Resources

A collection of resources for math, computer science, and quantum enthusiasts

Quantum Information Science

Quantum Algorithms

Survey Articles

- **Quantum algorithms for algebraic problems** by Andrew M. Childs and Wim van Dam

This is an excellent source for learning about a large class of quantum algorithms that are similar to the seminal algorithm by Peter Shor for factoring integers. My suggestion to beginners is to start with reading Appendix B, then move on to Section III.[1]

[1] Childs also has a set of lecture notes on quantum algorithms that may be helpful in reading this survey.

ZX-Calculus

Survey Articles

- **ZX-calculus for the working quantum computer scientist** by John van de Wetering

A wonderful easy-to-read and succinct introduction to ZX-calculus. If you are completely new to ZX, I believe that reading Section 3-6 and Section 10 will give you an idea of what ZX-calculus is and how it is useful.

Quantum Information Theory

Courses

- A short course on quantum information theory by Omar Fawzi

Quantum Complexity Theory

- **Quantum Computational Complexity** by John Watrous
- **Quantum Hamiltonian Complexity** by Gharibian et al.
- **Quantum Proofs** by Thomas Vidick and John Watrous