

The quantum advantage: a novel demonstration

February 8 2021



Credit: Pixabay/CC0 Public Domain

Is a quantum machine really more efficient than a conventional machine for performing calculations? Demonstrating this 'advantage' experimentally is particularly complex and a major research challenge around the world.

Scientists from the CNRS, the University of Edinburgh (Scotland) and the QC Ware, Corp., (France and USA) have just proved that a quantum machine can perform a given verification task in seconds when the same exercise would take a time equivalent to the age of the universe for a conventional computer.

For this demonstration, they combined a complex interactive algorithm that solves a certain type of mathematical problem with [limited information](#) and a simple experimental photonics system that can be made in all advanced photonics laboratories.

Their work was published on 8 February 2021 in *Nature Communications*.

More information: Experimental demonstration of quantum advantage for NP verification with limited information. Federico Centrone, Niraj Kumar, Eleni Diamanti, and Iordanis Kerenidis. *Nature Communications*, February 8, 2021. [DOI: 10.1038/s41467-021-21119-1](https://doi.org/10.1038/s41467-021-21119-1)

Provided by CNRS

Citation: The quantum advantage: a novel demonstration (2021, February 8) retrieved 26 April 2024 from <https://phys.org/news/2021-02-quantum-advantage.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.