

## **Precision-guaranteed estimation of quantum circuits by means of quantum tomography**

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In this report we present a general approach for estimating quantum circuits by means of measurements. We apply the developed general approach for estimating the quality of superconducting and optical quantum chips.

The use of Fisher information matrix in the task of precise quantum tomography is studied. The monitoring of quantity of information about the quantum states and quantum processes parameters, including the loss of information caused by the impact of quantum noises is considered. The study of achievable fidelity that could be obtained in different conditions is performed. The results of fidelity characteristics analysis, performed for a wide range of quantum tomography protocols are presented.

The results of this research are of practical value for the tasks of provision of quality and effectiveness of quantum information technologies.