Perugia

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Istituto Nazionale
di Fisica Nucleare

Avviso di Seminario

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SALA RIUNIONI

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"Topological Quantum Computation with non-Abelian Anyons"

Abstract:

We review the general strategy of topologically protected quantum information processing in which information is encoded using the fusion channels and fusion paths in systems with non-Abelian anyons while quantum gates are implemented by braiding of these anyons.

As an example we consider the Pfaffian topological quantum computer based on the fractional quantum Hall state with filling factor $\nu=5/2$. The elementary qubits are constructed by localizing Ising anyons on fractional quantum Hall antidots and various quantum gates, such as the Hadamard gate, phase gates and CNOT, are explicitly realized by braiding.

Il Direttore
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