

# Physical Implementations of Quantum Information Processors

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## **Abstract.**

Quantum Information Processing (QIP) has been an active area of research bringing together many disciplines from the engineering to pure sciences. In my talk, I will describe how some of the ideas of quantum information processing can be implemented using a variety of physical devices. Although today's devices are a small step towards what is needed for useful QIP, they show that at least small quantum systems can be reasonably controlled. I will stress the importance for better quantum control, which is a necessary requirement for scalability. I will also put forward the idea of common benchmarking methods to compare the achievements of the various physical devices. I will conclude with speculations on where the field might go in the future.