

Two-Qubit Dynamics with Josephson Qubits

John Meade Dylan Funk

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History

History

Topic of this slide

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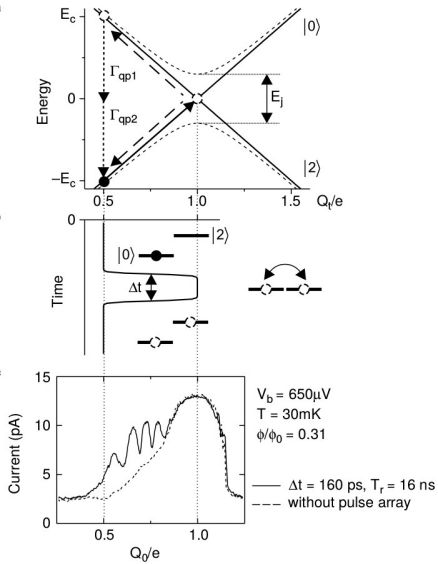


Figure : A simple caption

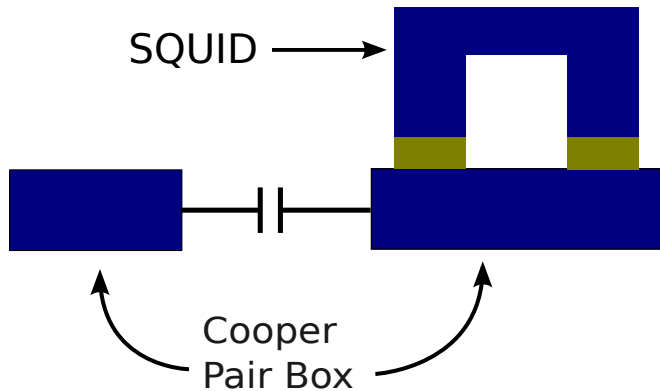
Coupling of Two Qubits

Coupling of Two Qubits

Review

Coupling of Two Qubits

Basic Idea



Coupling of Two Qubits

The Circuit

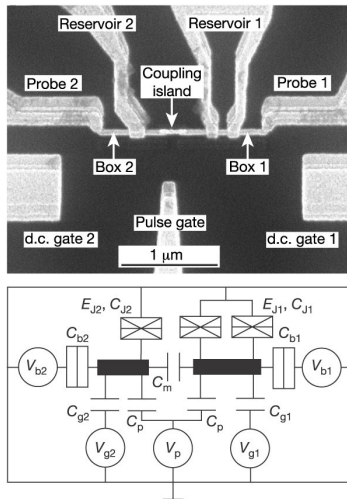


Figure : <http://www.nature.com/nature/journal/v421/n6925/full/nature01365.html>

Coupling of Two Qubits

Parameter Measurements

Coupling of Two Qubits

Charging Diagram of Single-Qubit Case

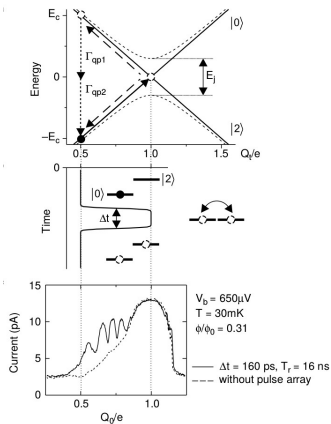


Figure : <http://www.nature.com/nature/journal/v398/n6730/abs/398786a0.html>

Coupling of Two Qubits

Charging Diagram of Two-Qubit Case

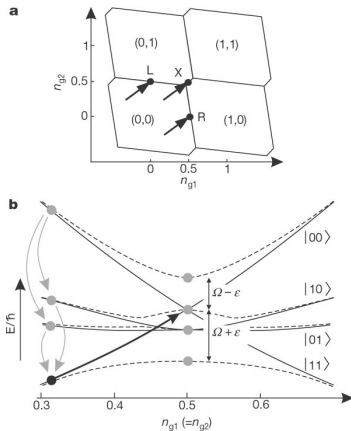


Figure : <http://www.nature.com/nature/journal/v421/n6925/full/nature01365.html>

Coupling of Two Qubits

Charging-Energy Diagram

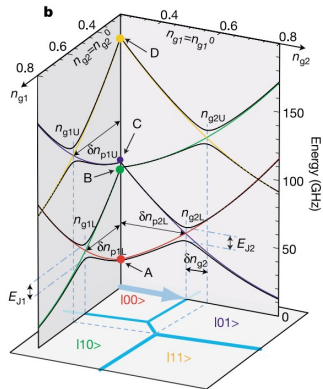
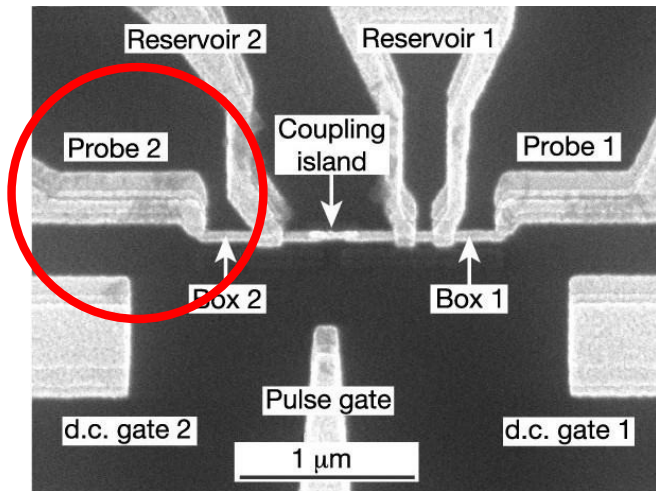


