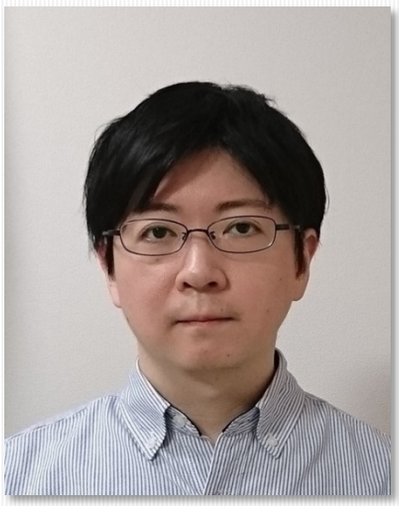
6th RQC Seminar

Towards fault-tolerant quantum computation with optical continuous variables

Dr. **Kosuke Fukui**

福井　浩介 特任研究員

Department of Applied Physics,
The University of Tokyo
東京大学 大学院工学系研究科物理工学専攻



January12, 2022(Wed) **16:00～17:00**(JST)

Optical continuous variables have recently gained more attention due to its unique features for scalability and error correction techniques. In continuous variable systems, the Gottesman-Kitaev-Preskill qubit is a promising tool to implement fault-tolerant quantum computation by taking advantage of a bosonic Hilbert space. In this talk, I will provide our theoretical contributions to the improvement of error tolerance with the GKP qubit by a hybrid error correction procedure using digital and analog Information. I will also present several potential approaches for generating the GKP qubit and will introduce the complementary directions for fault-tolerant quantum computation with bosonic qubits by using near-term technologies such as cross-Kerr interaction and photon number resolving detectors.

Contact Information: Quantum Many-Body Dynamics Research Unit, RQC
お問い合わせ：RQC 量子多体ダイナミクス研究ユニット