Phasecraft tapped by ARPA-E to develop and apply quantum algorithms for catalyst discovery

Project aims to reduce reliance on iridium and other critical minerals

WASHINGTON, DC, UNITED STATES, June 16, 2026 /EINPresswire.com/ -- Phasecraft, the world's leading quantum algorithms company, today announced it has secured an award with the U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) to begin work under the Quantum Computing for Computational Chemistry (QC3) program. QC3 aims to accelerate energy innovation by supporting the development and application of quantum computing approaches to chemistry and materials science problems that lie beyond the reach of classical computers.

The Collaboration

Under the ~4.5M USD contract, Phasecraft will develop highly optimised quantum algorithms to simulate and discover novel catalysts for use in the energy sector. The project will aim to reduce the current reliance on critical minerals, in particular platinum group metals like iridium, that are used in catalysis. The initial focus is low-cost hydrogen production, with insights expected to apply across syngas production, petroleum refining, metallurgy, and other industrial sectors whose economics depend on the chemistry of catalysts. To complete this project, Phasecraft will partner with Johnson Matthey, Harvard, and QuEra.

The approach builds on Phasecraft's published work in quantum materials simulation, where the company's algorithms have achieved efficiency improvements of up to 43,000,000× over previous quantum methods.

"Quantum computing is no longer a distant promise. It's a working technology, and the question now is which problems it gets pointed at first," said Ashley Montanaro, Co-Founder and CEO of Phasecraft. "As industry and governments work together to realize the full promise of quantum computing, we are grateful that ARPA-E has chosen Phasecraft to help solve this critical set of problems on a meaningful timescale."

"Hardware-adaptive quantum algorithms hold immense promise for priority problem sets across the U.S. government broadly, and the Department of Energy specifically," said Steve Flammia, Principal Quantum Scientist and head of Phasecraft US. "Cutting the iridium requirement in

industrial electrolysis would meaningfully change the economics of hydrogen fuel and a wider class of catalytic processes that underpin energy security. Delivering significant quantum speed ups with hardware-adaptive algorithms could help shape iridium requirements in a matter of years, not decades."

Why Now

QC3 is part of a broader U.S. government effort to convert quantum computing's technical promise into competitive advantage in energy, the economy, and national security. The areas the program targets — superconducting transmission lines, advanced batteries, rare-earth-free magnets, and new catalysts for fuel production — sit at the foundations of a more secure and affordable American energy system.

Algorithms designed to generate useful results from the imperfect quantum hardware available today, rather than from a future generation of machines, are central to delivering on that timeline. Phasecraft has a demonstrated track record of building ultra-efficient, hardware-adaptive algorithms that make practical quantum applications viable in the near-term and provide massive speed ups over the classical state of the art.

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About Phasecraft
Phasecraft is the UK and US-based quantum algorithms company whose mission is to accelerate the practical application of quantum computing by redesigning quantum algorithms for the imperfect quantum computers of today. Phasecraft was founded in 2019 by Toby Cubitt, Ashley Montanaro, and John Morton, expert quantum scientists who have spent decades leading top research teams at UCL and the University of Bristol. Phasecraft works in partnership with leading quantum hardware companies, including Google, IBM, Quantinuum, and QuEra, academic and industry leaders, to develop high-efficiency algorithms to move quantum computing from experimental demonstrations to useful applications. Learn more: www.phasecraft.io

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