

量子計算的數學基礎

MA5501*

量子計算的數學基礎 - MA5501*

Course website: <http://www.math.ncu.edu.tw/~cchsiao/Course/>

Office: 鴻經館 310

Office hour: By appointment

Email: cchsiao@math.ncu.edu.tw

Grade:

- 1 midterm + 1 final (紙筆測驗) = 60%.
- 2 Homework assignments = 40%.

課程目標:

- 1 瞭解量子電腦的運作原理，並能清楚認知現代電腦與量子電腦的差異；
- 2 學習量子計算中所需的數學工具，並能使用數學去驗證量子電路；
- 3 熟悉並理解一些經典的量子演算法，並具備自學其它量子演算法的能力。

Textbook: textbooks can be downloaded from the course website

- ① **Quantum Computing: Lecture Notes** by **Ronald de Wolf**
- ② **Lecture Note - Supplementary Material**

Reference:

- ① Mathematics of Quantum Computing - An Introduction by Wolfgang Scherer
- ② Quantum Computing and Quantum Information by Michael A. Nielsen & Isaac L. Chuang
- ③ Exploration in Quantum Computing by Collin P. Williams
- ④ Qiskit Textbook