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Macro Roundup Article

Headline: Quantum Computing Advance Begins New Era, IBM Says

Article Link: https://www.nytimes.com/2023/06/14/science/ibm-quantum-computing.html

Author(s)	Kenneth Chang
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Tweet: IBM researchers have used a quantum processor and a process of error elimination to make a major step forward in quantum computing. The work may help in accelerating drug discovery and modeling fusion reactions. @NYT

Summary: The IBM researchers used a quantum processor with 127 qubits to simulate the behavior of 127 atom-scale bar magnets — tiny enough to be governed by the spooky rules of quantum mechanics — in a magnetic field. That is a simple system known as the Ising model, which is often used to study magnetism. This problem is too complex for a precise answer to be calculated even on the largest, fastest supercomputers. On the quantum computer, the calculation took less than a thousandth of a second to complete. Each quantum calculation was unreliable — fluctuations of quantum noise inevitably intrude and induce errors — but each calculation was quick, so it could be performed repeatedly. Altogether, the computer performed the calculation 600,000 times, converging on an answer for the overall magnetization produced by the 127 bar magnets.

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