

Development of superconducting quantum computer at QIQB, Osaka University

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Abstract

In the last decade, there has been a worldwide flurry of activity in the development of superconducting quantum computers. Recently, systems with a scale of around 100 qubits have been announced, and research for further large-scale integration is underway. In Japan, RIKEN, Fujitsu, and Osaka University have announced the development of superconducting quantum computers that can be controlled from the cloud, independently and successively, in 2023. All of these systems use the same 64-qubit chips developed by RIKEN, and the microwave control devices that use technology developed by Osaka University. The RIKEN and Osaka University systems also use a cloud system developed by Osaka University and others. In this talk, we will briefly explain the structure and performance of the 64-qubit superconducting quantum computer at QIQB, Osaka University, and then report on our recent research efforts using the system.