CQCtec
Centre for Quantum
Computing & Technology

UNIVERSITY OF KWAZULU-NATAL ™
INYUVESI YAKWAZULU-NATALI

Open Call to Exhibit

For the Launch of the
Centre for Quantum Computing and Technology
at UKZN

You are warmly invited to submit ideas for exhibits of art and ideas for inventions in the context of quantum technology.

THEME: TO BOLDLY GO INTO THE UNKNOWN!

UKZN is launching the Centre for Quantum Computing and Technology with this motto. For the launch we are organising an exhibition and welcome artworks and ideas for inventions from artists, poets, writers, scientists, engineers and the general public. The exhibition will take place after the launch ceremony with stakeholders from government, industry and academia on the afternoon of Friday, 28 November 2025.

Artists!
Imagine a future where quantum technology intersects with African innovation and creativity, old and new, addressing environmental challenges, promoting social justice, and preserving cultural heritage. Consider the concept of superposition, where multiple possibilities coexist, and envision a future where Africa can thrive amidst the complexities of technological advancements, valuing and protecting natural resources. Reflect on the impact of quantum computing, communication, and sensing on society, critiquing the promises and perils of this technology and exploring its potential to shape our understanding of reality.

Exhibition curated by Jessica Bothma for the launch of the **Centre for Quantum Computing and Technology** at UKZN

INTERNATIONAL YEAR OF Quantum Science and Technology

CONTEXT: QUANTUM COMPUTING, QUANTUM COMMUNICATION AND QUANTUM SENSING

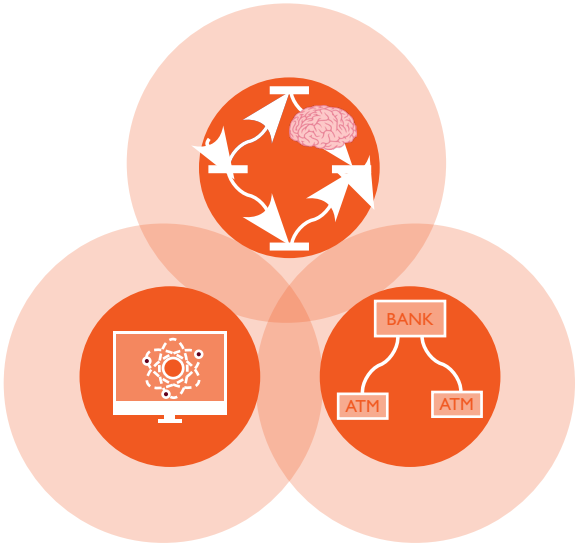
One hundred years ago, Quantum Mechanics (QM) disrupted the scientific understanding of the physical world. For example, QM postulated that the constituents of matter in general behave in an un-predictable way, as if they traversed various locations with various speeds simultaneously. These so-called quantum systems simply cannot be ascribed concrete attributes such as a position and a velocity, but rather can be understood in terms of concurrently propagating possibilities that can mutually interfere. The superposition of properties (Schroedinger's cat) of remote systems shows super correlations (entanglement) with seemingly non-local effects (Einstein's spooky action at a distance).

In a measurement one of the possibilities is realised, but it is still unknown how this process works (measurement problem). Many quantum systems show wave and particle properties, they can carry information from traversing simultaneously different spatial regions, and the state of a quantum system, if unknown, cannot be detected nor copied to another quantum system (no-cloning theorem).

Last century, the first quantum revolution radically transformed electronics, communication, the imaging and analysis of materials and medical applications. For example, it lead to the development of transistors, lasers and electron microscopes, nuclear weapons, power plants, atomic clocks, X-ray imaging and PET scans. What will the second quantum revolution bring? So far governments worldwide have invested more than 800 billion Rands into quantum computers that use quantum superpositions to compute in parallel, into quantum communication which allows to communicate with single photons, safe against eavesdropping, and into imaging and sensing technology with unprecedented resolution and accuracy.

A NEW TECHNOLOGY - THREAT OR OPPORTUNITY?

Wealthy societies can develop an expensive technology. Poor societies might not. However, if they do, they can become wealthy.



PILLARS OF THE 2ND QUANTUM REVOLUTION

Quantum Imaging/Sensing, Quantum Communication and Quantum Computing. New Medical applications include unprecedented levels of image resolution and diagnositics, monitoring, and data security. Quantum Computers are anticipated to revolutionise data analysis and pattern recognition as well as drug design and in general optimisation of medical treatment and infrastructure. (Please see comment)

1925

Celebrating 100 years of quantum technology. It all began on the island of Helgoland off the coast of Germany in June 1925 where Werner Heisenberg created matrix mechanics.

