From classical to good quantum LDPC codes.

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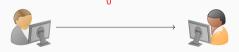
• Brif Review of Coding.

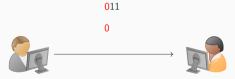
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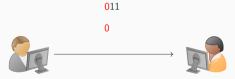
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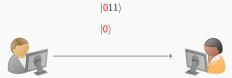
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- Quantum Error Correction Codes.
- Good Classical Locally Testabile Codes and Good Qauntum LDPC.











Classical:

 $|011\rangle$





Quantum:



$$\xrightarrow{\frac{1}{\sqrt{2}}(|0\rangle+|1\rangle)}$$

Classical:

 $|011\rangle$





Quantum:

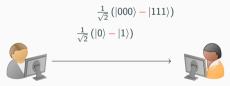


$$\frac{\frac{1}{\sqrt{2}}\left(|0\rangle - |1\rangle\right)}{}$$

Classical:

|011⟩ |0⟩

Quantum:



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.