

Optimization and error analysis in quantum tomography, and quantum autoencoders

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This colloquium will be held in **HYBRID format**.

On-site Venue: [Wako C61](#) Wako Welfare and Conf. 2F Large Meeting Room

Online Venue: Zoom. To receive the link, register in advance at

https://krs2.riken.jp/m/rqc_registration_form

Quantum technology is a promising future technology where unique quantum characteristics are taken advantage of to develop faster computation, securer communication, and high-precision sensing than their classical (non-quantum) counterparts. Quantum tomography is a fundamental task for developing powerful quantum technology. In this talk, we will first introduce several results on optimization, adaptivity, and error analysis in quantum state tomography, quantum detector tomography, quantum Hamiltonian identification, and quantum process tomography. In particular, we will present several error bounds and show how to design adaptive algorithms to achieve optimal scaling. Then we will introduce learning control for quantum autoencoders which are an important tool for quantum data compression.