



The Abdus Salam

**International Centre  
for Theoretical Physics**  
Physics Without Frontiers



# Quantum Computing School in Lesotho

Dr Naleli Matjelo

National University of Lesotho

Celebrating 10 Years of Physics Without Frontiers

22<sup>nd</sup> November 2022

# Quantum Computing School in Lesotho

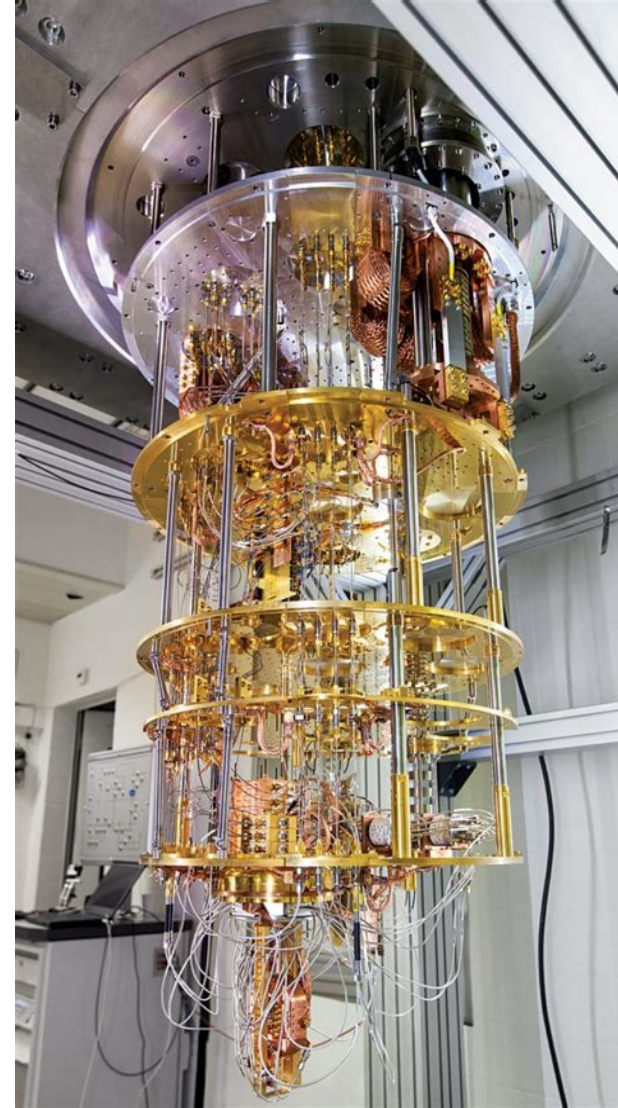
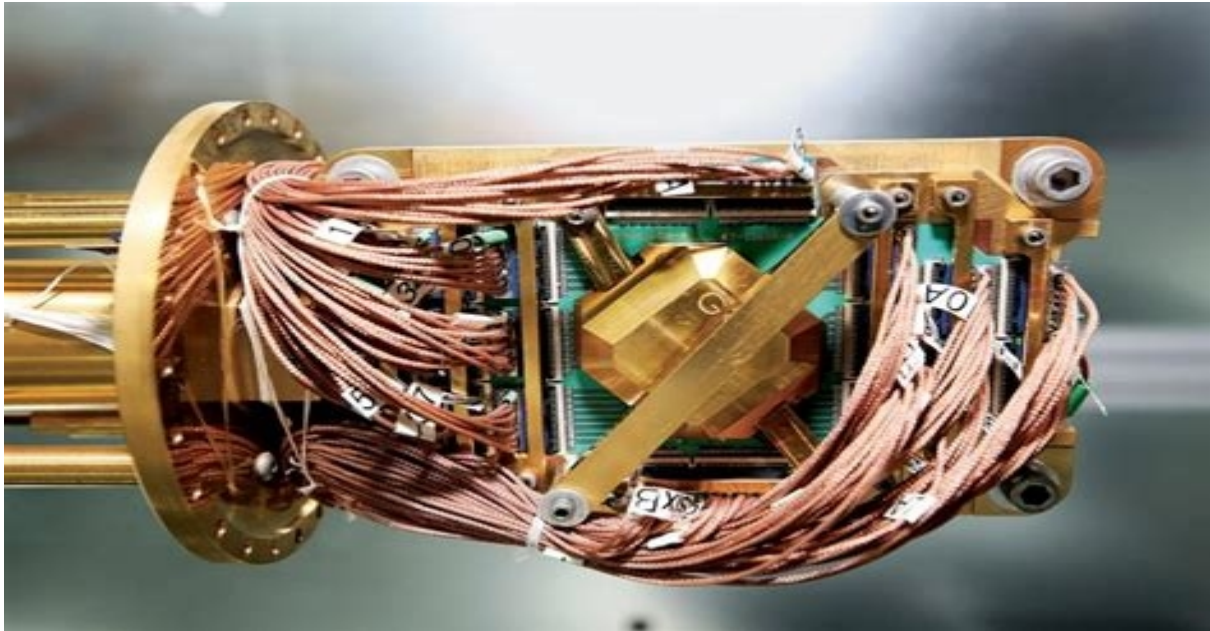
I am from Lesotho, Southern Africa

