

# Women in physics in Ghana: Our story

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# Women in Physics in Ghana: Our Story

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**Abstract.** The status of women physicists in academia and industry has improved over the last decade in Ghana but not without challenges. It will take some time before women are well represented, especially at the professorial level. Organizations such as the Ghana Atomic Energy Commission (GAEC) and the Ghana Academy of Arts and Sciences (GAAS) are striving hard to minimize professional gaps between women and men. The Ghana Academy of Arts and Sciences, through its efforts to encourage women in physics and science in general has elected its second woman in 58 years as president, and GAEC is also encouraging and appointing women to managerial positions.

## THE CHALLENGES

Undergraduate students often view physics as an abstract field that has little or no direct application to real life situations [1]. These hurdles remain in graduate school, contributing to more women not pursuing further studies or leaving physics entirely. Other factors that discourage female students from entering physics include their relationships and family. This latter often results in some limiting of their careers or factors into their decision to leave physics. And women are more affected by this factor than men when the support of family is absent.

The first female nuclear engineer in Ghana, who read physics at first degree and is a mother of two children, disclosed that family responsibility also has a way of pushing women away from choosing science. Using her two children as a point of reference, she believes that she could have advanced beyond her current position if not for the necessary breaks. She believes that women in science play a 105% role compared to men and must be given the needed attention to realize their dreams. “Women are assets on every field and must be encouraged to pursue science. I am confident that, women in science have a bright future since the number of enrolment in graduates schools have increased” [2].

## THE CURRENT SITUATION

As a way to illustrate the current situation, we chose to collect data for three institutions (Table 1): University of Ghana, Kwame Nkrumah University of Science and Technology, and School of Nuclear and Allied Sciences in collaboration with Ghana Atomic Energy Commission. We selected these institutions because of the availability of data. University of Ghana is Ghana’s premier university and the oldest and largest of the eight public universities in the country, with an enrollment of about 37,900 and a male-to-female ratio of about 1.4:1. It was founded as the University College of the Gold Coast by Ordinance on August 11, 1948. As the leading university in Ghana, the University aims to produce the next generation of thought leaders to drive national development. Through its research institutes and other centers of learning, faculty members are involved in studies that support policy making for national development, often in collaboration with other international institutions

The Kwame Nkrumah University of Science and Technology (KNUST or Kumasi) provides an environment for teaching, research, and entrepreneurship training in science and technology for the industrial and socio-economic

development of Ghana, Africa, and other nations. KNUST also offers service to the community and is open to all the people of Ghana; it is positioned to attract scholars, industrialists, and entrepreneurs from Africa and the larger international community. About 30,000 students are enrolled. The Ghana Atomic Energy Commission (GAEC), was established by an Act of Parliament, Act 204 of 1963, as the sole agency in Ghana responsible for all matters relating to peaceful uses of atomic energy; it employs about 1,000 people, of whom some are students from the School of Nuclear and Allied Sciences. It established the School of Nuclear and Allied Sciences (SNAS), which is affiliated to the University of Ghana for human resource purposes. The role of SNAS/GAEC is to train students at master's and PhD levels to resource the institution.

**TABLE 1.** Case Study: Current Status of Female Physicists at the University of Ghana, Kwame Nkrumah University of Science and Technology (KNUST), and Ghana Atomic Energy Commission (2016/2017).

<b>Institution</b>	<b>Undergraduate</b>	<b>Graduate (MPhil/PhD)</b>	<b>Faculty and/or Staff</b>	<b>Professorial</b>
University of Ghana	10	3	1	—
KNUST	90	5	—	—
Ghana Atomic Energy Commission/School of Nuclear and Allied Sciences	—	1	13	2

## THE WAY FORWARD

To help undergraduate women continue in physics, they should have opportunities to experience a professional conference, receive information about graduate school and professions in physics, and be given access to other women in physics of all ages with whom they can share experiences, advice, and ideas. There should also be some scholarship schemes for undergraduate students who want to pursue further on the academic ladder, and this will encourage more female students to take up physics. One thing that also pushes some women away from physics, especially in academia, is promotion: they are uncertain whether they will be promoted at rates equal to their male colleagues. The number of female full professors is currently around 1 in 10 in academia in Ghana.

## CONCLUSIONS

If science is to thrive in Ghana, we must make it our goal to achieve a scientifically literate society, a population that understands and values the contributions that science—especially physics—can make to our national well being. Women are half that population. Only when women see that women are participating fully in the scientific endeavor as researchers in the laboratory, as scientific leaders, and as policy makers will they feel themselves to be part of that society.

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