

THE JOURNEY: WOMEN IN PHYSICS IN SOUTH AFRICA

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INTRODUCTION

The progress from 2005 to now is evident. The journey has been a slow uphill with numbers increasing in the country. Government structures have recognized the importance of women in science that the Department of Science and Technology (DST) have acknowledged the success of women in Physics in South Africa (WiPiSA) by continuous funding. Different universities have graduated a woman in physics PhD while there are women professors in different institutions. The president of the South African institute of physics (SAIP) is a woman, the second woman to be president of the organization since its existence more than 55 years ago. Some few women have taken the positions of head of physics department with a few becoming top researchers with their own funding. We call this the journey to a brighter future for more women in physics in South Africa.

GOVERNMENT SUPPORT

The DST has provided financial support since the establishment of WiPiSA in 2005. A number of activities aimed at empowering young girls and women in physics in South Africa were initiated through DST funds granted to WiPiSA. Listed below are some of the activities:

WiPiSA Departmental Lunches

In the past few years there has been a call for institutions to organize departmental lunches, whereby department of physics at various universities apply for funds to have women and students in physics gathered together for discussions over lunch. Amongst other objective of the lunch sessions, is to encourage and stimulate an interest in girls and women to continue studying physics. Also, to support girls and women to work in physics-related careers and assist them in overcoming obstacles and barriers associated with their studies and workplace respectively. A number of institutions have embraced and participated in the initiative. Figure 1 below shows a group of women physicists in one of institutions in SA.



Figure 1: A group of women physicists during WiPiSA departmental lunches

Plenary Speaker Invited by WiPiSA during SAIP Annual Conference

WiPiSA made a proposal to the South African Institute of Physics (SAIP) to consider increased participation of women in physics at the national conferences. It was proposed that “a significant number of women should be included as plenary speakers and session chairs during the annual SAIP conferences”. The initial participation in this regard was when WiPiSA was granted a slot to deliver a plenary talk focusing on issues related to women in physics during SAIP conference in 2012 [1]. The first WiPiSA plenary lecture titled “**Widening the net: Attracting and keeping women in physics**” was presented by Prof Diane Grayson (then WiPiSA working group member). In 2013 the WiPiSA plenary lecture was delivered by Dr Barbara Montanari: Leader of Computational Materials Science

Group at RAL National Scientific Liaison Officer [1]. Recently, the 2014 speaker was Prof Marcia Barbosa from Brazil, the Vice President of the International Union of Pure and Applied Physics, and a director of the Physics Institute in the Universidade Federal do Rio Grande do Sol in Brazil. Prof Barbosa was awarded the 2013 L'Oréal UNESCO prize of women in science [1]. WiPiSA is embracing international women in physics collaboration to share and gain knowledge, challenges and successes of women in physics across the world. Hopefully, this initiative will be part SAIP activities for many years to come.

Entrepreneurship for Physicists

In order to break business barriers in the physics world, WiPiSA provided funding for female post graduate students (a large number of PhD students), researchers and lecturers to attend the workshop on entrepreneurship for physicists, scientists and engineers aimed at encouraging and imparting skills in commercializing physics related research findings; and helping students and researchers to develop technology-based start-up companies, produce more patents and licenses. The recent workshop was held in 2013 in Durban. [2]

Outreach and community engagement

WiPiSA participates in one of SAIP project in national department of education portfolio, aiming at reviewing South African undergraduate physics training. The stake holders include universities' head of departments, higher education officials, centre for higher education, education specialists, etc. The SAIP has appointed WiPiSA working group member to form part of the review committee. Dr Mmantsae Diale (WiPiSA working group member) is involved in physical science teacher development project. She has adopted 22 schools in Moretele area office (Gauteng Province of South Africa) where she helps teachers to understand and teach physics better. In addition, other members are participating in various activities aimed at encouraging girls to pursue careers in physics (see Figure 2)



Figure 2: Outreach activity at Bathokwa High School in Mokopane, Limpopo Province

SUCCESS STORIES

There has been a significant increase in the numbers of women in physics in South Africa since the establishment of WiPiSA in 2005, particularly; the number of women attaining their postgraduate degrees in Physics has increased. Furthermore, the number of women physicists in senior positions and PhD women graduates has improved. To cite a few examples, the current SAIP president is a woman Dr Igle Gledhill, since its existence of more than 55 years. A number of women physicists have won top national awards, such as order of Mapungubwe, bestowed by the state president. . South Africa has won the bigger share of the international Square Kilometer Array (SKA) project, which has opened doors for Human Capital Development in astronomy and physics. . A few women physicists are already being trained in astronomy programmers related to SKA project and this will contribute in increasing the number of women in physics. WiPiSA aims to strengthen the link between physics and astronomy due to SKA's high demand of physics and astronomy graduate.

REFERENCES

- [1] <http://www.saip.org.za/index.php/news-and-events/saip-annual-conferences>
- [2] SAIP EO Report