큐비트

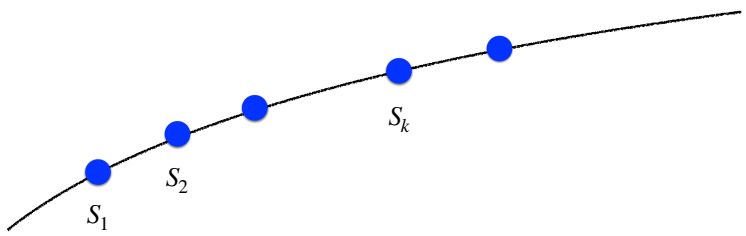
양자 컴퓨터의 가장 작은 단위

최만수 (고려대 물리학과)

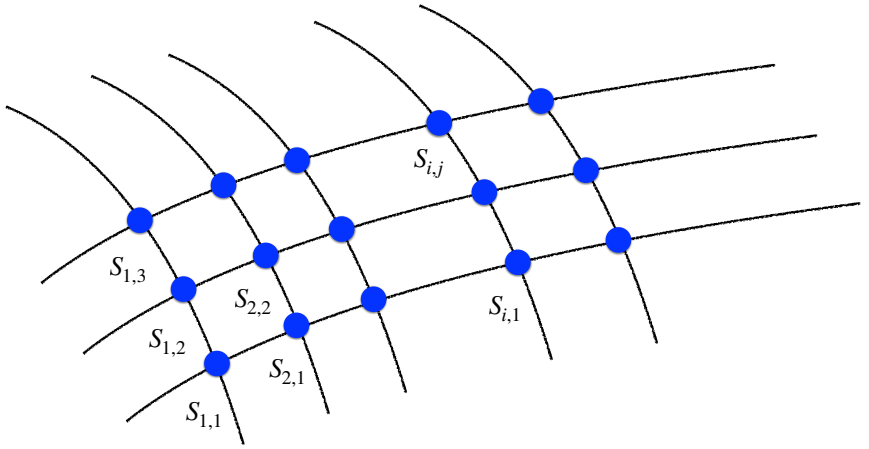
큐비트

(QUANTUM BIT, QUBIT)

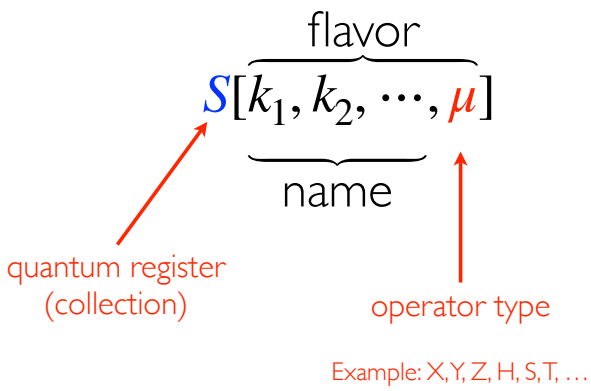
일열로 배열된 큐비트



2차원으로 배열된 큐비트



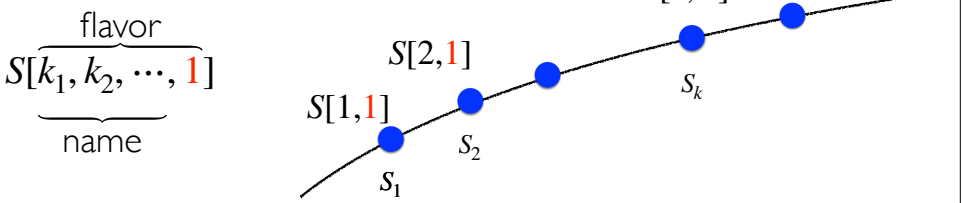
Q3: How to Refer to a Qubit



Operators Acting on the Qubit

- $S[k, 0] \rightarrow$ Identity
- $S[k, 1] \rightarrow$ Pauil X
- $S[k, 2] \rightarrow$ Pauil Y
- $S[k, 3] \rightarrow$ Pauil Z
- $S[k, 6] \rightarrow$ Hadamard operator
- …

