

MOLECULAR ELECTRONICS

Molecular electronics (sometimes called moletronics) is an interdisciplinary theme that spans physics, chemistry, and materials science. The unifying feature of this area is the use of molecular building blocks for the fabrication of electronic components, both passive (e.g. resistive wires) and active (e.g. transistors). The concept of molecular electronics has aroused much excitement both in science fiction and among scientists due to the prospect of size reduction in electronics offered by molecular-level control of properties. Molecular electronics provides a means to extend Moore's Law beyond the foreseen limits of small-scale conventional silicon integrated circuits.

Molecular electronics, one of the major fields of current efforts in nanoscience, involves the exploration of the electronic level structure, response and transport, together with the development of electronic devices and applications that depend on the properties of matter at the molecular scale. This includes single molecules, molecular arrays and molecular networks connected to other electronic components.

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