for the UNESCO L'Oréal Scholarships. Under the Ministry, there is also **The Commission for Equal Opportunities in Science**, which is active in promotion of gender equality.

In the field of Natural sciences, Mathematics and Statistics, which is by far the most popular field in Europe, only 27 women and 38 men got a doctorate in Slovenia in 2018.¹

In Nov. 2021, *The Act on Scientific Research and Innovation* has been adopted by the Parliament of the Republic of Slovenia. The adopted law, with the establishment of the National Council for Ethics and Integrity in Science, also addresses ethics and integrity in science and equal opportunities.

The Commission assists the Ministry in supporting promotional activities for the implementation of the principle of **equal gender opportunities**, in following the principle of **balanced representation of both sexes in the appointment of working bodies** within the competence of the Ministry responsible for science, **and in the preparation of legal acts and other strategic documents that deal with equality of gender opportunities** and the implementation of the role of women in science in Slovenia.

Women in Slovenia can study **physics and astrophysics** at 4 universities in Slovenia: University in Ljubljana, University in Nova Gorica, University in Maribor, and at University of Primorska.



- **The Society of Mathematicians, Physicists and Astronomers of Slovenia** includes members in all educational institutions and academia, national laboratories and industry.
- Organization of competitions in Mathematics, Physics and Astronomy among primary and secondary school pupils at regional, national and international levels.

The women's committee of DMFA led by Dr. Marjetka Conradi was established in 2016 with the purpose to promote the study of mathematics, physics and astronomy among girls and women and to encourage women to pursue active careers.

The women's committee advocates for preserving **the historical memory of the achievements of female scientists**, for equal opportunities and equal treatment of both sexes both in studies and in the career path and in obtaining research funds, for family-friendly scientific careers, and for the transparency of recruitment procedures in the academic world and the distribution of research funds.

IUPAP: **WG5-Women** in physics

Marjetka Conradi, Slovenia

Email: marjetka.conradi@imt.si



Female physicists employed at the Jožef Stefan Institute (JSI), which is the main research institution in physics in the country, are involved in the **European project Athena** (Grant agreement No. 101006416): Implementing gender equality plans to unlock research potential of RPOs and RFOs in Europe.



athena
gender equality to unlock
research potential

Dr. Romana Jordan,
coordinator of Athena at JSI is
physicist.



Past activities, which slowly transformed to joint gender-equality movement.

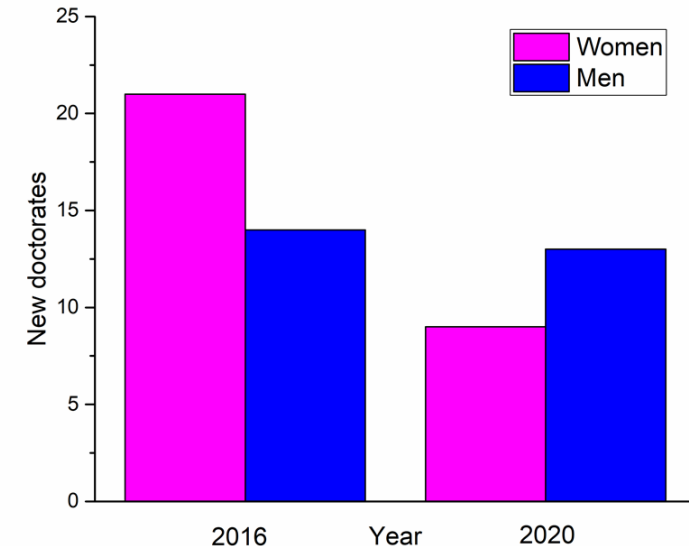
In 2002, the **Informal Network of Female Physicists** was established, which works now in the frame of Association of Mathematicians, Physicists and Astronomers of Slovenia and includes also some female physicists employed at the JSI. Women working in nuclear science participate in the network Nuclear Society of Slovenia - **section Alfa**. There are no external networks and alliances of research organisations in Slovenia with an outstanding reputation on gender equality.

Jožef Stefan Institute (the main research institute in physics)

In 2020, the proportion of women in total employment (1119) was 36.5 %. Among 856 researchers, 30.1 % were women. 75 % of these women were employed in Natural sciences and 25 % in Engineering and technology. 46 % of female researchers are young (25-34 years), 37 % in age period (35-44 years), 13 % in age period (45-54), and 13 % older than 55 years.

Among PhD candidates, 39.1 % were women, while among selected new PhD students 30.8 % were women. Among all active PhD students, 35.8 % were women in 2020.

In 2016, 60 % of all graduations were obtained by women, while in 2020 only 37.5 %. All women graduated in Natural sciences, mathematics and statistics, while 33.3 % of men graduated also in Information and Communication Technologies.



Effect of increased work load of women during COVID pandemic?

According to the She Figures 2021¹, Slovenian female researchers are internationally less mobile (for 10 %) than male researchers in the postdoctoral period, which is the 4th smallest mobility rate in Europe, after Germany, Slovakia and Lithuania.

Conclusions:

- ❖ The gender-equality plans were built as an answer to Horizon Europe demands to make them mandatory for universities and research organizations.
- ❖ Female physicists actively participated in construction of gender-equality plans for their institutions. **Their specific challenges of female physicists were drown in gender statistics.**
- ❖ The proportion of female students has increased in recent decades, but on the other hand, there are hardly any full-time professors, as well as female heads of program groups and project leaders.
- ❖ The gender balance in decision-making positions and professorships with adequate awareness-raising and training is not promoted in Slovenia.
- ❖ Achievements of female physicists are frequently underrated and not awarded.
- ❖ Research Agency: The field of gender equality is well regulated, but there is no evaluation of the legislation implementation or results of the promotion activities on gender equality in education and research organizations.
- ❖ The majority of awards from public money are given to men.

Reference:

1. She Figures 2021, European Commission, Directorate-General for Research and Innovation, DOI: 10.2777/06090