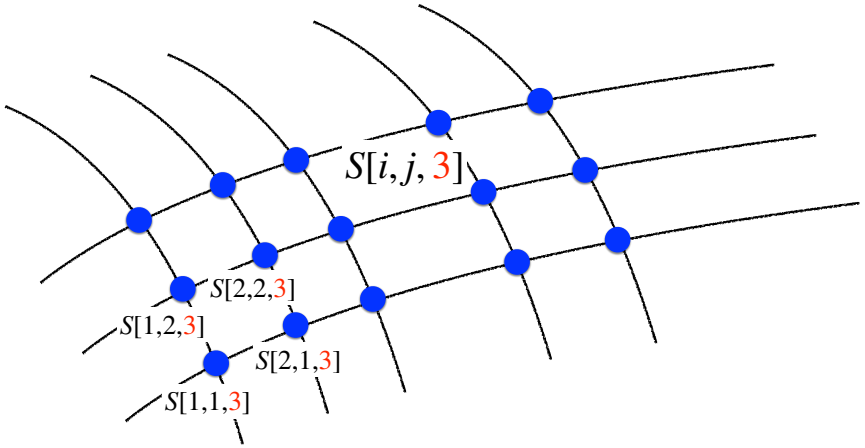
Example: Pauli X on Each Qubit



Operators Acting on the Qubit

- $S[i, j, 0] \rightarrow$ Identity
- $S[i, j, 1] \rightarrow$ Pauil X
- $S[i, j, 2] \rightarrow$ Pauil Y
- $S[i, j, 3] \rightarrow$ Pauil Z
- $S[i, j, 6] \rightarrow$ Hadamard operator
- …

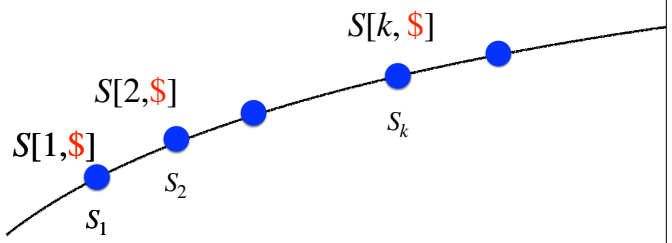
Example: Pauli Z on Each Qubit



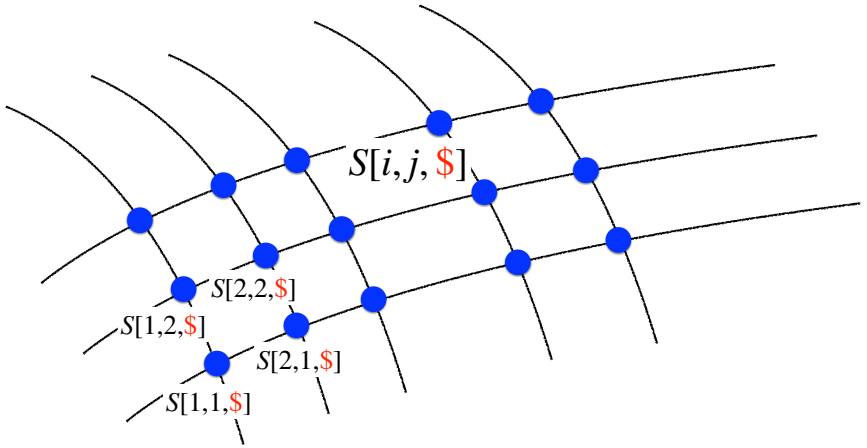
Special Flavor Index $

A Special Flavor Index $

$$S[\overbrace{k_1, k_2, \cdots, \$}^{\text{flavor}}]$$
$$\underbrace{\qquad\qquad}_{\text{name}}$$



A Special Flavor Index $



여러 큐비트를 한꺼번에 표시하는 법

감사합니다!