

Taming the Quanta

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The technological revolution brought about by the development of miniaturized electronic devices over the last 50 years has had an extraordinary impact on almost every aspect of our daily lives.

Devices are now reaching the realm where individual structures are made up of only a few atoms so that quantum mechanics - the theory of the very small - is playing a crucial role. The inevitable quantum fluctuations produce noise which was initially expected to be an obstacle for technological progress. More recent theoretical and experimental developments have led researchers to use the properties of quantum mechanics and harness quantum fluctuations in new ways, turning the quantum behavior of nano-structures to our advantage for use in quantum information processing, sensors, quantum metrology and improved nano-devices.

