QUANTUM INNOVATION LABORATORY

Basic Quantum Mechanics for Quantum Computing

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Information in Classical and Quantum Computing

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	Classical Computing	Quantum Computing
Unit of Information	*Bit*	*Quantum Bit (Qubit)*
Information Representation	*Bit String (Binary String)*	*Quantum State (Multi-Qubits)*
Information Storage	*Classical Two-State System*	*Quantum Two-State System*

Bit & Qubit with Two Possible (Observable) Values

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	Possible (Observable) Value 1	Possible (Observable) Value 2
Bit	A	B
Qubit	|A〉 - "ket A"	|B〉 - "ket B"

Bit & Qubit with Two Possible (Observable) Values

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	Possible (Observable) Value 1	Possible (Observable) Value 2
Bit	0	1
Qubit	|0〉 - "ket 0"	|1〉 - "ket 1"

Two-State Systems: Classical and Quantum

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	Observable State 1	Observable State 2
Classical System	State A	State B
Quantum System	State $\|A\rangle$ - "ket A"	State $\|B\rangle$ - "ket B"

Eight Quantum Two-Level Systems: An Experiment