For 100 years Quantum Science has changed the world of physics and technology

INTERNATIONAL YEAR OF Quantum Science and Technology

2025

Quantum Science & Jazz: Monthly Quantum themed public events at UKZN.

Quantum Technology for Industry: Banquet and Workshop 27-28 May, UKZN.

First Quantum Technology Symposium: Banquet and Workshop 23-27 June, UKZN.

Launch of the UKZN Centre for Quantum Computing and Technology : 28 November, UKZN.

2029

Fault tolerant Quantum Computing with 200 qubits and 100 million quantum gates in 2029 according to IBM roadmap.

2024 Google produced the first effective error correction on a superconducting quantum bit (qubits)

2024 Oxford Ionics achieves record in quantum gate fidelity with trapped ions on a chip.

2035

McKinsey Quantum Technology Monitor predicts market size by 2035:

Quantum Computing
$28B - 72B

Quantum Communication
$211B - 15B

Quantum Sensing
$0.5B - 2.7B

To date:
Global Investment in startups
$8.5B

Global Government Investment
$42B

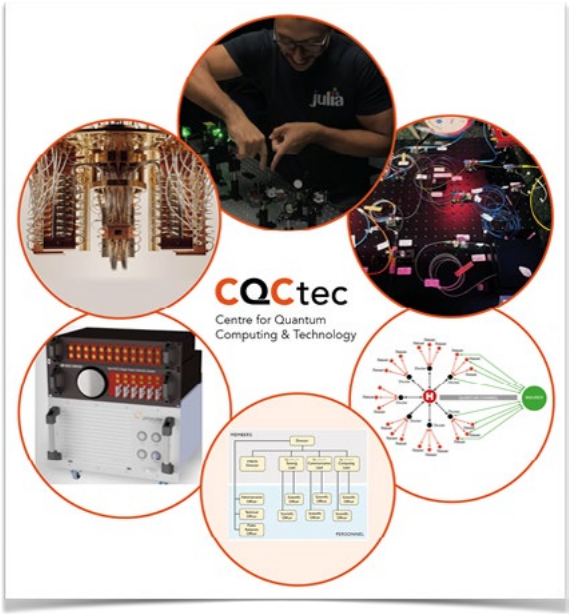
SUGGESTED QUESTIONS TO RESPOND TO THE CALL

1. What will the future hold for the continent?

Africa has rich natural resources and is estimated in 20 years' time to have the highest number of youth (higher than the rest of the world together). Will it flourish or be exploited, and which role will quantum technology play here? What may we hope for? What do we fear?

2. How do we imagine the quantum world?

The world of very small particles, e.g., atoms, electrons and photons, looks different than our every-day world, but how? What does it mean, if the future is not pre-determined but open?



The Centre aims to develop and commercialise quantum devices.

What picture can we have of many possibilities (or “many worlds”) evolving in parallel but possibly interfering with each other?

3. What should we do with quantum technology?

This is the place to visualise ideas of inventions, or the place for “imagineering”, a term coined by Walt Disney. Imagineering combines the artistic freedom of imagining with the concreteness of engineering and technical ideas. Here also ethical concerns can be translated into art.

ELIGIBILITY AND WHAT WE OFFER

This opportunity is open to artists, writers, poets, scientists, engineers and the general public. Collaborative and interdisciplinary submissions are warmly welcomed. Selected participants will receive:

- A professionally curated exhibition in the Main Hall on Westville Campus
- 0% commission on all sales
- Support with installation.
- Delivery of Artworks
- Artists/Participants are responsible for arranging delivery or postage of their work to the Main Hall, details to be announced.
- Artworks can be sent via courier or delivered to PostNet branches communicated in due process.

To Submit

- Please email the following to: MajolaN6@ukzn.ac.za
- 1–5 images of existing or proposed works with details: artist name, title, date, medium, and dimensions
- A short artist/designer/participant statement (max 100 words)
- A brief artist/participant bio (max 100 words)
- Any specific technical or spatial installation requirements
- **Deadline: 17 November 2025**

We appreciate your interest and the time taken to share your work with us.

Please Note

While every effort will be made to handle artworks/submissions with care, UKZN and its representatives cannot accept responsibility for loss, theft, or damage during transit, installation, exhibition, or storage. Artists/Participants are encouraged to arrange their own insurance if required. All transport, packaging, and insurance costs remain the artist’s responsibility. The organisers reserve the right to reject any artworks after digital submission.