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Quantum Computers as Code Breakers

Faster computers to break codes

Quantum computers are much faster than their traditional counterparts just because of their fundamentally different architecture and so they are able to solve complex problems in less time than a normal computer. Some tasks that require a lot of computational power and are nowadays taking more and more time to finish, like cracking encryptions, could be one of the areas where quantum computers will be mostly employed. Researchers found a way to accelerate even further the quantum computers by using pulses of light. The experiments were carried out at the University of Michigan and according to the news site [DailyTech](#), the increase in speed and processing power could lead to a better level of information protection and to an easier way of cracking encryption codes. Even before that experiment, quantum computers were able to crack complex codes in a matter of seconds, when a desktop computer system would need as much as 20 years to do the same job. The whole experiment is based on short and coherent light pulses that can create light-matter interactions in quantum dots, that are practically particles so small that can be affected by the light. Researcher Duncan Steel noted that the team of scientists found how to control the frequency and phase shifts of the light in order to power an optically driven quantum computer. "Quantum computers are capable of massive parallel computations," Steel said. "That's why these machines are so fast. We're particularly excited about our findings because they show that we can achieve these results by using quantum dots and readily available, relatively inexpensive optical telecommunications technology to drive quantum computers," Steel added. "Quantum dots replace transistors in these computers, and our results show that it only takes a few billionths of a watt to drive it."