## Physics of fundamental Symmetries and Interactions - PSI2025



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## A new view on Quantum Computers

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We describe a concept for a quantum computer based on an abundant number of energy eigenstates. These states form Q-bits or, ad libitum, higher dimensional Q-Nits with N>2, allowing gate operations according to the quantum computing requirements of DiVincenzo. This system with higher dimensional Q-Nits offers potential advantages over traditional Q-Bit-based quantum computing. It provides a larger state space for storing and processing information, which can reduce circuit complexity, simplify experimental setups, and enhance algorithm efficiency.

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