NEWS RELEASE

Quantum, Helium-3 & The New Technological Arms Race

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Last week, **President Donald Trump headed to Beijing** accompanied by some of America's most influential technology leaders, including Elon Musk. The timing was notable, coming just days after Chinese researchers announced the arrival of what is being described as the **world's first dual-core neutral atom quantum computer**, another major milestone in China's accelerating quantum ambitions and a development many analysts view as a significant step toward quantum supremacy.

While much of the public discussion surrounding the U.S.–China technology rivalry remains focused on AI chips, particularly Nvidia's position at the centre of the ongoing debate surrounding access to the Chinese market, the next frontier increasingly appears set to become quantum computing, and beneath that race sits a critical strategic material: helium. More specifically, helium-3.

Quantum computing systems require extraordinarily stable cryogenic environments operating close to absolute zero. Helium-3 plays a critical role in dilution refrigeration systems capable of reaching temperatures below 10 millikelvin - colder than outer space - conditions essential for stabilising qubits, the fundamental building blocks of quantum computers. Without sufficient helium-3, scaling quantum infrastructure becomes significantly more difficult. As a result, helium-3 is increasingly being viewed by some as to the future quantum industry what silicon was to the original computing revolution.

Helium-3 remains extraordinarily scarce. Historically, the isotope has only been obtainable in extremely limited quantities, primarily as a by-product of tritium decay associated with nuclear stockpiles. As quantum computing development accelerates, concerns surrounding future helium-3 availability are beginning to intensify, fuelling growing interest in potential new sources of supply.

Among them is Pulsar Helium's Topaz Project in Minnesota, where independently confirmed helium-3 concentrations (@ ~15 parts per billion) have been reported as comparable to, and in some cases exceeding, concentrations referenced in lunar studies. The findings highlight the possibility that meaningful terrestrial helium-3 recovery could potentially arrive well ahead of extraterrestrial lunar operations currently being pursued, and in some cases supported through U.S. government-backed initiatives, by companies such as Interlune, Magna Petra and Black Moon Energy.

The geopolitical implications surrounding the race for quantum superiority are difficult to ignore. Quantum technology has the potential to reshape cybersecurity, intelligence gathering, financial modelling, logistics optimisation, pharmaceutical discovery, advanced weapons systems and AI acceleration. Experts increasingly warn that sufficiently powerful quantum systems could eventually compromise existing encryption frameworks underpinning global banking systems, communications networks and critical digital infrastructure.

China's latest neutral atom developments are particularly significant because neutral atom architectures are increasingly viewed as one of the most scalable and energy-efficient pathways toward fault-tolerant quantum systems.

In simple terms, the nation that achieves scalable quantum superiority first may secure a profound strategic advantage across defense, economics, cybersecurity and artificial intelligence. As the global race for quantum supremacy accelerates, secure access to helium isotopes is increasingly becoming intertwined with technological sovereignty and national security. Moving forward, global leadership may ultimately depend on who controls the materials enabling quantum functionality. The race to get there first is already underway and, for some, the pursuit of quantum superiority is increasingly beginning to resemble a modern-day Manhattan Project.

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