Promoting women in physics: challenges and opportunities

Gender inequality in STEM (science, technology, engineering and mathematics) has been making headlines in the past few years. According to the 2015 UNESCO Science Report: Towards 2030: women account for 53% of the world’s bachelor's and master's graduates in STEM. However, these numbers fall at the PhD level with women making up 43% of PhD students but only 28% of researchers. The disparity is even more pronounced in physics where, according to a 2017 study published by American Institute of Physics, 20% of physics PhD students were female and 10% of researchers.

In order to address this issue within the Weizmann Institute of Science, the Institute recently hosted the first workshop on gender inequality in physics. Participants included physicists and sociologists, mainly women, who are involved in promoting gender equality in leading universities and research institutes worldwide.

Over the course of several days, current data and research concerning the incorporation of women in physics were presented. Discussions included the various challenges and roadblocks ahead as well as how to approach them. A main point of discussion was the worldwide trend of increasing the incorporation of women in academic STEM subjects, and what steps have proven beneficial.

The workshop was planned by the physicist Prof. Yossi Nir, from the Weizmann Institute, and several colleagues. He shared what led him to organize such an event: “The first woman introduced to the tenure track in the faculty of Physics, Prof. Nirit Dudovich, took place 54 years after founding of the faculty.Today there are only three female scientists in the faculty. Throughout the years, including my tenure as dean, I tried to promote this subject by myself. Three years ago, I enlisted the sociologist Dr. Meital Iran Yona to join me in researching this issue. She brought her vast knowledge of gender sociology and helped me further understand the causes of gender inequality in the faculty. A collaboration between the two of us led to this workshop and to us receiving a grant from the Israeli Ministry of Science for further research. This is the first time that researchers at the Weizmann Institute have received a grant in the field of sociology. Much is to be done in researching, and in the end promoting, the involvement of Israeli women and girls in physics. The numbers speak for themselves: in high school 38% of students learning high levels physics are female. At the university level, this drops to 20%. In Israeli universities, only 6% of research physicists are women. One encouraging figure is that currently there are 11 women in tenure track positions in the various universities”.

“Our goal”, adds Prof. Nir, “is to increase awareness to this issue and to influence faculties and committees to act. We need to gather and analyze data, hopefully leading to changes in the admissions process. The more female physicists there are, the more role models exist for girls wanting to join this field. The road may be long, but our goal is to get to the point where gender inequality is a non-issue”.

The first female speaker in the workshop, Prof. Marta Losada, born in Colombia and currently the Dean of Sciences at New York University in Abu Dhabi, presented the state of gender inequality in Latin America. She also shared that since the age of 15 she knew she wanted to be a physicist. Nothing stood in her way, including being the only female in all her undergraduate courses. She continued to graduate school, and received her Ph.D. from New York University. She conducted her post-doctoral studies in the European Organization for Nuclear Research (CERN), located near Geneva. Not long after, Losada was elected to be the President of the University of Bogota in Colombia. At the end of her tenure, she accepted her current position in Abu Dhabi.

“My life in Bogota was wonderful”, she shares. “And I did not know a lot about Abu Dhabi. The first time I was in Abu Dhabi was when I travelled there for the interview. I was very impressed by both the university and the city itself, which is very modern and made up from a multi-national population. There are students from 120 different countries studying in the university, with tuition, as well as room and board, subsidized by the local government. There is no ethnic or national majority, with locals consisting of about 15% of the total student population. My job, as the Dean of Sciences, is to build and develop the infrastructures for research. As far as gender equality goes, the majority of students are women, as is the Vice President. The fact that they chose me as a Dean points to a larger trend towards gender equality.”

Losada believes that the fact that Israel is a small country makes addressing this issue easier. She also has personal ties to the Weizmann Institute, having collaborated with Prof. Nir in the past, and hopes to do so again. “The Weizmann Institute of Science is a wonderful place to conduct scientific research. The students here are exceptional and I always enjoy visiting.”

Workshop organizers: Prof. Yossi Nir, Dr. Meital Iran-Yona, Prof. Nirit Dudovich, Prof. Avishay Gal-Yam, and Prof. Marika Taylor from University of Southampton.