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Q-Newsletter

HIGHLIGHT

Quantum Brain Scanners

On 2 December 2025, the UK Government and researchers at University of Nottingham and University of Birmingham announced funding for what will be the world's first fully mobile quantum-powered brain scanner. This is a wearable magnetoencephalography (MEG) system built by spin-out Cerca Magnetics.

Deployed directly to military firing ranges, field hospitals, and rehab centres, the portable scanner will be used by the UK's Defence Medical Services to measure, in real time, how blast exposure from training affects brain function, and to track recovery over minutes, hours, and days.

Backed by over £3 million in funding, the initiative aims to deliver evidence-based data on blast-related injury and could also benefit civilian research into concussion, epilepsy, and dementia.

RESEARCH

Multi-Particle Neuromorphic Quantum Sensor

On the 27th of November, a team at King's College London, alongside the LeviTeQ project, introduced a new quantum sensing platform that levitates many microscopic glass particles inside a vacuum chamber. Instead of tracking a single particle, which is common in traditional optomechanical sensing, their system can monitor the motion of dozens of particles at the same time. This is made possible by the use of a neuromorphic event based camera that operates in a way similar to biological vision systems. It detects changes rather than recording full frames, which allows extremely fast and efficient motion tracking.

The researchers then applied real time feedback to cool the motion of several particles simultaneously. In the reported experiment they achieved cooling of three particles, marking the first demonstration of neuromorphic multiparticle detection and control at this scale. Because the particles act as a collective sensing medium, the platform can provide stronger and more robust signals than single particle systems.

This approach could ultimately enable highly sensitive detection of extremely small forces, improvements in navigation technologies and potentially future searches for elusive phenomena such as dark matter.

MARKET

Singapore partners with Quantinuum to Build a Quantum Hub

Singapore's National Quantum Office (NQO) has formed a strategic partnership with Quantinuum to accelerate quantum computing in the country. Under the agreement, Quantinuum will deploy its Helios quantum computer locally and establish an R&D and operations centre linked to the National Quantum Computing Hub. The collaboration supports Singapore's National Quantum Strategy by combining Helios's full-stack platform with domestic research talent and industry users. Early commercial focus areas include pharmaceuticals, materials science and finance, where quantum advantage may emerge first. The initiative aims to strengthen Singapore's position as a global hub for quantum innovation and deployment.

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