



**COLLEGE OF AGRICULTURE,
ENGINEERING AND SCIENCE**



Embassy of the
Republic of Korea



science, technology
& innovation
Department
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA



Centre for Quantum
Computing & Technology

Invitation to a **Public Talk**

UKZN's Centre for Quantum Computing and Technology proudly co-hosts a public lecture with the Embassy of the Republic of Korea in Pretoria, in collaboration with the Department of Science, Technology and Innovation, on the relevance of quantum technology for industries worldwide. One of the objectives of the Centre, which is part of the South African Quantum Technology Initiative, is to contribute to the formation of a quantum technology industry in Durban and South Africa through research and development. We anticipate with great curiosity the talk by Prof Donggyu Kim on key challenges to link frontier research to industry in quantum computing and other quantum technologies, which requires interdisciplinary solutions from physics, engineering and computer science.

TOPIC:

FROM QUANTUM SCIENCE TO QUANTUM INDUSTRY:
Building Scalable Technologies for the Next Computing Era

SPEAKER:

Professor Donggyu Kim,
KAIST Physics and OQT Inc., South Korea



22MAY
FRIDAY
2026



13h00-14h30



SMART GRID CENTRE,
UKZN Westville Campus

RSVP: Nokwanda Majola / majolan6@ukzn.ac.za / 031 260 1686

INSPIRING GREATNESS



ABOUT THE TALK:

Quantum technologies are entering a phase in which fundamental advances must be translated into scalable, programmable, and practically useful systems. In this talk, Professor Donggyu Kim presents a perspective on this transition through work spanning quantum imaging, quantum sensing, and neutral-atom quantum computing. He discusses the importance of quantum computing in light of growing computational and energy demands, and highlights how entanglement and interference provide distinct computational resources beyond conventional architectures. Focusing on neutral-atom platforms, he outlines key challenges including programmability, scalability, limited control degrees of freedom, and future measurement architectures. He concludes that useful large-scale quantum systems will require tightly integrated advances across physics, engineering, and computation, linking frontier science to industrial realisation.

ABOUT THE SPEAKER:



Professor Donggyu Kim is an Assistant Professor of Physics at the Korea Advanced Institute of Science and Technology (KAIST), South Korea, and a leading researcher at the forefront of quantum science and technology, specialising in neutral-atom quantum computing and information physics at the intersection of atoms, photons and artificial intelligence. He earned his PhD from MIT and has held key research roles at Harvard University and QuEra Computing, where he was a founding team member and helped develop a 256-qubit neutral-atom quantum computer. His work spans pioneering innovations such as co-inventing neutral-atom quantum processors, developing scalable quantum systems, and advancing quantum sensing and imaging technologies. In addition to his academic role, he is CEO of OQT Inc., where he is driving the translation of quantum advantage into real-world industrial applications, including the development of software-defined quantum data centres. Recognised with prestigious fellowships and leading multiple large-scale research initiatives, Kim is widely regarded as a key figure shaping the future of quantum computing and its impact on society.

Refreshments will be provided.