

Notation and Terminology

Basic:

- \mathbb{C}^2 = Hilbert space of dim 2 ("qubit")
- \mathbb{C}^d = d -dim Hilbert space ("qudit")
- $\mathcal{H}^{\otimes n} \equiv \bigotimes_{i=1}^n \mathcal{H}$ e.g. n -qubits: $(\mathbb{C}^2)^{\otimes n}$
- $\text{span}\{|\psi_i\rangle\}$ = linear subspace spanned by $|\psi_1\rangle, |\psi_2\rangle, \dots$
- Big-O notation:
 - $f(x) = \mathcal{O}(g(x))$
 $\Leftrightarrow \exists c, n > 0$ s.t. $\forall x > n: f(x) < c g(x)$
 - $f(x) = \Omega(g(x))$
 $\Leftrightarrow \exists c, n > 0$ s.t. $\forall x > n: f(x) > c g(x)$