Invited Talk Abstract

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Online Learning of Quantum States with Logarithmic Loss

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Date	July 29, 2026
Time	14:30–15:00
Session	Session 7
Venue	S102, Lecture Hall, Gong-Guan Campus, NTNU

Abstract

The problem of online learning of quantum states with logarithmic loss arises naturally in quantum state tomography, a task that is essential for building reliable quantum computing units. In terms of mathematical structure, it is a quantum generalization of, and hence more challenging than, online portfolio selection, a famous open problem in online learning for more than three decades. In this talk, I will introduce this problem, characterize the optimal regret rate for it, and provide an algorithm that is nearly regret-optimal. I will then discuss some applications of these results beyond quantum state tomography.