Figure : <http://qudev.ethz.ch/content/courses/QSIT09/pdfs/Yamamoto2003.pdf>

Coupling of Two Qubits

State Readout



Coupling of Two Qubits

Frequency Responses

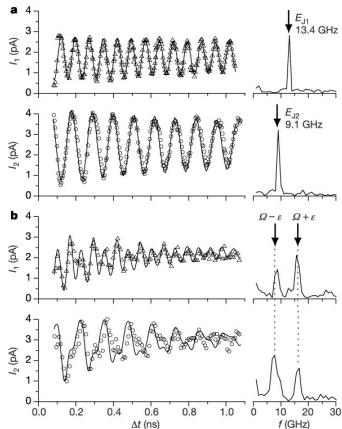


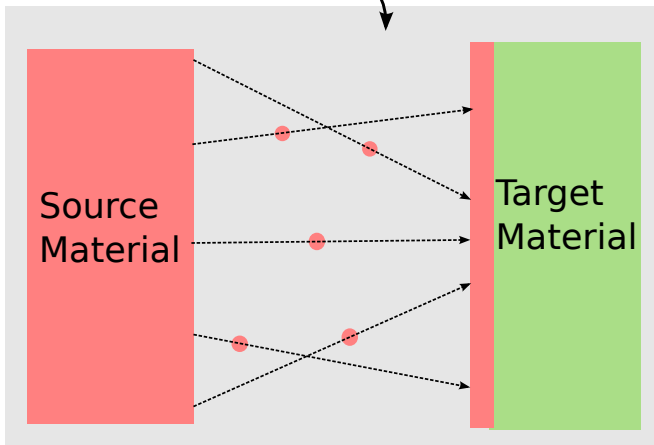
Figure : <http://www.nature.com/nature/journal/v421/n6925/full/nature01365.html>

Fabrication Techniques

Fabrication Techniques

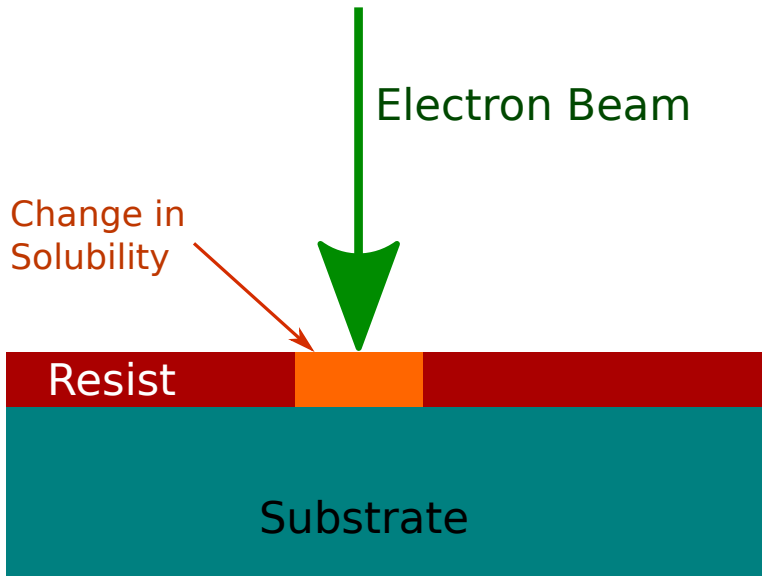
Evaporation (Deposition)

Vacuum and Heat



Fabrication Techniques

Electron Beam Lithography (EBL)



Fabrication Techniques

Etching

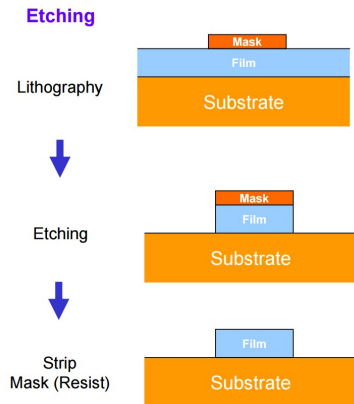


Figure : <http://www.mrsec.harvard.edu/education/ap298r2004/Erli%20chen%20Fabrication%20III%20-%20Etching.pdf>

Fabrication Techniques

Lift-off

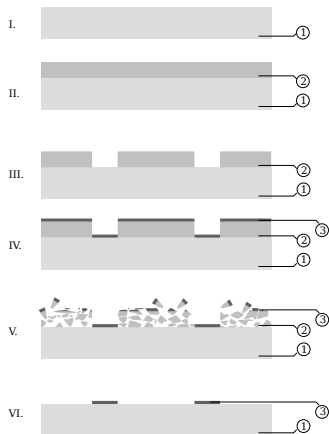


Figure : http://en.wikipedia.org/wiki/Lift-off_%28microtechnology%29

Fabrication Techniques

SEM image of a SQUID qubit

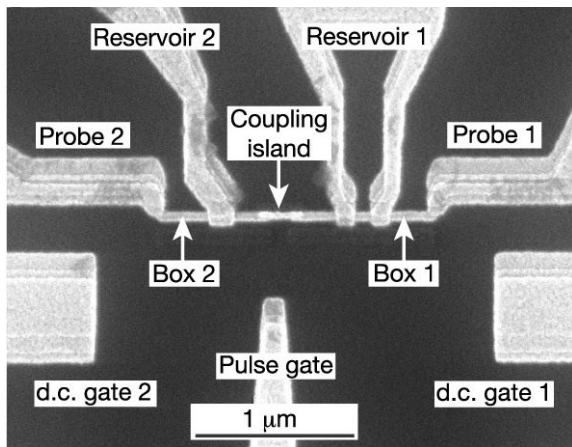


Figure : <http://www.nature.com/nature/journal/v421/n6925/full/nature01365.html>

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