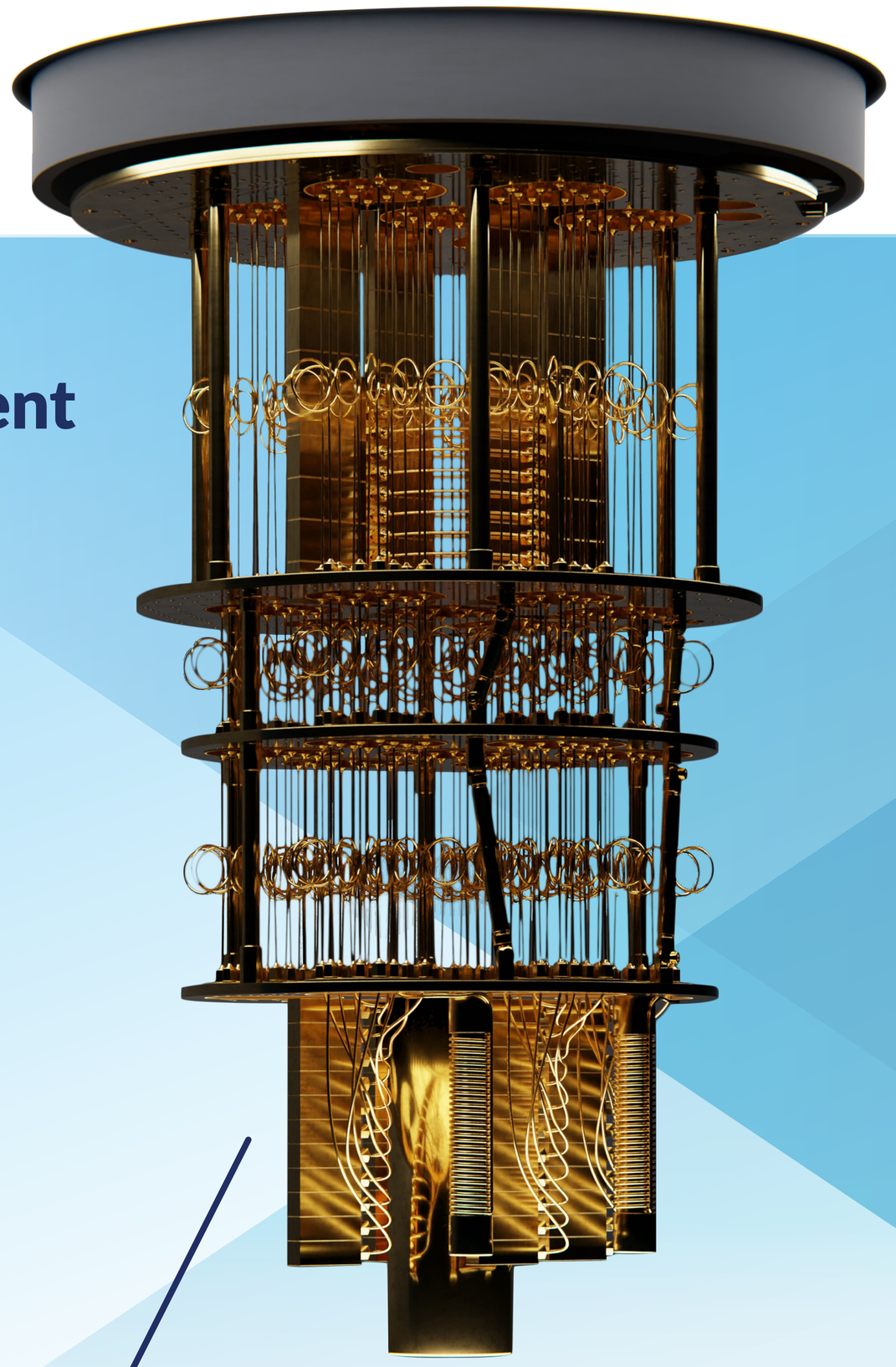
SPECTRUM

THE QUANTUM SWITCH



On a QueSt to accelerate Quantum Computer development

Quantum computing is chasing one of the biggest performance boost in the history of technology, enabling **unprecedented computational capabilities** for a multitude of applications.

A bulky problem

However, the wide-spread of the QC technologies is hindered by several factors, most of them relating to the complexity and cost of the QC architecture.

Temperature and wiring issues causes:

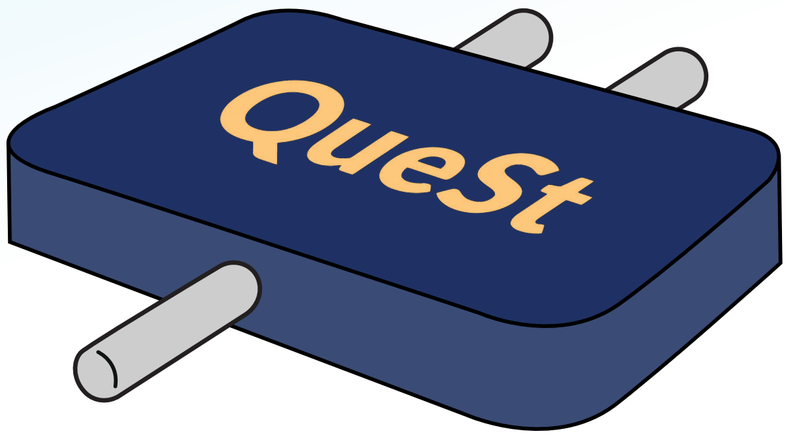
High cost to acquire, upgrade and maintain the architecture.

Electronics-induced **downtimes** after switching event.

Hardware as **bulky** as the number of qubits.

QueSt

QUANTUM SUPERCONDUCTING SWITCH



The missing component

The EU-funded project Spectrum is developing **a novel switching technology** that reduces the volume of current wiring, by compacting the physical lines onto a solid-state device, while increasing the thermal efficiency and scalability of quantum computers.

The **Quantum sUpErconducting SwiTch (QueSt)** can act as an interface between the external CMOS electronics and the internal quantum qubits through a chip for IN/OUT communication, without the need to modify the r architecture and reducing the need for physical cable lines.

Advantages

Low power dissipation
Reduces QC downtime after a single switching event.

Control of multiple qubit configurations
Reduces the footprint and cost of wiring by about 75 % over current values.

Voltage control and compatibility with cmos system
Controls a large number of output devices with one input signal.

High switching speed
Reduces switching times, compared with state-of-the-art switching devices.

Project partners

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