Recent developments of fluxonium type superconducting qubits

Yen-Hsiang Lin
Dept. of Physics, NTHU

Quantum superconducting circuits built upon Josephson tunnel junctions have emerged as a leading platform in the field of quantum information. Among these circuits, the fluxonium types of superconducting qubit stands out for its remarkable properties, facilitated by the insertion of a large inductance. These properties include long coherence times, a rich multi-level spectrum, and significant anharmonicity. In this presentation, I will provide an overview of the distinctive features of fluxonium qubits and discuss recent developments in this area. Topics of discussion will includes enhancements of coherence times, inducing qubit-qubit interactions, and strategies for scalability towards quantum processing. Additionally, I will outline ongoing efforts at NTHU in the development of fluxonium qubit-based devices.