

Using Carbon Nanotubes For Quantum Computing

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The computing community for many years has longed to be able to carry out high speed calculations using a genuine Quantum Computer because it would facilitate the practical factorisation of very large numbers and the searching of unordered lists and databases. The rapid breaking of secure codes based on prime numbers would have a lot of practical applications particularly in the banking and military field and would necessitate the development of new cryptographic and security methods to protect valuable data.

Academics working in the Department of Material Science at the University of Oxford have successfully developed a design protocol for inserting filled molecules of Buckminsterfullerene (“Buckyballs”) into carbon, and other types of nanotube. The Buckyballs are themselves filled with molecules that have either an electronic or structural property which can be used to represent the quantum bit (Qubit) of information, and which can be associated with other adjacent Qubits. The improved stability of the system now allows several thousand operations to be executed before quantum interference occurs (“decoherence”). Intensive collaborative work is continuing in order to develop the protocol into a working computer.

Source: [Isis Innovation Ltd](#)

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