

### introduction

- A bit of math.
- Some of the major players.





# Vectors and Matrices Vectors are "columns"

## Qubits

- Spin
- Trapped Atoms and Ions
- Photons
- Superconducting Circuits



### Some Quick Notation

- The Greek letter Psi  $\Psi$
- Dirac notation, including "bra" (0| and "ket" |0)
- You might see Psi in a "ket" like so  $|\Psi\rangle$







### Quantum Supremacy

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.



### Quantum KDCs

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.





## Google

- so many free resources!
- The "cirq" module for Python.



DWave • What is cirq? IBM

 $\bullet\,$  Souds of IBM Quantum



# Amazon • amazon-braket-sdk