From classical to good quantum LDPC codes.

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Today.

- Brif Review of Coding.

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- Brif Review of Coding. Tanner and Expander codes.

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- Quantum Error Correction Codes.

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- Brif Review of Coding. Tanner and Expander codes.
- Quantum Error Correction Codes.
- Good Classical Locally Testabile Codes and Good Qauntum LDPC.

Classical Vs Quantum Encoding.

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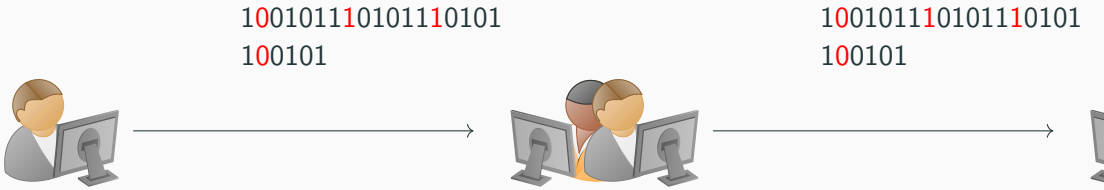
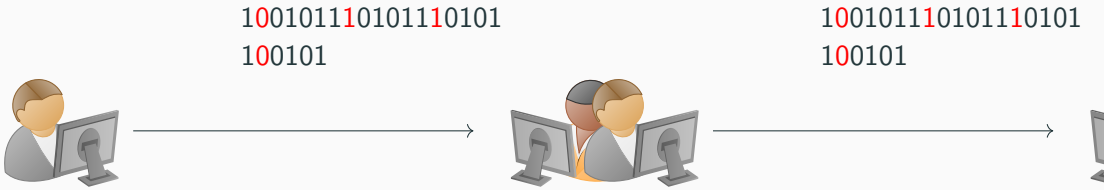
Classical Vs Quantum Encoding.



Classical Vs Quantum Encoding.



Classical Vs Quantum Encoding.

$|10010111010111 0 101\rangle$
$|100101\rangle$

$|10010111010111 0 101\rangle$
$|100101\rangle$

Good Classical LDPC Code.

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Quantum Encoding.

Quantum Encoding.

Quantum Encoding.

Idea I - (Uncertainty) Clouds as States.

CSS Code.

'Idea II' - Tanner Checks are 'Too Much' Interdependence.

'Idea III' - Impossibility of Both C_X, C_Z being Good.

Quantum Tanner Code Construction.

Proving Strategy.