

# 國立清華大學數學系學術演講

## NTHU MATH Colloquium

講題 Toward Large-scale Fault-tolerant Quantum Computing

講者 賴青沂教授 ( 陽交大電機 )

時間 2022.09.19 (Mon.) 16:00 – 17:00

地點 第三綜合大樓**2樓 Room 201** ( 請同學配戴口罩 )

茶會 15:30, Room 707

### Abstract

A quantum computer is a device that exploits the effects of quantum mechanics, such as entanglement and superposition, to do computation. Quantum computation promises computing power beyond the capability of today's computers.

However, quantum states are vulnerable and quantum gate operations are imperfect. Techniques of quantum error correction are necessary for implementations. I will talk about how to physically build a quantum computer with faulty components to achieve the so-called fault-tolerant quantum computation. Recent experiments and developments around the world will be covered.