- Our PWF outreach program focuses on the hands-on introduction to Quantum Computing
- The program targets the undergraduate students with background in Mathematics, Physics, and/or Computer Science
- It is organized jointly with the National University of Lesotho
- Organizers are Drs Kate Shaw, Naleli Matjelo and Makhamisa Senekane
- The program successfully ran in 2020 and 2021



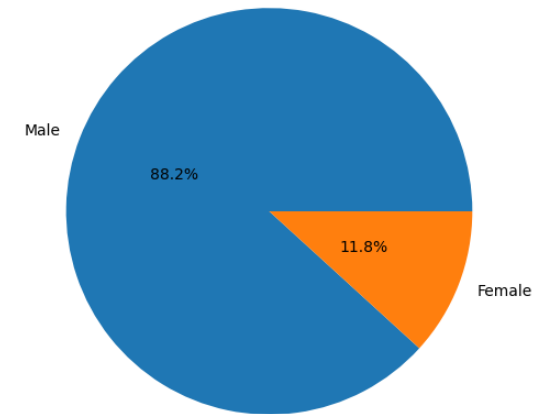
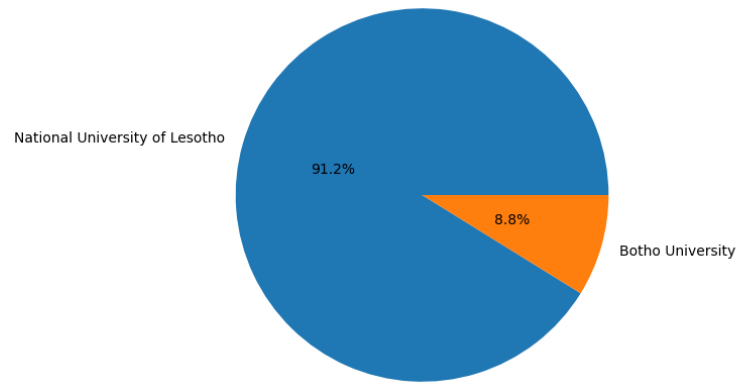
# Goals of the PWF Program

- To introduce Quantum Computing to the undergraduate students in Lesotho
- To encourage students to consider furthering their studies in Quantum Computing



# Quantum Computing School - 2020

- The 2020 event was hosted by the National University of Lesotho
- 34 undergraduate students participated
- 2 Lesotho universities were represented





# Quantum Computing School - 2020





# Quantum Computing School - 2021

- Hosted by the National University of Lesotho
- Relatively poorly attended
- Only the National University of Lesotho participated
- The challenge was borne out of the fact that at the time of hosting, most institutions of Higher Learning in Lesotho were on strike



# Impact

SAIP2021 Proceedings

- The outreach program presented in the local (South African) Physics conference
- One of the students successfully enrolled with ICTP EAIFR for postgraduate studies

## Inaugural Quantum Computing School in Lesotho: Its impact and the Lessons Learnt

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### Abstract.

This paper reports the events and impact of a two-day Physics Without Frontiers (PWF) quantum computing School that took place on the 14<sup>th</sup> and 15<sup>th</sup> of November 2020 at the National University of Lesotho (NUL). Sponsored by the International Centre for Theoretical Physics (ICTP) and aimed to run annually, the School was intended to introduce quantum computing; using existing open-source quantum computing platforms, to undergraduate students in Lesotho as well as to highlight how quantum computing can be used as a driver for the Fourth Industrial Revolution (4IR). The School was also intended to encourage students to consider furthering their study in quantum computing and related disciplines. This (hoped-to-be annual) event will potentially unite the NUL, the Lesotho government and the ICTP in a long-term relationship; to the benefit of young Basotho scientists and students. The November 2020 event was, in and of itself, a success on several response measures including good and consistent attendance over the two days, as well as being influential based on several students' requests for postgraduate reference letters following this event. The outreach approach used here can be replicated elsewhere, especially in Africa, in order to capacitate students with quantum computing skills. Challenges encountered in this event will also be discussed in the paper.



# Challenges

- Gender diversity
- Volatile nature of the institutions of Higher Learning in Lesotho
- Limited buy-in from the government

