

Measuring the quantum state of superconducting qubits

Prof. **Alexandre Blais**

Institut Quantique, Université de Sherbrooke



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

Venue: Okochi Hall @RIKEN, and Zoom

To attend online, register at https://krs2.riken.jp/m/rqc_registration_form

By exploiting effects such as quantum superpositions and entanglement, quantum computers could in principle solve problems that are intractable for standard, classical, computers. While building a full-scale quantum computer capable of rivaling with today's supercomputers remains a challenge, the last few years have seen tremendous improvements in our ability to build small superconducting quantum processors and to run simple algorithms on these processors. Despite these advances, to reach the threshold for fault-tolerant quantum computation it remains crucial to improve all of the components and operations of these devices. In this talk, I will discuss one of the fundamental operations of any quantum computations: the measurement of quantum information stored in superconducting qubits. I will review the current approach, highlight the difficulties encountered in improving this process, and introduce new ideas to make fast and high-fidelity qubit measurements.